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REAUTHORIZATION OF TEA–21

HEARINGS

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION, INFRASTRUCTURE, AND NUCLEAR SAFETY

AND THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

ON

REVIEW OF PROPOSALS TO REAUTHORIZE PUBLIC LAW 105–178, THE TRANSPORTATION EQUITY ACT FOR THE TWENTY–FIRST CENTURY

JANUARY 24, 2002
FEBRUARY 11, 2002
MARCH 19, 2002
MAY 15, 2002
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[1]NOTE: During the second session of the 107th Congress, Senator Ben Nighthorse Campbell of Colorado resigned from the committee, and on April 23, 2002, Senator Pete V. Domenici of New Mexico was appointed to fill the vacancy.

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REAUTHORIZATION OF TEA–21

THURSDAY, JANUARY 24, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
WASHINGTON, DC.

PERSPECTIVES FROM THE FEDERAL, STATE, AND LOCAL LEVELS

The committee met, pursuant to notice, at 9:33 a.m. in room 406, Senate Dirksen Building, Hon. James M. Jeffords (chairman of the committee) presiding.

Present: Senators Jeffords, Smith, Campbell, Inhofe, Crapo, Chafee, Warner, Baucus, Corzine, and Reid.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. The committee will come to order. Good morning and welcome to this the first in our series of hearings on reauthorization of the Nation's Surface Transportation Program.

Our nation's transportation system is one of the best in the world. Nearly every American relies upon our roads, bridges, highways, or mass transportation to get them where they need to go. But this reliance can also be a source of great frustration in the lives of our citizens.

As we open our first of 11 hearings on this matter, we begin a process that will examine what works and what does not work, and our nation will be better off for the exercise.

The Committee on Environment and Public Works has primary responsibility for the reauthorization process. EPW has a distinguished record of service in this regard; most recently and most importantly, through its work under Chairman Moynihan in 1991 and Chairman Chafee in 1997.

Their leadership unified the committee to produce the Intermodal Surface Transportation Efficiency Act, referred to as ISTEA, and the Transportation Equity Act for the 21st Century, TEA–21. I intend to continue this effective bi-partisan tradition during 2002, and on toward the reauthorization in 2003.

Our committee today includes many distinguished participants from those prior authorization efforts. Senators Warner, Smith, Inhofe, Bond, Baucus, Reid, Graham, Lieberman, Boxer, and Wyden have all been key contributors in the past, and I look forward to using their wisdom and experience during the coming months. I, too, had the honor to serve on the committee during the enactment of ISTEA.

In TEA–21, we have inherited a transportation policy and program that is basically sound. Our task this year will be to refine and evolve the program, based on the lessons learned over the past 10 years. We also examined the current and projected state of our transportation system, and the demands that it must meet.

Along with Ranking Member Smith and Subcommittee Chairmen Reid and Ranking Member Inhofe, I have announced an ambitious hearing agenda for the coming year. Hearings will be held at both the full and the subcommittee level.

This will be a year-long dialog with the many stakeholders in the transportation community. We will seek the best ideas from the brightest minds. We will hear from government, industry and system users. My goal is an inclusive process, open to all points of view from all parts of the nation.

With Senator Reid and Inhofe at the helm, members of our Transportation Infrastructure Subcommittee will examine the transportation program in detail. There will be technical brain trusts. We will also work very closely with other Senate committees' jurisdiction for reauthorization: Banking, Budget, Commerce and Finance.

EPW will be the workshop for crafting the next authorization language. I invite proposals from my many colleagues on the wide range of issues that will make up the final committee package. I offer this committee as the forum for blending these proposals. As chairman, I extend my good offices to achieve that blend.

A few common threads run through our upcoming hearing projects. These include safety and security, economic growth, community enhancement, and the balancing of interests. These are challenging matters, made more difficult by our nation's current financial uncertainties.

In fact, concern over future resources unites all the stakeholders in transportation. Success will require strength through unity. This committee will provide a common ground.

The nation's transportation program is a model of effective federalism. The program is de-centralized, collaborative and flexible. It draws on resources from Federal, State, local, and private sources. In recognition of this, we are joined today by our partners from the Cabinet, the States, and local government.

Our hearing today will begin with the Honorable Norman Mineta, Secretary of the U.S. Department of Transportation, and my close colleague in the House. Norm has taken a break from inspecting the baggage at BWI to join us this morning, and we appreciate that.

[Laughter.]

Senator Smith, Secretary Mineta will be followed by a panel of elected officials from around the country. Bob Wise, the Governor of West Virginia, unfortunately was scheduled to be here, but his plane is grounded. So he will not be here, but we will have his testimony.

Bob also served with me in the House, and served on the House Transportation Infrastructure Committee. So he knows a thing or two about the reauthorization.

Commissioner Chris Hart of Hillsborough County, FL, will represent the National Association of Counties. Chris chairs a NACo Transportation Committee.

Boise, Idaho Mayor H. Brent Coles will represent the U.S. Conference of Mayors. He is the immediate past president of the conference.

Finally, from my great State of Vermont, my friend, Burlington Mayor Peter Clavelle will represent the National League of Cities. I am especially pleased to welcome a fellow Green Mountain Boy to these proceedings. In Vermont, we put a high value on balancing our environmental concerns and our transportation needs. I pledge to move forward on the bill, which will encompass a balance in the years to come.

I am pleased to be joined by such very knowledgeable witnesses. We will need their wisdom when we reconsider the authorization here.

I want to know how our transportation policy works for Americans, for voters, for customers, users, citizens, and constituents. I want to know how the program is blended with other public objectives, social, environmental, and economic.

Finally, I want to explore the ways to best meet future challenges. I look forward to our distinguished witnesses coming forth. But let me now turn to my good friend, Bob Smith.

OPENING STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Senator SMITH. Well, thank you very much, Mr. Chairman, and good morning, Mr. Secretary. It is always a pleasure to see you here.

I want to just point out, as you did, Mr. Chairman, that this is the first in a series of hearings that we are going to be having for the reauthorization of the so-called Transportation Equity Act, or TEA–21. It is a lot of work. We have a lot more to do.

I can remember 4 years ago, I was a member of the conference committee on the TEA–21 legislation. We worked hard. I think we did some good things, and there is always room for criticism, I guess. But I feel that overall, we did a good job with this legislation, and we made some significant changes.

Over the next year or so, as we prepare for this reauthorization, this is really one of the most significant things that Congress does. Virtually every American, in one way or another, is impacted by either a car or a road. Our economy is so closely linked with the capabilities of our transportation system, it just takes on huge importance. It is vital to each one of our States, as well as us, personally.

What you hear most often about TEA–21 is that it provided for about a 40 percent increase in transportation funding over the previous law, which was called ISTEA.

But another highly touted feature was that it provided funding guarantees, so that the tax revenues that came into the trust fund would be spent on transportation, which is the way it should be.

But some of the cornerstone achievements of TEA–21 unfortunately appear to be threatened by the shortfalls in the so-called RABA calculations revenue-aligned budget authority. There is a $5

billion reduction predicted there from TEA–21's guaranteed levels, if you will, for fiscal year 2003.

We could not really anticipate, and I have never run into anybody yet, that could totally predict what the budget is going to be on a given year. But this issue has enormous unintended consequences, and I think you know, Mr. Secretary, that we are all going to have to deal with it.

But I appreciate your sharing these calculations with us in the past few days, in the interest of honesty here, so that we have some time to digest the impact before the release of the President's budget, and we really appreciate that. We will treat it in that spirit, as well.

We are going to be having a hearing very soon, after the budget is released, I know, Mr. Chairman, to explore in detail the revenue forecasts, the firewall principles, and the RABA mechanism. But for now, I have just asked my staff to thoroughly examine the provisions with the help of the documentation that you have provided us, Mr. Secretary, so we can adopt or develop a prudent course as we move forward on this bill.

I want to briefly bring three points to the attention of the chairman and my fellow committee members and the Secretary on some areas that I think we are going to have to focus a good deal of effort on, and it is something that I have been involved in.

First is environmental streamlining. It is a very important issue, because it oftentimes is unintended—sometimes intended, I suppose—and slows down and increases the costs of many of the highway projects in our country.

We are working on a pilot, if you will, in New Hampshire, on the I–93 corridor, where we have everybody sitting down periodically and talking and working together, so that we do not have to do this sequential business; but we can rather work together. It is working very well. It is just a widening project, but it is a little more than that. There are some other things that have to be involved there.

It is working, and I think with this streamlining, we are trying to make the streamlining language, which I helped to draft, work in a way that is productive. I think it is working. But if the project is consistent with environmental protection, then it should not be subject to excessive delays, and oftentimes, it is.

The second area that I will be focusing on is that of the freight movement in this country and the capacity. From 1990 to 1998, there was a 22½ increase in vehicle miles traveled. During that same period, there was only a 1 percent increase in the number of lane miles on the roadway.

So transportation is not just about accommodating commuters. It is also a very efficient system, vital to moving consuming goods from one part of our country to the other. If we neglect this issue, it is going to have even more of a negative impact on our economy.

Finally, let me mention briefly the issue of air quality. There are some loose ends that remain from some of the court decisions on this issue. Myself and other members of the committee want to work closely with the U.S. Department of Transportation and EPA on resolving these loose ends, so called, so that we can accomplish our air quality goals, without burdening the transportation community, or causing unnecessary delay.

I do not believe we have to burden or cause unnecessary delay to meet those standards. It is about cooperation and partnership, rather than confrontation.

So I look forward to working with you, Mr. Secretary, on those issues. Again, I thank you for coming here today, and thank you for your strong commitment to our nation's transportation system, and thank you for serving; and thank you, Mr. Chairman, for holding this hearing.

Senator JEFFORDS. Well, thank you for a good statement.

Senator Reid.

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. Thank you very much, Senator Jeffords. I appreciate your recognizing me. I have to get back to the floor by 10 o'clock.

This is the first in a series of hearings reauthorizing our Nation's Surface Transportation Program. I am happy to be able to chair the Transportation Subcommittee. I recognize that that was given to me by virtue of Senator Baucus, who is heavily engaged in other matters. I appreciate that very much.

I look forward to working with you, Mr. Chairman, Senator Smith, and of course, Senator Baucus, who has to be an integral part of anything that we do in this legislative session with this bill; not only because he has chaired this full committee in the past, but also because he is chairman of the Finance Committee.

As some of you will soon recognize, if we are going to be able to do the things that need to be done with transportation in this bill, we are going to have to get some help from the Finance Committee, because of the monetary shortfall that we have.

The problems in Nevada, I think, are representative, but to an exaggerate point, of the problems that we have in America today. We are a very large State; the sixth largest State in the Continental United States, seventh now with Alaska.

We have not only wide areas; the length of the State is some 700 miles long. We have growth in Southern Nevada that is 10,000 a month coming in to that area. We have really serious, serious problems that we need help with.

I recognize the budget shortfall that we are going to have unless something changes. In the State of Nevada, if things go the way they are, we will have a budget shortfall of about $60 million in just highway transportation funds. That is a significant amount of money in a Highway Bill for a State like Nevada.

But having said that, it is our job to build upon the successes of ISTEA and TEA–21, and protect the gains, identify the weaknesses, and improve our transportation system.

Throughout this hearing process, we are going to look at ways to meet the transportation challenges of a new century. Chairman Jeffords and I have worked together so that we are going to have about one hearing a month, the full committee or the subcommittee.

We want to make sure that people who have concerns about transportation in this country have an opportunity to voice their opinions. We will investigate how multi-modal approaches can help

us address transportation problems and improve mobility. We will examine the physical condition of our highways; the bridge infrastructure.

We will study the transportation sector's impact on the economy and the environment. We will look for innovative approaches to transportation problems.

Last fall, I worked very hard in trying to come up with an infrastructure investment package for purposes of having a stimulative effect to this economy. There is nothing that stimulates the economy more than road building. It is very, very labor intensive.

Every billion dollars means 42,000 new jobs. Every person who has a job is paying taxes. They are buying homes, cars, refrigerators. We need to do whatever we can to stimulate that sector of our economy.

Having said all that, I hope that we have the resources that we need to meet the demands of Nevada and the rest of this country.

Mr. Chairman, I appreciate your courtesy, and I will ask unanimous consent that my full statement be made part of the record.

Senator JEFFORDS. It will be admitted.

[The prepared statement of Senator Reid follows.]

STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVEDA

Welcome to the first in a series of hearings on the reauthorization of our nation's surface transportation program. I am pleased to have the opportunity to chair the Subcommittee on Transportation, Infrastructure and Nuclear Safety and look forward to working closely with Senator Jeffords and other members of the committee to write the legislation reauthorizing the Transportation Equity Act for the 21st Century, known as TEA–21.

This legislation is critically important to each of our States and to the Nation as a whole. I represent Nevada, the fastest growing State in the country, and I have seen how such rapid growth has placed tremendous demands on our road system and our entire transportation infrastructure. I understand the problems and needs of Nevada, and that's why I will continue to provide leadership on this issue. I want to make sure that in my State and across America we have a transportation system that promotes economic growth, improves safety, enhances quality of life, and protects the environment.

Ten years ago, the Intermodal Surface Transportation Efficiency Act B ISTEA—revolutionized transportation policy. TEA–21, enacted in 1998, maintained the principles of ISTEA while bringing significant new resources to our highway and transit infrastructure. TEA–21 shifted 4.3 cents of the gas tax from the General Fund to the Highway Trust Fund and created the budgetary firewalls which ensure that all revenues into the trust fund are dedicated to transportation investments.

Now it is our job to build upon the successes of ISTEA and TEA–21—to protect the gains, identify the weaknesses, and improve our transportation system.

Throughout this hearing process we will look at ways to meet the transportation challenges of a new century.

- We will seek to use new technologies to improve operations, alleviate congestion and enhance security in metropolitan areas;
- We will investigate how multi-modal approaches can help us address transportation problems and improve mobility;
- We will examine the physical condition of our highway and bridge infrastructure;
- And we will study the transportation sector's impact on the economy and the environment;

As we look for innovative approaches to transportation problems, we must recognize that ensuring adequate funding will be perhaps our biggest challenge.

Last fall, I was the leading proponent of including infrastructure investment funds in the economic stimulus package. My view was, and still is, that investing in our infrastructure creates jobs and economic activity in the short-run and results in permanent improvements that also benefit our economy in the long run.

Unfortunately, in Fiscal Year 2003 we face a $9 billion decrease in highway funding. This is just the opposite of an economic stimulus B it is more of an economic

depressant. This loss of funding is of great concern, especially during a recession, and in the long run will diminish the productivity of our transportation sector. I hope that the President's budget will somehow consider this important economic issue. It will continue to be a top priority for me.

The Transportation, Infrastructure, and Nuclear Safety Subcommittee that I chair will hold a hearing devoted to the fiscal year 2003 Federal Highway Administration budget proposal and TEA–21 reauthorization in February. I look forward to addressing funding issues in much greater detail at that hearing.

For now, I am very pleased with the excellent slate of witnesses we have on hand for this opening hearing to provide the committee with perspectives on reauthorization from the Federal, State, and local level. Mr. Secretary, I welcome you here today. We could ask for no better partner in this process and I am delighted at the opportunity to work with you again. I look forward to your testimony.

Senator JEFFORDS. Senator Campbell.

OPENING STATEMENT OF HON. BEN NIGHTHORSE CAMPBELL, U.S. SENATOR FROM THE STATE OF COLORADO

Senator CAMPBELL. Thank you, Mr. Chairman, and I apologize for being late. Has the Secretary made his statement yet?

You have not? We are still rattling around. I would rather listen to him speak than hear myself. I have been a friend of Norm Mineta for years and years, serving with him in the House. We also have a connection in San Jose, where we both spent an awful lot of years.

I would like to say that if you look at the numbers, Nevada, where Senator Reid hails from, is the fastest growing State; Arizona, second, and Colorado, third. Because we are such fast growing States, the importance of a new Highway Bill is going to take on huge proportions.

When we passed TEA–21 in 1998, the total overall funding represented a 40 percent increase over the previous authorization. But for Colorado, it meant a 52 percent increase over the money that we had received before that, to the tune of about $100 million more than we had gotten.

Certainly, we were grateful for that and put it to good use. But it seems like in those fast growing western States, we are always behind the curve. No matter how much money we put into transportation, we still need more, because of the influx of people.

I personally believe, as Senator Reid does, that we need to concentrate a great deal on highway development. It seems to me that we ought to be learning more from those countries who have had such great success with moving people like Japan has, as an example, with light rail and fast rail and alternative ways of moving people.

Because I am beginning to think that you cannot simply build your way out in these high growth areas; just build your way out of things by adding more and more lanes, which just seems to increase more an more congestion. So I would hope as we move along, we put emphasis on alternative ways of moving people.

Last, Mr. Chairman, just let me say that I am particularly interested, and I do not know if the Secretary is going to say anything about this today, but we reached kind of a compromise agreement last year on the issue of Mexican trucks coming into America.

As we move along this year, I am going to be very interested in seeing how that is going to develop, and what kind of problems it has created and what kind of problems it has solved with that com-

promise. So with that, just let me say welcome, Norm. It is very nice to see you again, and I look forward to working with you.

[The prepared statement of Senator Campbell follows:]

STATEMENT OF HON. BEN NIGHTHORSE CAMPBELL, U.S. SENATOR FROM THE STATE OF COLORADO

Mr. Chairman, Senator Smith, I would like to thank you for scheduling this important hearing. I would also like to welcome these distinguished panels and thank them for taking the time meeting with us today.

As we begin this new year, the country faces many challenges. Among these includes the transportation crisis in this country.

Each year, traffic congestion costs the United States billions of dollars. As Mayor Coles will discuss in his testimony, the Western United States is booming. However, along with growth and progress come growing pains that many States have been dealing with for many years.

The passage of Transportation Equity Act for the 21st Century (TEA–21) in 1998 has helped solve many of the transportation problems across the country. The overall total funding in TEA–21 represents a 40 percent increase over the previous authorization Intermodal Surface Transportation Efficiency Act (ISTEA), which was enacted in 1991. Under TEA–21 Colorado saw a 52 percent increase over the State's ISTEA distribution. With the Federal funds that were authorized in TEA–21 by this committee and appropriated by the Senate Appropriations Committee, upon which I also serve, the Colorado Department of Transportation has moved from a $200 million annual budget to more than a $300 million annual budget.

This higher level of funding has allowed COOT to move forward with transportation projects that would not have been able to be completed without TEA–21. In fact, the COOT has been able to take advantage of innovative financing techniques, which were also authorized by this committee, to allow them to accelerate many projects.

For example, the Federal Grant Anticipation Revenue Vehicle (GARVEE) Program has allowed COOT to accelerate 28 key Strategic Projects statewide. Many of the projects would have taken 50 years to complete. What the Federal program has allowed COOT to do is accelerate completion of those projects to under 10 years, a substantial cost savings.

However, recent budget projections predict a $4.9 billion shortfall from what was originally predicted in the fiscal year 2003 budget and over $9 billion less than what was allocated in the fiscal year 2002 budget. This budget shortfall will be a challenge to all of us as we move forward on this first step to re-authorization. I look forward to working with this committee on a wide range of priority topics over the course of the year and welcome input from all levels of government, system users and private industry.

Thank you Mr. Chairman.

Senator JEFFORDS. Senator Baucus.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. Thank you very much, Mr. Chairman. It is a real pleasure to be with you today. I very much commend you and the leadership of this committee for setting out a very ambitious and aggressive hearing schedule.

It is my experience, frankly, that the more we begin early with hearings and deeply examine the various aspects of this issue, the more likely it is that we are going to have a good product when we reauthorize this bill, I might say with some bemusement, in another Congress. Nevertheless, it is very important this year to get all this out and have the hearings.

I would remind you that we did get a significant increase, as we all remember, last year from the previous Highway Bill, because of the diversion of the 4.3 cents from general revenue into the Highway Trust Fund.

That gave us a big shot in the arm. On average, each State got about a 40 percent annual increase in highway fund. At that time, we had the assistance of Senator Byrd, Senator Graham, and the others who were very helpful in making that change.

With the problems with so-called RABA, it is apparent that we are going to have to look for other ways to increase revenue to the trust fund. I have some ideas on how to do that.

In addition, we might look at potential greater use of the trust fund to get additional obligation authority, to make sure no State gets a cut or reduction in highway funds, and perhaps even may get an increase. Mr. Secretary, I hope at the appropriate time you can address the degree to which you think that is appropriate.

Highways are the life blood of my State, Montana. We have more Federal highway miles per capita than any other State in the nation. We have more than Alaska, but of course, Alaska does not have quite the number of people that we do, and not the number of highways, either, because you fly in Alaska; you do not travel the road. But nevertheless, we have more Federal highway miles per capita than any other State.

The program provides about 11,000 jobs in Montana. Those are high paying jobs. They say that because, regrettably, Montana has slid from about tenth in the nation in per capita income in 1946 to now, depending on how you calculate it, 50th, 49th, or 80th. So these are jobs that are good paying jobs. It makes a heck of a difference to say nothing about the greater ease of transportation in our State.

I look forward very much, Mr. Chairman, to working with you under your leadership on the committee. I plan to introduce a bill in the next period of time, but I am not exactly sure when it will be.

It will be some what of a western States' bill, but I want to underline here and emphasize that it is going to be a national bill, too. I do not want to introduce legislation that is going to work to the detriment of other parts of the nation.

In the last Highway Bill, TEA–21, essentially we worked very well. It was myself, representing primarily the western States, and our good friend, John Chafee, representing the northeastern States, and Senator Warner, the daughter States. We had meeting after meeting after meeting, with formula change after formula change after formula change.

But we finally worked it out, after lots of different meetings, and so on and so forth. There is no doubt in my mind that you are going to have the same approach, which worked very well.

I might say also that on the Finance Committee, I am going to be holding hearings on all the trust funds, looking at ways to, first of all, examine them taking stock, but also ways, particularly with respect to the Highway Trust Fund, to see if we can find additional dollars. Again, as I mentioned, I have some ideas how we can place more dollars into the trust fund.

I mentioned the RABA situation. We have got to address that. I want to commend my good friend from New Hampshire in mentioning environmental streamlining. I know members of this committee will remember a couple 3 years ago when we were quite concerned with the inadequate environmental streamlining.

We asked the department to come up with some streamlining of environmental regulations, and my gosh, they came back with a flow chart that would make the flow chart of the whole committee system in the Congress look like a grapevine.

It was so complicated that it made things more worse than better. I, therefore, think, Mr. Chairman, that the real answer to environmental streamlining is for us, in legislation, to be much more specific. I have some ideas there, which I will include in my legislation, on how to deal with environmental streamlining, because it is a huge problem particularly, I know, in western States.

But the main point, Mr. Chairman, is just I really commend you. You have got a great schedule outlined. You have got a reputation of really working together, and I pledge to work with you and also on the Finance Committee, to try to help this committee do its jobs with extra revenue.

[The prepared statement of Senator Baucus follows:]

STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE MONTANA

Thank you Mr. Chairman. It is my pleasure to be here today to discuss the reauthorization of a law that I am privileged to have helped write. Along with Senators Warner and Chafee and others on this committee and on other committees, we hammered out a bill that I believe was equitable to all States and that served this nation's transportation system well.

TEA–21 staked out new ground by putting into law the requirement that all gas tax revenues be devoted to highways. Some of the members in this room were instrumental in achieving that goal. Now I don't have to remind you of the difficult debates we had over funding formulas among the three main groups, northeast States, donor States, and western States. But in the end, we achieved a bill that was supported by the vast majority of Senators. So the final result, while not perfect, was a good compromise and was broadly supported.

I look forward to working with the leadership on this committee and other committees to develop a new highway bill that will help to continue many of the ideas that TEA–21 began—the integrity of the Trust Fund, the budget firewalls and an equitable distribution of formula dollars.

I plan to hold hearings on the Finance Committee addressing the balances in the Highway Trust Fund and on innovative ways of financing transportation projects.

I plan to use my role as chairman of the Finance Committee to gain more funding for the program and to protect the Highway Trust Fund. As always I am committed to highways and to the Highway Trust Fund.

I personally have several ideas about what I would like to see in a new bill and as I do for every reauthorization, I will be introducing a highway bill in the coming months. I have been working with the Montana DOT and other western States to develop ideas for the next several years of highway policy. I assure you that my bill will not serve the West to the detriment of other States. Quite the contrary. My bill will be a national bill and a decidedly pro highway bill.

Once again, I look forward to being very active and assisting the leadership of this committee as much as I can, as we embark on this new chapter in highway law. There is something of concern that I would like to mention here today, particularly in the presence of our distinguished Secretary of Transportation. It has come to my attention that because of various factors, the RABA for this year will be negative. In fact I have heard predictions that we are looking at a program that is $9 billion less than the fiscal year 2002 program. We must do something about this. We cannot go into the next reauthorization with such a low baseline. If this is in fact the case and we are looking at a lower program over the next few years, I would support the influx of new obligation authority to the States for the next 2 years. This would prevent the base numbers for the next highway bill from going down too much. I hope that Secretary Mineta will address this in his remarks today and that this committee, the Finance Committee and the Administration can work together to alleviate this problem that will plague our reauthorization efforts if not addressed.

I look forward to today's hearing and future hearings as we prepare for the next reauthorization.

Senator JEFFORDS. Well, thank you, and I look forward to working with you.

Senator Inhofe.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Mr. Chairman.

Between the comments from the Senator from Montana on RABA and the problem, and I was going to get into that, you have pretty much said what my feelings are. The announcement on January 18 that it could be a negative RABA is something that we are going to have to deal with, and we have some problems there.

I have to also say that I spent 8 years in the House, working under the supervision of and working for Secretary Mineta. We have always worked very closely together. Quite frankly, I was thrilled when I heard the announcement that you were going to be our Secretary of Transportation.

You will remember, the years that we spent trying to do the very thing that was accomplished in TEA–21, and that is to assure that all these highway dollars, the Highway Trust Fund, was going to go to highway projects.

We have accomplished a lot of that. We have accomplished a lot of the problems with donor States, that Oklahoma was certainly in an awkward situation on; and also for the flexibility to allow the States and the cities and local jurisdictions to participate in this process in a way, and I think this hearing shows that.

We are going to have input from people that are closer to the problem, back in the States. That has always been consistent with what you have stood for and what we have stood for, back in the 8 years that we have worked together.

So I am looking forward to continuing this, after this first hearing, and actively trying to do something to address the serious problems that we have, that we have talked about this morning.

Thank you, Mr. Chairman.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Thank you Mr. Chairman. As you have indicated, today is the first of series of hearings to prepare us for reauthorization of the Federal Highway Program. I look forward to working with you and our colleagues to further the progress made in TEA–21 for greater flexibility and allowing States to keep more of their gas tax dollars. As we begin the reauthorization process, I am anxious to hear from our State and local partners how we at the Federal level can assist them in meeting their unique transportation needs.

One such need that is universally felt is mobility. Not only is it important to increase mobility for personal travel, but we must also address the critical congestion choke points affecting freight movements. Continue economic growth depends on an efficient and cost effective transportation system, which includes the movement of people, goods and services.

The challenge before us will be to increase capacity without increasing costs by making better use of existing resources. Nothing better illustrates this point than the announcement on January 18th that the President's budget for fiscal year 2003 will report a negative RABA. [Revenue Aligned Budget Authority] As devised, RABA's purpose is to protect the principal that every dollar into the Highway Trust Fund is spent on highway transportation projects as opposed to accumulating large balances as was the practice prior to TEA–21. Up until this point, we have enjoyed a positive RABA which has meant more spending on transportation infrastructure

than estimated by TEA–21. Just as RABA provides for windfall it also means we could have a situation where TEA–21 estimates overstate actual revenues received. It would appear that is the case for fiscal year 2003.

Not surprisingly many questions have been asked about the calculations used to determine the fiscal year 2003 RABA number. These are legitimate questions that need serious examination and thought. Certainly if we can soften the extreme negative effect of RABA for fsical year 2003, I would be supportive as long as we operate with the parameters of the existing statute and do not use funds outside of the trust fund to offset the loss. I am certain that several needed improvements to the RABA will be identified during this process which will be part of our reauthorization deliberations. My concern is that we proceed carefully and make sure that any immediate response contemplated to the fiscal year 2003 negative number does not tie our hands down the road.

Mr. Chairman I recognized that in an election year it will tempting to ignore RABA and merely "fix" the problem through an infusion of cash from general revenue. However, I believe that would be a mistake because we need to protect the integrity of the Highway Trust Fund which means we should structure the program around the actual receipts of the fund, be they negative or positive.

I am anxious to hear from our witnesses representing State and local interests on how a negative RABA number will affect your highway program. Of course I am always pleased to hear from my good friend Norm Mineta. I doubt there is anyone who understands the current program better than Secretary Mineta. As one of the principle architects of ISTEA, he has a clear understanding of not only the policy embedded in the program, but also the politics of bringing diverse interests together in a final bill. In that light, Norm, I want to give you fair warning that the No. 1 issue for me in ISTEA, i.e., increasing donor State returns, will continue to be my No. 1 issue in reauthorization of TEA–21. I suspect we may have some spirited discussions on how to address this, but I look forward to working with you on writing a bill that we can all support.

Thank you Mr. Chairman and I look forward to working with you and Subcommittee Chairman Reid as we begin the reauthorization process.

Senator JEFFORDS. Thank you.

Senator Corzine.

OPENING STATEMENT OF HON. JON S. CORZINE, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator CORZINE. Thank you, Mr. Chairman.

Secretary Mineta, it is good to see you, again, welcome.

I, too, join with all of you in congratulating and complimenting you on holding this series of hearings, Mr. Chairman. I look forward to both learning the intricacies of this, as a new member of the Senate, but also participating in trying to emphasize the importance of transportation broadly to all of our States, wherever we are.

New Jersey is a complicated State. It is the most densely populated one in the country. The general studies will show you that we spend about 15 hours a week, the average citizen, stuck in traffic. While we may not be building as many highways, we have got a lot of underpasses, overpasses, bridges, and unlocking choke points that are necessary.

That 15 hours a week, the way some people calculate it, is some place between $7.5 billion and $10 billion worth of lost economics from people not being on jobs, lost time at home, and has an obvious stress impact.

Being a 25-year commuter to New York City, I can promise you, it is real. It is not a figment of somebody's imagination or hyperbole. The gridlock problem is serious, and I think it needs to be combined, as Senator Campbell suggested, with an attention to mass transit. I am glad I am on the Banking Committee, which will be dealing with some of those issues as we go forward.

Then we have the donor/donee issue. While I know everyone, in their best interests, is trying to arrange all these things well, somehow or another, my State has ended up being in the donee position, in that 9.5 baseline.

So it is an issue that is very much on the minds of the people of our State. I know it is absolutely vital to the effective economic well being of all of our States and nation. So I think it is terrific that you are holding these hearings. I will place my full statement in the record, and I look forward to being an active participant.

[The prepared statement of Senator Corzine follows:]

STATEMENT OF HON. JON S. CORZINE, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Thank you, Mr. Chairman, for holding this first in a series of hearings on reauthorization of the Transportation Equity Act for the 21st Century—TEA–21, and I'd like to join you in welcoming our witnesses.

As a member of the Environment and Public Works Committee as well as the Banking Committee, I look forward to being an active participant in drafting a bill that helps fund our highway and mass transit needs.

Mr. Chairman, drivers in New Jersey spend nearly 50 hours a year stuck in traffic, according to the New Jersey Institute for Technology. And, for many parts of our State, the total is significantly higher. For all this time stuck in traffic, that's an average cost of $1255 per licensed driver in wasted gasoline and lost productivity—for a total cost of $7.3 billion a year. A different study by the Texas Transportation Institute estimates a much higher cost—as much as $10 billion a year.

All this gridlock is dramatically affecting New Jerseyans' quality of life, both economically and emotionally. It means lost time at work, lost time with family and friends, and more stress. It also means more air pollution. And it's one of the important reasons that much of New Jersey fails to meet Clean Air Act standards.

As a 25-year commuter to New York City from New Jersey, I can personally attest to the frustrations of the gridlock on our roadways. Figures from the 2000 Census back this up: our State has 8.4 million people, 3 percent of the nation's population. Yet those people drive over 67 million "vehicle miles" in our State. This leads to intense gridlock.

Solving this gridlock problem, Mr. Chairman, will require a comprehensive approach to transportation. Clearly, there is a need for more roads in many areas and the construction of overpasses, underpasses and bridges also will help unlock existing traffic chokepoints. But we'll never solve gridlock simply by pouring concrete. We also need to focus on other modes of transportation, including rail and transit. And we need to promote innovative approaches to traffic management that take advantage of emerging technologies, such as the EZ Pass system, and also promote tried-and-true approaches such as carpools and telecommuting.

As you might imagine, Mr. Chairman, I am especially focused on the needs of my State of New Jersey. And it is very disturbing to me that New Jersey receives so little in highway funding for all the gas tax and sales taxes on tires, trucks and buses that we send to Washington. Figures for the most recent year available show that our State now receives the minimum allowed for any State, 90.5 cents back for every dollar sent to Washington. This, Mr. Chairman, is an important reason that New Jersey ranks 49th out the 50 States in the amount of total tax dollars we receive back from Washington. In the case of highway funding that is especially not fair, considering our State's aging infrastructure and severe transportation needs.

I look forward to working with you, Mr. Chairman, on these and other issues as our deliberations move forward, especially what level of environmental review must exist before a project is begun. I am in favor in general of the efforts in TEA–21 to streamline our environmental review process in order to begin road and rail projects more quickly. However I strongly believe that we can only do so in a way that protects our quality of life.

In addition, I also expect to be active in the Banking Committee, as well, in efforts to promote transit, which also is critical to my State, and that effort in particular will be focused on building a critically needed tunnel under the Hudson River for rail transportation which will go a long way toward breaking down existing gridlock in our rail transit system.

In closing, Mr. Chairman, let me again thank you for your leadership in this area, and I look forward to working with you and hearing from our witnesses.

Senator JEFFORDS. Thank you very much, Senator, and I want to thank all of my colleagues for their excellent statements.

Mr. Secretary, it is a pleasure to have you here. We look forward to working with you.

STATEMENT OF HON. NORMAN Y. MINETA, SECRETARY OF TRANSPORTATION

Secretary MINETA. Thank you very much, Mr. Chairman. It really is a pleasure for me to have this opportunity to appear before you and the Senators of this committee. I want to thank you for this opportunity to share some thoughts with you about the lessons that we have learned from TEA–21, as well as the predecessor legislation, ISTEA, the Intermodal Surface Transportation Efficiency Act of 1991. Mr. Chairman, I want to thank you for your leadership in having this first hearing on the reauthorization of TEA–21.

All of us at the Department of Transportation and in the Bush Administration look forward to working with the Senators of this committee and with Congress as a whole in shaping proposals for the reauthorization of this very important legislation.

Today, America's transportation sector faces a period of not only extraordinary challenge, but also of extraordinary opportunity, as you are so very well aware.

On September 11, 2001, a determined and remorseless enemy attacked one of America's most cherished freedoms, the freedom of mobility. The horrific events of that day and the weeks and months that have followed have reaffirmed the critical importance of our nation's transportation system, both to the security of every American and to our economic well being. The committee wisely begins the reauthorization process by looking to the lessons of TEA–21 and its predecessor.

As many of you may know, I helped author ISTEA, working with all of you at that time during my tenure as chair of the Subcommittee on Surface Transportation of the House Committee on Public Works and Transportation.

This landmark legislation established several new principles for the nation's surface transportation programs, which have proven out over time the importance of building strategic partnerships with State and local officials and with private industry; a new commitment to intermodalism; and a heightened sensitivity to the impacts of transportation on the shape and character of America's communities, to name but three.

Building on this firm foundation, TEA–21 strengthened our transportation system in five distinct areas: No. 1, predictability, equity, and flexibility of funding; No. 2, safety; No. 3, mobility in system upgrading; No. 4, the application of innovative technologies; and No. 5, improving the quality of life.

Now I would like to touch very briefly on some lessons learned. My written testimony expands on each of these five areas. Mr. Chairman, I would like to request unanimous consent that my full testimony be made a part of the record.

TEA–21 revolutionized transportation funding and authorized record levels of investment for transportation. Minimum guarantees in the Highway Trust Fund firewalls created confidence among

grantees regarding Federal funding, which is an extremely important aspect of the program delivery for State and local officials.

Just as importantly, the funding flexibility that was first included in ISTEA, and then continued in TEA–21, enabled State and local decisionmakers to consider a variety of transportation options, and allows them to tailor their transportation choices to meet the unique needs of each of their local communities.

Increased TEA–21 funding also allowed the States to make needed safety improvements. Under TEA–21, States may use their Surface Transportation Program, inter-state maintenance, and National Highway System funds for safety improvements and, in fact, many do.

TEA–21 also enabled improved connectivity access across the modes, particularly in the area of freight movement. TEA–21 also authorized the job access and reverse commute program to address transportation gaps in the public transit system, and to reduce the barriers for those moving from welfare to work.

TEA–21 continued, and increased funding for several quality of life programs, originally authorized in ISTEA, broadened eligibility for others, and then established the new Transportation and Community and System Preservation Pilot Program, all of which continued to help States and communities improve the environment.

TEA–21 also directed us to streamline environmental reviews. As a result, the average time to process environmental documents for major projects has been cut by almost 8 months, and we are well positioned for significant future progress.

Now while we have begun the job of streamlining, more can and must be done. In short, the programmatic and financial initiatives of these two very historic surface transportation bills provided us a solid and balanced structure, around which we can shape this new reauthorization legislation. However, while we should build upon the best of ISTEA and TEA–21, we have an obligation or opportunity to do even better.

Now as we move forward, we ought to adhere to certain core principles and values. We must continue to assure adequate and predictable funding for investment in the nation's surface transportation system. We must preserve funding flexibility to allow the broadest application of funds to the best transportation solutions identified by our States and local partners.

We must also build on the intermodal approach that was found in ISTEA and TEA–21, and we must expand and improve the programs of innovative financing, in order to encourage private sector investments in the transportation system, and look for other incentives or other inventive means to augment existing revenue streams.

We must emphasize the security of the nation's surface transportation system, providing the means and the mechanisms to perform risk assessment and analysis, incident identification, responses, and when necessary, evacuation.

We must continue to focus on making substantial improvement in the safety of the nation's surface transportation system. None of us should consider it acceptable that we suffer 40,000 deaths and over 3 million injuries annually on our highway system.

Finally, we must continue to develop and deploy innovative technology with the ultimate goal of making "intelligent transportation system" an unnecessarily redundant phrase.

Mr. Chairman, you have proposed an ambitious hearing schedule that will allow us to explore all of these topics in detail, and I want to commend you for that. We, at the Department of Transportation, look forward to working with all of you, with both houses of the Congress, with State and local officials, and with stakeholders, in shaping the Surface Transportation Reauthorization legislation.

This is a moment of great opportunity, a moment that we must not let pass by. I am confident that by working together, we can build on the lessons learned from ISTEA and TEA–21, to develop reauthorization legislation that will best serve the American people.

Mr. Chairman, before I close, everyone has made mention of the provision in TEA–21 that I know is on the minds of all of you. That is the revenue-aligned budget authority, or RABA.

When TEA–21 passed, the goal was to ensure that the highway taxes paid by users be spent and not languish in the Highway Trust Fund as an unobligated balance. Now I agree with that philosophy. RABA was included in TEA–21 to annually adjust actual spending to tax receipts.

Now the RABA mechanism has provided over $9 billion of additional highway spending over the past 3 years. Unfortunately, with the decline in the economy, combined with the overly optimistic revenue estimates in past years, the RABA calculation for 2003 is a negative $4.965 billion. Even with this RABA over the past 4 years, it has provided a net gain of some $4 billion.

Now the RABA calculation is based on two factors. One is a look back and a look forward; $3.468 billion or 70 percent of the negative RABA is because the actual 2001 tax receipts are below the estimated tax receipts used in the fiscal year 2001 RABA calculation. This is the look back correction.

Now $1.497 billion of the $4.965 billion negative RABA is because the tax revenue estimate for fiscal year 2003 is below the level that was estimated in TEA–21 for fiscal year 2003, and this is a look ahead provision.

The RABA calculation is not a policy call or a policy interpretation. It is a simple budgetary, arithmetic calculation, based on law. As we discuss the reauthorization of TEA–21, we need to discuss the design of RABA, and how its current swings in positive and negative directions could be smoothed out over time.

So, again, Mr. Chairman and members of the committee, let me thank you for this opportunity to testify before you. I look forward now to responding to the questions that you might have.

Senator JEFFORDS. Thank you very much, Mr. Secretary. There seems to be a general support in the current program and universal support for its funding protections.

Unlike years past, where stakeholders and States were divided, this year, the parties seem to have much more in common. Do you concur with that statement?

Secretary MINETA. I am sorry, I did not hear the first part of that, Senator.

Senator JEFFORDS. There seems to be general support for the current program, and universal support for its funding protections. Unlike years past, when stakeholders and States were divided, this year the parties seem to have much more in common.

Secretary MINETA. I believe, Mr. Chairman, you are correct on that observation. I think, again, this deals with the kind of flexibility that is there in the legislation, in TEA–21, that allows, with the NHS and the STP pot, to be able to be used, to be able to respond to the needs that exist in States and localities. I think because of that flexibility, there is a great deal of acceptance about the major underlying provisions of TEA–21.

Senator JEFFORDS. Well, I look forward to working with you, and we all do. I thank you for a very excellent statement.

Senator Smith.

Senator SMITH. Mr. Secretary, this whole reauthorization process for coming up with another Transportation Bill, or you can call it whatever it is going to be called, TEA–21 plus or whatever, it is about as nonpartisan as anything we do. I mean, it basically is an issue where all of the States try to work together to make the formula as fair as possible.

I would just like to probe a little bit into how you will work with us on that, as we begin to have these hearings. Are you going to be providing us specific details on some of your core principles, or are you just going to give us general details? Can you tell us just a little bit in terms of how we might work with you, as we proceed along this process over the next year? I am not asking for a lot of detail here, but just conceptually, how you would work with us on the committee.

Secretary MINETA. First of all, I intend to work very closely with all of you, and with the members of the other body. What I have laid out is a very broad area in terms of principles. But during the course of this year, I will be becoming more specific about where we are going. I am hoping that when you reconvene in 2003 to have a legislative proposal ready for Congress' consideration.

But during the course of this year, I think with the give and take of our conversations back and forth, we will refine what we are hearing from the stakeholders, from State and local governments, from private sector organizations, contractors, and everyone involved, in order to refine where we will be going in terms of a specific legislative proposal, which I would like to have ready for presentation to the Congress in 2003, early right after we convene.

Senator SMITH. I commend you for that, because I think that is going to make it a lot easier to come up with a final product, if we are all working together on it along the course of the next year, rather than just simply dropping a proposal, "the Administration proposal," on the committee and on the Congress, essentially next year.

We both mentioned this. You mentioned in your testimony and I mentioned in my opening statement the issue of streamlining. When I was chairman last year, we had a couple of hearings on this with the previous Administration on the streamlining regulations.

The process and the result, I think, were flawed. I do not know if there was some misunderstanding or disagreement. We could not

seem to get a handle on what we actually meant. There was a difference of opinion as to what we actually meant in terms of these streamlining provisions. I think Senator Baucus mentioned that they were probably too general, not specific enough, and there was too much room for differences of opinion.

There has been no final action on those regulations. I would just ask you, what does DOT propose to do on those regulations; go back to the drawing board, or hold off until the next reauthorization?

Secretary MINETA. Well, I guess the debate that we are having is, should we just go ahead and withdraw those proposed regulations, to look at the reauthorization process as part of the way to incorporate any improvements we might make on streamlining.

I do not think that where we are with the proposed regulations out there that we will move forward with that at all. My feeling is that we should really be working toward improving the legislative or the environmental process right now, and look toward the reauthorization process to refine, again as I said earlier, all of these different elements that we have right now as general principals, but to refine that for legislative purposes.

Senator SMITH. I agree with you. I think that makes sense. We are learning a lot. I think some of us had different views as to how these streamlining provisions worked. I have a pilot project going in New Hampshire and others do too.

I think we are learning a lot about how to streamline and what the intent of the Congress was. Perhaps working together like this, rather than to go back and try to finalize something that there was a lot of concern about; let us try to work together and incorporate it into the next authorization. I think it is a good point. I appreciate you saying it.

Thank you, Mr. Chairman.

Senator JEFFORDS. Senator Baucus?

Senator BAUCUS. Thank you, Mr. Chairman.

Mr. Secretary, I was wondering whether we had the support of the Administration to give States additional obligation authority to alleviate the RABA problem.

Secretary MINETA. Well, I think it is too early. We have not gotten to that point yet of how we are going to solve or deal with the issue of the drop in RABA. I think my basic approach is how do we smooth out the peaks and valleys about RABA?

We have had the good fortune of having an increase since the inception of TEA–21; this year being the first year that are experiencing this kind of a negative RABA. How to deal with that, I have not looked at that.

It seems to me that part of the legislative response is going to have to be to try to smooth that out, so we do not have these peaks and valleys. Because I think from a State and local perspective, predictability of funding and the consistency of that funding is very important.

As I believe Senator Inhofe mentioned, or whoever might have mentioned it, about the fact that there are 42,000 jobs generated from $1 billion being spent in transportation. This is a very significant economic stimulator, as well. So we are concerned about what this kind of a precipitous drop has.

Senator BAUCUS. I appreciate that. One way to even that out is to add the additional obligation authority for this year.

Secretary MINETA. It is. But the only problem there is, if I were to put on a budget hat, it would be looking at the increased deficits in the total budget. I know that this is something that the Administration will be looking at, in terms of what that deficit picture looks like. If you take more money out of the general fund, or more money out of the trust fund.

Senator BAUCUS. That is right but, of course, the trust fund surplus has amassed true deficits. It has been a budgeting gimmick.

Secretary MINETA. That is why RABA got there in the first place.

Senator BAUCUS. Those funds are dedicated to the highways, so they might as well be spent for highways.

Secretary MINETA. Absolutely, I am a believer in that.

Senator BAUCUS. Additional obligation authority.

Secretary MINETA. I will jot it down, and we will take a look at that.

[Laughter.]

Senator BAUCUS. You know, Mr. Secretary, clearly this is a very serious subject. You mentioned the economic stimulus. You mentioned the adverse yo-yo effect with the current RABA. So I urge you to very firmly look at ways to deal with that.

Will the Administration be sending up a bill?

Secretary MINETA. I am hoping to do that, as I mentioned earlier, within the first month in January of 2003.

Senator BAUCUS. I trust that that bill will preserve the firewalls.

Secretary MINETA. I am a very big supporter of firewalls. This is going to be something that we will still have to be, I think, arm wrestling within the Administration before we have a final answer. But I happen to be supportive of the treatment of the revenues, both in TEA–21 and AIR–21.

Senator BAUCUS. I further trust that the legislation that we will provide the Administration will protect the fund from invasion from other modes?

Secretary MINETA. Yes, I think that is where we will be. One of the basic principles, though, that we have always found in TEA–21 is the intermodal nature of it, especially as it relates now to freight movement, and the question as to how to make sure that we have that inter-connectivity between ports and onto our highway system.

But within the TEA–21 modes absolutely there will be some flexibility. But from other non-TEA–21 modes, I would say my personal opinion is, we should minimize or say no to any of those invasions.

Senator BAUCUS. Well, I appreciate that. We have got a lot of work ahead of us, and I thank you very much, Mr. Secretary.

Secretary MINETA. Thank you very much, Senator.

Senator JEFFORDS. Senator Inhofe?

Senator INHOFE. Thank you, Mr. Chairman.

Mr. Secretary, Section 1016 of the Patriot Act declares that it is the U.S. policy that for any physical or virtual disruption of critical infrastructure in the United States, that it be brief and minimally detrimental to the economy.

As you will recall, I have a background of some 45 years in aviation. I think right now I am the last active commercial pilot, certainly in the Senate, and maybe in the House, too.

Consequently, I got more of the calls than I think most of the other members did about the disastrous effect it had on the GA economy. The closing of Class B airspace for an extended period of time actually put people in Oklahoma and throughout the Nation out of business.

I felt that at that time, and I am not saying this critically, because everyone was hysterical and trying to do the right thing, that we did not have the right adequate input of the general aviation community in making those decisions insofar as airspace is concerned. Now I agree that we needed to do what we did. But I do not think we needed to do what we did in some areas of the country, as long as we did it.

Is there any step that you are going to propose to be taken to include more input from the general aviation community, so that we can be anticipating if something should happen in the future, and how to handle this differently than we did this last time?

Secretary MINETA. Well, I think what we have done since September 11th, right after the 11th, I set up what I referred to as National Infrastructure, a NISK, within the department, to deal with various modes and the security issues relating to each of those modes.

In the infrastructure committee that we set up, we have what we call direct action groups. Those direct action groups reach out to the user community. So in the instance of the DAG as relates to aviation, they reach out to general aviation to commuter airlines, the very user communities.

I know that here in the Maryland area, there has been a great deal of conversation about general aviation airports that still remain closed. Maybe by the end of next week, I am hoping to resolve an issue where we will have the three remaining airports in the Greater Washington D.C. area opened.

Senator INHOFE. Mr. Secretary, I know that there is a reason for that. This is the area that was the targeted area, and I understand that. But there are a lot of parts of the country that were not. So I think that the action that you are taking is going to help a great deal, and I would encourage you to use the general aviation community as that comes up.

I want to quickly touch on two other areas here before my time expires. The DOT Appropriations Bill of 2002, as sent to Senate of Congress regarding hours of service, and that is at Section 356, states that no action shall be taken that would diminish or revoke any exemption granted in Section 345 of the National Highway System designation, unless it is shown such exemptions create a public safety risk.

As you may know, there has been an ongoing concern that those exemptions that have been granted to certain types of drivers such as ag. drivers and oil services and this type of thing be changed. Can you update us at all on that?

Secretary MINETA. Last week, we had a discussion on the pilot on hours of service duty time as it relates to pilots. At that meeting, I also had Joe Clapp, who is the head of our Federal Motor

Carrier Service Administration and Safety Administration, taking a look at the whole issue of circadian balance or rhythm as it affects pilots and as it affects truck drivers.

So we are hoping that the Federal Motor Carriers Safety Administration will be able to come to a conclusion on the hours of service provision. Now as to when that would be, I would be guessing right now. But I would assume it would still take another four to 5 months before we finalize our thoughts on hours of service.

Senator INHOFE. I would request that you put me in the loop on this, so that as this progresses, we will be able to have some input.

I have one last question, and I know my time has expired. But I can remember when you and I and Congressman Oberstar and others, back after Pan Am 103, were concerned about the detection technology that has been used. We actually took some trips, and explored what technology is out there.

This is a similar problem that we have at DOD and in Customs, that we have used the same old technology. People are concerned, as far as airline traffic, more than any other single thing, on checked luggage, on what is out there.

I started, after the 1995 explosion in Oklahoma City, to look at this, and we found different technologies. One was PFNA, Pulsed-Fast Neutron Analysis, which would take a sealed container and get a three dimensional look at everything in there, along with also the chemical composition that might be in there.

We have put language in the Airline Security Act to encourage you to look at other technologies. Is there any update that you can give us on that?

Secretary MINETA. Absolutely; one of the things that we did as a result of the Aviation and Transportation Security Act passing, or actually prior to that, because there has been a great deal more work done on it, since the passage of ATSA, we have what we call rapid response teams. The one dealing with technologies is very, very ambitious in terms of what they want to do.

So we are looking, as the legislation talked about, at advanced technologies. We are looking at back scatter and a number of other technologies to look at how to meet the requirement of the law that all bags will be screened by an explosive detection system by December 31, 2002.

Senator INHOFE. That is very good news and it is welcome. We have been working on this for many, many years.

Secretary MINETA. Absolutely.

Senator INHOFE. There has been a resistance to change, as there always is. But we just need to have a more advanced technology. The technology is out there. We need to use it, and I appreciate your efforts in that.

Secretary MINETA. With the sophistication and the innovativeness of the terrorists, whether it be ceramic knives, whether it be, let us say, a Glock 17, a plastic gun, they are very, very difficult to detect with our x-ray technology and other systems that we have right now.

So that is why we are getting into these other areas that can detect explosives that are not based on nitrates, looking at back scatter radar, to be able to pick up objects that would not be able to be distinguished in an x-ray technology.

So we have a number of innovative approaches, using advanced technologies. Believe me, we have got every technology company that thinks they have the best thing since the invention of sliced bread to solve all of our problems. So we are examining all of them, sir.

Senator INHOFE. Thank you, Mr. Chairman.

Senator JEFFORDS. Senator Chafee?

Senator CHAFEE. Thank you, Mr. Chairman, especially for getting an early start on these hearings and scheduling frequent hearings. I look forward to working with the Secretary. Certainly, this has been one of the great success stories of the last decade, and I am sure it will be successful in the future, as we go through this reauthorization process.

I especially look forward to working with you as one of the original architects of ISTEA on the issues that you highlighted in your opening statement: safety, mobility, new technology, and especially quality of life.

I really do not have any questions, Mr. Chairman, thank you.

Senator JEFFORDS. Thank you. I would like to followup a little bit on one of your comments with Senator Baucus.

I want to make it very clear that I want to have a balance to the system. I was a little concerned, as I have a strong belief that railroads should play a more important role in trying to get a lot of the freight off the highways. I want to inquire as to what your attitude is with respect to rail, because you seem to be pretty pro-highway here.

Secretary MINETA. Well, the part that I was referring to earlier was the whole issue of inner-connectivity of the various modes. I think the Alameda Corridor is a good example of a project that is vitally needed. It will be completed in April of this year.

I think as we look at financing mechanisms in the new legislation, I think we have to look at new innovative methods of financing. Alameda Corridor utilizes, I believe, TFIA financing.

So it really deals with the inner-connectivity of railroads and highways, and yet it does not dip into the Highway Trust Fund to finance the project. There are some highway moneys in there. But the vast majority is non-highway moneys.

So I think that the kind of question that I believe Senator Baucus was alluding to is, do we use the trust fund to finance other modes that are not eligible for Highway Trust Fund moneys? I think in terms of protecting the integrity of the Highway Trust Funds, unless there are additional taxes that would be thought of by the Congress, I do not see any other way to finance those kinds of non-Highway Trust Fund modes of transportation.

Senator JEFFORDS. Then we would never get out of the mess.

Secretary MINETA. Well, no, I think there are ways of getting out of the mess. I think innovative financing is one of the those ways that we can do that. I think TFIA is a good example of where it has been used for various modes, and that it can be utilized.

I think what we ought to be doing is being able to say, if it is worth doing, than there ought to be some private sector investment interest, as well. Private sector bonds do that right now with highways. What about getting other kinds of bonding mechanism or

other approaches, in terms of one of our authorizing principles in reauthorization, intermodal?

So, again, I think there are distinct areas of financing that we have right now that have to be, I do not want to say maybe protected, but they have not to be assured that that funding is going to continue. I think these other kinds of approaches, unless the other non-Highway Trust Fund potential users would like to have additional taxes imposed on them, then there is no alternative.

I think the whole issue, we have moved over the 4.3 cents; and the question of, are there, let us see, what is it, 2.3 cents right now from the railroads? Is the railroads that pay? Let us see if I can get some help here.

I am sorry, all 4.3 goes to the general fund. I thought some portion of it was going to the trust fund. But in any event, I just feel that because of the continued needs, in terms of the national highway system, we just, I think, have to minimize who is going to be at the table, drawing on those funds; yet, recognizing the importance of the intermodal nature of TEA–21.

Senator JEFFORDS. Well, thank you, we will be talking about these issues as we go along.

Secretary MINETA. Absolutely.

Senator JEFFORDS. This is just the beginning.

Secretary MINETA. This is just the beginning; yes, sir.

Senator JEFFORDS. Right; thank you very much, and thank you for excellent testimony.

Secretary MINETA. Thank you very much.

Senator JEFFORDS. I have to tell you how much I look forward to working with you.

Secretary MINETA. Great; thank you.

Senator CRAPO. I would like welcome the second panel. I would like to use my time for that to introduce one of the witnesses, who is a very good personal friend of mine and a great leader in Idaho, Mayor Brent Coles from Boise.

Mayor Coles is the immediate past president of the U.S. Conference of Mayors, and I understand he now sits on the executive committee. He has been instrumental in Idaho in working on transportation issues, as well as many others.

I certainly look forward to his testimony. I suspect that he is going to talk to us about some of the issues of urban sprawl and the kinds of pressures we are facing, even in a broad big State like Idaho, and the fact that the transportation issues that this committee deals with are so critical.

I know that he has been working very aggressively on focusing the resources that he can in the area of Boise and the surrounding counties with which he works with as the Mayor of Boise, to address things like rail systems or bus systems or other types of approaches to help us reduce congestion and increase the quality of life.

So I, again, want to welcome Mayor Coles here, and we look forward to your testimony, Mayor.

Thank you, Mr. Chairman.

Senator JEFFORDS. Thank you very much.

I, of course, would like to welcome my Mayor from Burlington, Vermont, Mayor Clavelle. It is nice to have you with us and we look forward to your statement.

I understand we have Ray Scheppach as the Executive Director of the National Governor's Association. We are pleased to have you here; and Commissioner Hart, it is a pleasure to have you with us, also.

Mr. HART. Good morning.

Senator JEFFORDS. I will exercise my home State prerogative and introduce Mayor Clavelle. Mayor, it is wonderful to see you. You have done a fantastic job in the city of Burlington. I have enjoyed working with you in the past, and look forward to future collaborations in service to the citizens of Vermont. Please proceed.

STATEMENT OF HON. PETER CLAVELLE, MAYOR, BURLINGTON, VERMONT, ON BEHALF OF THE NATIONAL LEAGUE OF CITIES

Mr. CLAVELLE. Thank you, Chairman Jeffords. I very much welcome the opportunity to be with you today, and I thank the members of the committee for this opportunity to discuss such an important issue to the Nation's cities.

As was indicated, I am Peter Clavelle, Mayor of Burlington, Vermont. Today, I am pleased to be here, not only as a Vermonter, but also as a representative of the National League of Cities.

Mr. Chairman, I would like to make a short statement, and then would ask that my full testimony be included in the record.

Senator JEFFORDS. It will be.

Mr. CLAVELLE. The National League of Cities represents 18,000 cities and towns, and over 140,000 local elected officials. The NLC represents all cities, regardless of size. Our largest member is the great city of New York City, with a population of eight million people. Our smallest member is DeGraff, Minnesota, with a population of 149. As representative of the Nation's local leaders, NLC has a vital interest in the reauthorization of TEA–21.

NLC's Transportation Infrastructure and Services Committee appointed a special TEA–21 Reauthorization Task Force, which recently completed a year-long re-write of our transportation policy. Our new policy was adopted by NLC's full membership at our annual meeting in December of 2001.

Mr. Chairman, I also would like to submit NLC's 2002 transportation policy for the record.

In addition to representing NLC today, I am here on behalf of my city, Burlington, Vermont. With a population of 40,000, Burlington is Vermont's largest city. I am currently serving my sixth term of mayor; and just this Fall, I concluded a 2-year term as President of the Vermont League of Cities and Towns. I also serve on the Advisory Board of the United States Conference of Mayors.

Mr. Chairman, as we embark upon the reauthorization process, we must take into account the current climate in Washington, DC. and the Nation. As you know, these are tough economic times in the aftermath of September 11th, and local officials are shifting priorities.

Cities nationwide are moving valuable resources to public safety expenditures, which makes a continued Federal commitment to infrastructure even more important.

In several NLC surveys of municipal officials conducted after September 11, over half of the cities reported that they are increasing spending and public safety and security.

The majority of cities surveyed reported that they would reduce spending in other areas to meet the new public safety funding gap. This means that cities may have to postpone or cancel some needed transportation projects to shift funding to security.

The shifting of local revenue to a public safety and security-related budget is unavoidable. The question becomes, what will be the role of the next Federal Surface Transportation Program in Homeland Security? Will the Federal Government be able to offer greater assistance to cities to meet their needs?

As the committee considers these fundamental core concerns for the program, the Nation's local elected officials would also like to highlight some key priorities for the next Surface Transportation Bill.

NLC members identified congestion as a major concern when they created the TEA–21 task force to review NLC's policies. The themes of funding, flexibility and intermodalism permeated these discussions.

On funding, NLC supports the current budget mechanism developed in TEA–21, which directly linked transportation user fees to transportation spending. We call for all transportation taxes, including those levied on gasohol and alternative fuels, to be deposited into the Highway Trust Fund.

In addition, we support innovative financing programs and techniques such as tolls, State infrastructure banks, and the Transportation Infrastructure Financing and Innovation Act. These programs support the development of public/private partnerships, and provide creative ideas for meeting the infrastructure needs in our cities.

On flexibility, NLC supports local flexibility to design, manage, and operate transportation systems. ISTEA and TEA–21 embodied these themes, empowering local governments through the creation of the metropolitan planning process. We look to the committee to continue this Federal, State, local partnership through reauthorization.

To continue to provide the most options to local governments, NLC supports the continuation of the Congestion Mitigation Air Quality Program, as well as Transportation Enhancement Programs, and the Transportation and Community System Preservation Pilot Program, TCSP, and the Intelligent Transportation System Program.

These programs have made a huge impact on localities, and have had a positive effect on quality of life. In Burlington, as you know, Mr. Chairman, we have utilized the enhancements programs to launch the revitalization of a historic commercial center along North Street.

We have implemented street lighting upgrades and streetscape improvements. We have benefited from TCSP funds for improvements to the Church Street Marketplace. CMAQ funding has en-

abled us to try new approaches to solve downtown parking and transportation problems.

In addition, NLC urges the committee to consider the development of a new congestion program that recognizes that congestion is a local issue, and provides direct funding to cities and regions of all sizes to address related problems in their communities.

On intermodalism, NLC strongly supports Federal programs, which fund different transportation modes, such as the Federal Transit and Rail Programs. Commuter rail, inter-city rail, high speed rail, and MAGLEV provide communities with other options to consider as part of a transportation and smart growth plan.

In my small city, commuter rail service has been instituted. We support funding to both preserve existing transit systems and for new starts. In addition, we support a change in the law to allow States and localities to use TEA–21 dollars for inter-city passenger rail. We support the development of a national high speed rail network.

Last year, NLC joined our local and State partners in supporting the High Speed Rail Investment Act. In addition, NLC supports the development of intermodal facilities. In Burlington, we will break ground this Fall on an intermodal transit facility that will provide seamless connections for regional transit, passenger rail, bicycle, and lake ferry services.

This facility, and all of its inter-connected modes will make our waterfront accessible to a great number of visitors, without overwhelming it with automobiles.

In conclusion, the Nation's local elected officials stand ready to work with you throughout the reauthorization of TEA–21. We understand the delicate balance among the priority objectives, of all of the partners from the Federal, State, and local levels testifying before the committee today.

We value our seat at the table in this process, and accept the responsibility of planning and implementing innovative transportation strategies to meet the needs of our citizens.

It is clear to us that congestion remains one of the nation's top complaints, and is affecting the quality of life. In addition, safety and security have become top priorities in this new post-September 11th climate.

We believe the Federal Government can strike a balance between protecting our citizens and enhancing their quality of life. We will continue to strive for an innovative intermodal and multi-modal transportation system.

Mr. Chairman, this concludes my testimony. I would like to thank you and the members of the committee for this hearing today, and for the opportunity to appear before you. I will be happy to answer any questions. Thank you.

Senator JEFFORDS. Thank you. I am going to withhold questions until everyone has had a chance to give their speech here.

Mayor Coles?

STATEMENT OF HON. H. BRENT COLES, MAYOR, BOISE IDAHO, ON BEHALF OF THE U.S. CONFERENCE OF MAYORS

Mr. COLES. Thank you, Mr. Chairman. I appreciate the opportunity to be here today and represent the U.S. Conference of May-

ors, and the 1,000 cities that are over 30,000 in population that are represented at the Conference of Mayors. Senator Crapo, thank you very much. Senator Chafee, I appreciate the opportunity to be here to testify.

There is no question that ISTEA and TEA–21 have revolutionized the opportunities at the local level to provide for the transportation needs in our communities.

We have looked very carefully and worked very closely with Standard and Poor's DRI, and we have found that the metro economies of this Nation are what support this Nation's economy. As go the cities and neighborhoods and metro economies, so goes this Nation's economy. If we are to protect those metro economies, we must protect and enhance the quality of life that people and businesses have in their communities.

One way to do that, of course, is to provide for their transportation needs. For industries to grow in Boise, Idaho and the other metro economies across this Nation, our businesses and industries must have the transportation network for our employees to get to work, to enjoy their neighborhoods, to enjoy their educational opportunities and cultural opportunities, that enhance our communities.

To do that, TEA–21 and ISTEA have given us those opportunities to look at congestion mitigation, so that we can reduce air quality concerns in our community, so that our industries can grow, as opposed to having the numbers of cars grow in our communities.

The 10 years of this legislation has made a great impact on our cities and our metropolitan areas, and we must protect this legislation. We must move forward in reauthorization, enhance TEA–21 and ISTEA congestion mitigation opportunities, the flexibility for cities and metro economies to determine whether or not it is a rail system that they need; whether it is an enhanced bus system that they need; commuter van systems; bicycle pathways; the whole complex opportunities of a comprehensive transportation system.

Without ISTEA and TEA–21, we would not be where we are today. We believe that we can enhance what we do at the local level, given the flexibility that the Federal Government has offered us, through ISTEA and TEA–21.

It has, in fact, created, and I will use the word "forced," State governments to give us that flexibility, and to work more closely with local governments.

We work more closely with the Idaho Department of Transportation now than we ever have in the past. We are finding great leadership there, and desire to reduce the number of lanes and highways, or lanes to the highways, adding lanes to highways that they look at when there are projections, if there is an opportunity to enhance congestion mitigation; if there is an opportunity at the local level to get engaged with the overall regional transportation planning. With the partnerships at local government levels, through ISTEA and TEA–21, we were able to create what we call the Treasure Valley Partnership. It is where the Mayors meet together each month, and at a volunteer level, work to communicate, and land use planning is the No. 1 issue; and around land use planning is transportation.

Around transportation then comes your educational system and comes around your economic system. So to enhance our economy in this great Nation, to secure our economy, the quality of life is a very significant issue.

We received what we call the Treasure Valley Futures Grant through, again, TEA–21. That gave us the opportunity, ladies and gentlemen, to take our comprehensive plans, throughout the seven or eight cities and the two counties, and begin to compare those comprehensive plans, so that we know what the build-out will be in our region.

Instead of one city having their build-out and another city somewhere else, and a county over here planning their build-out, we took those together as a region. It happened because of TEA–21 legislation. Once we know a build-out, then we know our transportation needs, and then we, at a local level, can begin to make decisions about what kind of transportation do we want.

Is it going to be that in this Nation, and particularly in the West, that a teenager at age 16 must feel that they must own a car to have the independence that they so desire at that young age? Instead of emphasizing and focusing on their education and their gifts and their talents, they are out working some part-time job so that they can have a car, so that they can move around the West.

The West must be able to develop with train systems, with commuter rail systems, with light rail systems. Let us allow that opportunity as we grow in the West, as opposed to waiting until it is too late, and the land uses are gone, and we do not have the corridors in place.

So we support and appreciate the opportunity to work with Secretary Mineta. We find him to be a great leader, a great communicator, and a partner, as we plan the regions in the West and throughout the United States, to protect our metro economies and the economy of this great Nation.

Thank you, Mr. Chairman.

Senator JEFFORDS. Well, thank you, that was an excellent statement.

Commissioner Hart?

STATEMENT OF HON. CHRIS HART, COMMISSIONER, HILLSBORO COUNTY, FLORIDA, ON BEHALF OF THE NATIONAL ASSOCIATION OF COUNTIES

Mr. HART. Good morning, Mr. Chairman and members of the committee. I am Chris Hart, Commissioner of Hillsboro County, Florida. Today, I am here to represent the National Association of Counties, where I serve as chair of its Transportation Steering Committee.

On behalf of NACo, I want to thank you and the committee for inviting me to appear on the panel today. I am very delighted to join the National Governor's Association here in testimony, as well as Mayor Clavelle from Burlington, Vermont, and Mayor Coles of Boise, Idaho. In fact, we have worked together for many years on so many of these issues.

My personal county seat is in Tampa, Florida, where I directly represent over one million people on the Central West Coast of

Florida. It is an urban community of seven counties, with over 3.5 million people.

It is also the economic engine of the Tampa Bay Region, in great measure because of our focus on improving the transportation network, plus because of our major international air and sea ports that connect us to our global economy.

Senators on a lighter note, I cannot leave here today without getting something in return for Florida's Steve Spurier.

[Laughter.]

Mr. HART. Also, if you have not had a call for the head coach position of the Tampa Bay Buccaneers, rest assured you will. Everyone else has. We do have a sense of humor in Florida.

Senator JEFFORDS. You have to have one.

Mr. HART. You have to, right.

[Laughter.]

Mr. HART. Mr. Chairman and committee members, NACo has a broad interest in obviously the transportation policy, and has been very active over its 50 years in assisting Congress and the Administration in developing legislation to benefit our member counties, as well as our partners in the cities and the States.

Much of our focus has been on the highway program for the simple reason that counties own 44 percent of the Nation's highway mileage, and 45 percent of the Nation's bridges. With 3,066 counties in our vast Nation, certainly our membership is diverse.

It is in 1,000 urban counties, where both economic and population is occurring. Metropolitan counties or in urban centers, like mine on Tampa Bay, account for 84 percent of the gross domestic product, and have over 125 million people living in just 100 of the most populated counties. Strong economic growth will occur only with a sound transportation system.

Of course, the downside of that growth has been increasing traffic congestion, which at times threatens our quality of life, and deprives citizens of their ability to move around in a safe and efficient manner.

Conversely, there are 2,000 rural counties with a dwindling tax base, that must maintain and improve their highway bridge system, if they are just to maintain competitive in today's economy, and retain their current population.

TEA–21 and its predecessor, ISTEA, have been very helpful to our members and to our Nation, as a whole. There is little doubt in my mind that these programs have contributed to the overall economic growth that our Nation has experienced over this last decade.

ISTEA, in 1991, began a trend of increasing the Federal investment in the highway program, and TEA–21 provided a 40 percent boost.

The increase was needed, and we have seen the benefits. For example, last year, the State of Florida was able to appropriate over $1 billion for a combination of improvements to the local, State, and Federal transportation system in the Tampa Bay Region. This was a direct result of increased funding, because of TEA–21.

The leadership of NACo supported the funding increase for transportation in TEA–21, and fought hard to support the financing changes in TEA–21 that made this level of spending possible.

It would be an economic disaster if Congress were to eliminate the firewall established in TEA–21, or began to use the Highway Trust Fund, or either finance other programs, or mask the deficit. Mr. Chairman and members of the committee, the financing decisions made in 1998 were the right ones.

Let me also add that I believe our highway infrastructure performed well on September 11th and in its aftermath. We should all remember that the highway program was first begun to ensure our Nation's defense. While the tragic events of last September were never anticipated, the security function of our highway and bridge systems worked.

When NACo's Homeland Security Task Force met first in early October, in addition to the President, it was most specifically the Secretary of Transportation, Norman Mineta, along with Governor Tom Ridge, that the counties and people of our Nation wanted to hear from.

Aside from funding, the key change in highway legislation over the past 10 years has been the creation of a flexible program, that has relied on greater input from local elected officials. The result of this has been better planning, better decisionmaking on project selection, and better projects.

It is likely that the Federal Government will continue to spend substantial Federal resources each year on highways and bridges. That makes it essential that both local and State government leaders sit down together at the table when decisions are made. The reauthorization of TEA–21 should continue and accelerate this partnership.

ISTEA required the cooperative decisionmaking through the metropolitan planning organization, or MPO process, on how surface transportation funds are spent. This is the most flexible category and where they are spent the best.

TEA–21 has continued that requirement, and legislation also called for cooperation and consultation between States and local decisionmakers in other Federal highway programs.

TEA–21 expanded this to the rural areas and statutorily called for a consultation process in States for obtaining rural local officials' input in the statewide transportation plan.

I must add that while some States have a process, and the Federal Highway Administration did issue guidance on this change to the field offices, the U.S. Department of Transportation has yet to issue the final regulations on rural planning requirements.

Last Fall, I established NACo's TEA–21 Reauthorization Task Force under the able leadership of my colleague, Commissioner Glen Whitley from Tarrant County, Texas. I can State without reservation that environmental streamlining will be a top issue on that for our membership.

Also, I want to be very clear that we are not calling for any repeal of our Nation's important and strong environmental protection laws. Rather, we will be recommending that the reauthorization include provisions to ensure that projects are completed in a timely and efficient manner, and the delays in the current system that are unnecessary and create those slowdowns that are unjustified are eliminated.

Simply put, Mr. Chairman and committee members, I and the National Association of Counties, are asking for a concurrent process, rather than an uncoordinated sequential one. In the broadest sense, this means that we need to get all the players and projects involved at the outset. This means that local officials, State DOTs and other regulatory officials, and Federal agencies have a role to play, as well as our environmental community, and most especially, our affected citizens. No one should be ignored. No Federal agency should be allowed to operate independently without being there as a participant.

In my State of Florida, for example, this effort has been a work in progress, even since the legislation was passed. But it will not be successful without the collaboration from the Federal Government.

Congestion will be another key policy issue that you and Congress must address with this reauthorization. Urban counties, their citizens, tourists, and commerce, are all strangling in congestion. Time, money, and productivity are all sitting on the backs of commerce, and we can ill afford this for our businesses, for the American commuter, or our tourists, to be stuck in traffic. There is no one solution, except that we must apply common sense approaches to this challenge. Solutions must be found where close local, State, and Federal cooperation exists. Congestion occurs on county highways, not just on the State or Federal networks.

We must remember that we have a system of highways, and when one part, albiet local, State, or Federal, breaks down, the others are directly affected.

Any new legislation should provide those highways and bridges that we now have, and ensure that they are properly maintained by funding them, so that traffic moves safely.

We must invest money in highways to guarantee that our current system is maximized. We know that as much as 50 percent of congestion occurs due to breakdowns and accidents on our roadways. Therefore, we must be smart enough to establish simple, efficient methods of getting incidents resolved quickly.

Here again, Federal agencies and their resources can be partners with local and State governments, to save time, money, and most especially, lives.

We need to have the system of procedures in place that includes all the various agencies involved in incident management, from the highway departments, police, sheriffs, fire rescue and EMS, to wrecker services, all communicating with one another. We can do better, and I will quickly illustrate, Mr. Chairman.

How many times have we seen a break down or accident in one lane of traffic, and I do not even have to mention the Beltway, with emergency vehicles taking up the other lane or lanes; and if we are lucky, perhaps we are able to pass after an hour of waiting in traffic? This is very common, not just here, but in every community in America.

Systems and procedures in incident management could go a long way to relieving congestion, and it is much cheaper than building road systems, rail, and other things associated with this.

Another key to relieving congestion is moving traffic to signalization. We have all been on highways where signals are coordinated

and traffic flows. We have also been on roads where we are stopping at every red light. Many local governments need additional resources to modernize traffic signals.

The good news is that electronic signals and now the Intelligence Transportation System, or ITS as it is commonly called, give us a return of about eight to one, compared to other investments.

By the way, what we do not need are automatic signs saying, "congestion ahead," when we are already caught in traffic, and where there are no alternative routes that we can take.

Mr. Chairman, now in finishing my remarks, I would like to address one last major concern that we all share: rural roads. Rural roads are in need of substantial Federal investment. Safety is the primary reason.

According to the U.S. General Accounting Office Report from July, 2001, rural local roads have the highest accident and fatality rate per vehicle mile traveled on all types of roadways; over six times that of urban interstates.

In 1999, over 25,000 fatalities occurred on rural roads across the United States. That figure is two and-a-half times greater than the fatality rate from accidents on our urban highways in areas like Las Vegas, Miami, St. Louis, Cleveland; you pick it/name it, our communities.

If Congress wants to reduce auto fatalities, there is no better investment than in our roads in rural communities. Because rural roads are so dangerous, we, in NACo, will be proposing a new program to address this. Rest assured, Mr. Chairman, that we would work closely with your committee in developing this.

Mr. Chairman and committee members, this concludes my testimony. I thank you and the committee members for the opportunity to be here today. I would be pleased to answer your questions.

Senator JEFFORDS. Thank you, Commissioner.

Our final witness is the Executive Director of the National Governors' Association, Ray Scheppach. Please proceed.

STATEMENT OF RAY SCHEPPACH, EXECUTIVE DIRECTOR, NATIONAL GOVERNORS' ASSOCIATION, ON BEHALF OF HON. ROBERT WISE, GOVERNOR, STATE OF WEST VIRGINIA

Mr. SCHEPPACH. Thank you, Mr. Chairman. I appreciate being here today on behalf of the National Governors' Association. Let me first say that Governor Wise was supposed to be here, and he apologizes. Essentially, his aircraft was grounded for safety reasons, and so he was unable to be here.

I would appreciate it, however, if his full statement were submitted for the record.

Mr. SCHEPPACH. Mr. Chairman, I would like to start by mentioning a couple of comments about the fiscal situation of States, because I think it is relevant to this particular program.

The current shortfall in States is about $40 billion. You are going to have to add to that about another $6 billion for the State costs for homeland security. That currently is about 7.5 percent of State-only revenues, which is quite large, by historical standards.

However, because both unemployment and State revenues lag the economy, it is highly likely that this situation will continue to

deteriorate for another year to 18 months, probably peaking in excess of $50 billion.

If you compare this current recession to that recession in the early part of this decade of 1990/1992, this one is far worse, even at this particular point in time. The total shortfall previously was about $20 billion, which was 6.5 percent of revenues, and as I said, we are going up easily to $50 billion, or 10 percent of revenues, over the next year to 18 months.

You might ask, why is it worse? The economic dip so far has been relatively small. The basic reason is that the phenomenal growth in the economy over the last half of the decade of the 1990's was so strong that it camouflaged a number of underlying problems.

Essentially, we have a deteriorating tax base, largely driven by the fact that we do not tax services; and Internet sales now are cutting dramatically into State sales tax revenues.

So on one hand, we have a deteriorating tax base, because it is essentially for a manufacturing economy of the 1950's, and not for a high tech service-oriented economy of the 21st Century.

On the other hand, health care costs are exploding. Medicaid, which represents about 20 percent of State budgets, is now growing 11 to 12 percent per year, with pharmaceuticals growing 18 percent.

If you add other health care, it represents another 7 percent of State budgets. We have 27 percent of our budgets growing at double digits, clearly at 11 to 12 percent. So it is a combination of these two major structural problems that is creating the State fiscal situation.

Unfortunately, this is not something that is going to be turned around in the next year or so. This is a two or three, or perhaps even 10 year problem, because of the structure.

Let us turn now and mention a couple comments about the highway program. First off, Governors were very satisfied and really supported the reauthorization last time, and we do believe that this program has worked quite successfully over this period.

We now, however, do see that in some of the preliminary estimates of the revenues coming into the trust fund, that it is possible the revenues are down quite dramatically; some people argue as much as 30 percent going forward.

And it is probably not just a one-time downward adjustment. But we are probably on a different baseline, because of a slower growth in the economy, even when we come out of this recession.

This is a problem in a program which is essentially a capital investment program. When you have levels of funding going up or down of that order of magnitude, it creates a lot of inefficiencies in capital programs, that have to run over a 7 or 8 year period.

I do not know what the answer is, in all honesty, but we hope to work with the committee in terms of, is there any way in which we can smooth the revenues and expenditures on this particular program?

I will just mention a couple of other issues. This problem in the funding level may play out, because a lot of States do float bonds to cover this. Of course, the interest rate that is on those bonds is

somewhat sensitive to the Federal funding level. So that is an issue that we are somewhat concerned about.

Finally, the other issues that we would like to work with the committee on are essentially insuring that we continue to move toward incentives, as opposed to mandates.

I agree with Commissioner Hart, in terms of the environmental streamlining concurrent processes. That is an issue for us, and also maintaining the flexibility of the program, so that there is a lot of State and local control on what those particular priorities are.

So with that, Mr. Chairman, we look forward to working with you over the next year, as you reauthorize this program. Thank you.

Senator JEFFORDS. Well, thank you, and thank all of you for very excellent statements. It is a pleasure to have you with us. As you know, we are going to be very busy over the next couple of years, trying to make sure that we do the best job possible here.

Senator Warner wanted to express his apologies. He had to leave. I asked for unanimous consent that his statement be made a part of the record. I do not hear anybody objection. I know that no one dare to object.

[Laughter.]

[The prepared statement of Senator Warner follows.]

Senator JEFFORDS. But thank you; Senator Warner has been a great member of this committee over many years, as you all know, I am sure.

I would like to turn to my good mayor, first. I am intrigued by the idea that local communities might manage certain aspects of the Federal Aid Transportation Program. Can you tell us a bit more about your experiences in that regard? Does the current program encourage the local role, or should we explore measures to extend local government's role in project management?

Mr. CLAVELLE. Well, I think anybody who has been a local government official understands that citizens will hold us accountable and responsible for transportation, as well as quality of life within our communities.

So from my perspective, it makes great sense to involve local government officials very intimately in the planning, the design, and the construction and management of transportation projects.

Now in the State of Vermont, we have had an excellent relationship with our State Transportation Agency. They have, in fact, delegated substantial responsibilities where local governments are willing and interested in managing those projects.

In my small city, we have taken on the responsibility of managing projects that range from bike paths, to multi-million dollar transportation centers, to major highway projects.

So I think it is a great idea. Our experience has been very positive for both the State agency, as well as the community. I would urge you, as you consider reauthorizing the legislation, to promote and encourage this practice.

Thank you.

Senator JEFFORDS. I share your view that presently, the intermodal investments are somewhat orphaned in the Federal program. The League has endorsed the idea of a specific intermodal program. Can you enlarge on the idea for us?

Mr. CLAVELLE. I believe that it is a good idea to have a separate intermodal program. I think that would help clarify Federal responsibilities, in terms of the management of such a program.

But I also think, from a local official's perspective, it would simplify the planning, the design, and the financing of intermodal facilities. Currently, with intermodal facilities, you need to bring together a hodgepodge of funding sources to make a project a dream, a reality.

I think a separate program would truly give some meaning to this word that we frequently use of "seamless." I think if we had a seamless Federal program, it would enhance our capability and capacity of creating within our communities intermodal projects that were truly seamless.

Senator JEFFORDS. Thank you, and I agree with you on these matters. I look forward to working with you.

Mayor Coles, I want to commend you on the fine work you have done in your part of the country to promote a balanced transportation system, and encourage smart growth, as well.

I, too, believe that we need all modes of transportation working together, to get the best out of our system. Do barriers exist now in the current Federal programs, to achieving your goals? If so, as I expect you will say, we would look forward to working with you, as we go along; but please, comment.

Mr. COLES. Thank you, Senator Jeffords.

Mr. Chairman, a major barrier out in the West and around Boise is that Amtrak does not come through Boise. It does not come through Idaho. We do not have that link, that national rail link, that we would like to have to make the intermodal system a vision, and one that people can believe in.

When a Mayor says, 1 day we will have a rail system here, and we will be able to link nationwide to a rail system, they say, well, Amtrak stopped service here 3 or 4 years ago. Our community, therefore, went out and purchased 18 miles of right-of-way, using property tax dollars.

That is 18 miles of Union Pacific Railroad, which links our city to at least the National Rail Network. Without that 18 miles, Amtrak could never have come back to us.

So the barriers certainly are funding. We are beginning now, because of TEA–21 and your vision, sir, and the vision of this committee and this Senate, to work more closely with State government.

But our State government has not given us a funding source for multi-modal transportation. They still only fund streets and roads and highways, and they will match any Federal grant that comes along.

But if we had a Federal grant system that would match and provide an incentive, I think for State governments to match a Federal grant system to put into place a multi-modal system, and maybe it is available, our State may not be using it. But it is that kind of leverage from the Federal Government to the State government that we believe would help the local government, also.

Senator JEFFORDS. Thank you. You have got a sympathetic voice here.

Mr. COLES. Sir, I have been in your office and appreciate your leadership.

Senator JEFFORDS. Mr. Hart, I believe that Tampa is the largest Metro area represented on the panel today. I know that urban congestion will be an important issue as we provide with the reauthorization.

You shared a few ideas with us for tackling the problem in your testimony. Are their shortcomings in the current Federal program that have limited your ability to address the problems in the Tampa area? In particular, you seem to suggest that major local and county roads were not receiving adequate attention? Is that so, and if it is, what do we do?

Mr. HART. Thank you, Mr. Chairman. I would have to preface it by saying, until TEA–21, it was not getting that type of attention. It has been a long struggle for all of us to try to raise the understanding of what it really meant to bring together all these programs, and that they are related.

As far as processes themselves, yes, we all have what we have, depending on our States or local communities, or whether you are part of an MPO network.

But in some communities that are 50,000 to say, 200,000, they do not currently have, as I understand it, the authority, and have the money allocation, as far as their funding process in those areas. Yet, if you hit a community of 50,000 to 200,000, you are probably going to find one of the largest groups of communities in America.

If that type of authority went to those communities in the MBO process, they could better put together those networks and make those allocations.

Some of the things, even though we are, in some part, talking about roads and bridges, I think in great measure, both the mayors addressed issues of the growth management or bringing land use and transportation together, and how it affects their quality of life; or the fact that I would have to agree that we need a national high speed rail system.

But these things have got a link. I think the question you are asking opens that dialog. Because ultimately, we, sitting in my community as a metropolitan planning organization, are making those decisions that put together local, State, and Federal programs; but this does not happen throughout our Nation.

In 100 urban counties it does, because we are of that size, but it is still a challenge. For example, I addressed just on the issue of what happens on the incident management, we do not have to build another road for that. We have to build in systems and procedures from the Federal to State to local level, that we can agree on, where we are all partners. Congestion is a great big part of that. Yet, some of that is the allocation of funding that goes in the areas like intelligence transportation or improved signalization; or the fact that where you have got a Federal interstate system, and now you have got a State road system, and a county or a city road network all there together. One cannot happen in isolation of the other. Too often, this has been in the case.

I think it has been a matter, in one part, of awareness. I think by asking the question, you raise that awareness. But until we also take a look, and I am not a heavy-handed guy that wants more reg-

ulations or legislation, but we have got to have more people at the table, so they all understand what we are dealing with together, and it is a Federal, State and local system.

That is why I was suggesting that we take a look at how we can build in systems and procedures, just like the streamlining planning process that we were addressing earlier. You have got to have all the partners at the table. You cannot have some people that are independent. I am not picking on the Corps. of Engineers or EPA or some other agencies. It is just that they are very easy targets for us.

But you cannot have somebody that is just operating on their own, and everyone else thinks they have got it together, and then they say, oh, we have got five questions here. You have got to stop everything. That is part of the dilemma.

So with your leadership and the committee's leadership here, we can broach the streamlining process like that, and we can look at questions of congestion.

We can look at things like incident management, because those will open the doors of how we establish those systems and procedures; some part in Federal legislation, and some things do no cost anything. Some things just give us guidance of how to do it smarter.

Senator JEFFORDS. Mr. Scheppach, do have anything you would like to share with us, in addition to your statement, now having heard the testimony across from you?

Mr. SCHEPPACH. No, I mean, I think we have got all the issues on the table. I think they are funding flexibility and environmental streamlining.

I think that the current law has been working quite effectively. The unfortunate part is that this was an economic boom period. There were substantial revenues available to do this. Now we have got a higher level of spending. We have got some jobs at stake, and we have got some efficiency issues, if we have to cut this program. So there are some tough issues that I think the committee needs to work on.

Senator JEFFORDS. Senator Crapo?

Senator CRAPO. Thank you, Mr. Chairman. I just have a question or two of Mayor Coles. Mayor, I kind of want to piggyback on the question that you were asked by the chairman.

I was interested in your written testimony, where you talked about a survey that was taken of the mayors. In the answers to that survey, it indicated that in response to their being asked what the single most important surface transportation priority was in their city or region, about 35 percent indicated system preservation; 20 percent, congestion relief; and new rail projects at 15 percent. I suspect that new rail projects was related to congestion relief. Then there were other areas that were listed, many of which also related back to congestion relief.

My question is, as we move forward to look at reauthorization of TEA–21, it appears to me from that and from the testimony that I have heard here today, that congestion relief is going to be one of the major focuses that we will need to be addressing.

In that context, first of all, could you tell me if I am correct in that context, and whether you see that the current system could be

improved, in terms of allowing us the added flexibility or streamlining efforts, or whatever may need to be worked into the law to help us more effectively focus on congestion relief?

Mr. COLES. Mr. Chairman, Senator Crapo, thank you very much. There is no question that our ability and our reliance upon working with the States, and every State Department of Transportation has their own philosophy about how they work with local government.

Now the MPO system, which requires States and local metropolitan areas to align their transportation plans, their intermodal systems, and their plans, requires that dialog.

But I think it also in the testimony indicates that only about 40 percent of the Mayors have been asked to participate with their States in making those decisions about where those dollars are spent.

So we have come a long way in 10 years. This legislation has created the dialog and the opportunity and the structure for that dialog, but we still have a ways to go. That is the requirement and responsibility for State government and local government to make decisions about where those dollars are spent.

Now the more flexibility, if you speak from the U.S. Conference of Mayors and the National League of Cities, we appreciate the opportunity to have funding sources that are similar to the Community Development Block Program, where metropolitan areas receive those dollars directly.

There is not a State agency that is making those decisions about how we are going to spend our money; but it comes straight from Federal Government to local government. It gives us timely resources and the flexibility to use them, and it shows them that we are trusted by the Federal Government to make decisions where necessary, in our local communities to allocate those resources and their funds.

It also then gives us the opportunity to manage, in some cases, even the construction of the process and project, which can also reduce costs. Often local government will have some flexibility built in. They can manage the project. They construct it. They can build it, and build it in a timely way and often save money. So there are those kinds of opportunities that we look forward to.

Senator CRAPO. Thank you. I have just one other question as a followup on this in a more specific sense. I appreciated your bringing up the Amtrak issue, as it relates to Idaho. I think that most people in the country, when they think of Amtrak, think of it in some of the more urban corridors. But its impact in Idaho is also critical.

As you know, Mayor, here in the Senate, Senator Wyden and I have been trying to get that line between Spokane and Boise open. In working with you out in Idaho and others, we have seen some serious road blocks put the way of getting that accomplished.

Do you believe that if we were to reorient or broaden the available use of TEA–21 funds, or if we were able to give the approach the Block Grant Program, like you were talking about, that resources at the State level, at the city and county level, could be more effectively utilized to encourage and incentivize those types of rail programs?

Mr. COLES. Mr. Chairman and Senator Crapo, yes; now let me give a little addition to that answer.

Senator CRAPO. That would be helpful, thank you.

[Laughter.]

Mr. COLES. Certainly, again, the flexibility to use those dollars where we see the resources are appropriate in our local communities. So we could link to Amtrak.

But truly, we also need to support the revenues for Amtrak. Amtrak needs to be supported just as our freeway interstate system is supported; just as currently the airline industry is being supported.

We need the vision in our country of a multi-modal national system, a national rail system, a national air system through our airports and the support of our airline industry and, of course, the interstate system. Why not have a vision that encompasses all of those, and at the Federal level they are supported, at the State level they would be supported, and at the local level there would be support for a national rail policy?

So doing that and having flexibility with TEA–21, then people would believe, particularly in our rural areas, that you could have a rail system that would link America together, so that commerce and industry and people can move throughout this country with alternatives; as opposed to right now, there are pretty much two alternatives. You are either going to fly or drive your car.

Senator CRAPO. Thank you, Mayor Coles. I, myself, found out when I got into the issue of Amtrak, how important the rail system is. It was just interesting to me that there is some feeling in this country that rail systems are sort of outdated and they are a thing of the past, and we have moved on to cars and planes and things like that.

It is very interested to me to see the importance of rail systems, not only in Idaho, but it was like the third highest response of the mayors of this Nation, when they responded to your survey, which I understand was an open-ended survey; just pick what you think is the most important thing. The third highest response was rail systems. This indicates how that form of transportation may need to be something better implemented in our approach to transportation in the Nation.

Anyway, thank you very much.

Senator JEFFORDS. Let me followup on that, since it gives me a good opportunity. This is something that I feel very strongly about.

Do you have concerns with respect to congestion in your cities, and also about the trucks, the 400 foot trucks or whatever we have now, when they wind through your places, as to whether that traffic could not be put on the rails, to some extent, Mr. Coles?

Mr. COLES. Mr. Chairman, absolutely, there is no question about it; the length of a truck, the weight of the vehicles. We know that they pay a lot of tax to support the highways. But there is no question that our ability to rely more on rail would reduce congestion in our communities, large and small.

Senator JEFFORDS. Are there any other comments, Mayor Clavelle?

Mr. CLAVELLE. I think whether you are a mayor of a city in Idaho or a city in Vermont, I think that we would welcome an in-

vestment in rail that would allow us to get the heavy freight traffic off our roads and onto the rail. I echo everything that Mayor Coles has said. We need more flexibility and we need additional resources in our rail infrastructure.

I hope that I will live to see the day that Amtrak will serve the city of Burlington. But in upgrading that rail infrastructure to provide that opportunity for Amtrak, we also will be enhancing an infrastructure that can better carry freight.

Senator JEFFORDS. Mr. Hart?

Mr. HART. Mr. Chairman, I have perhaps a little twist on that. As I previously stated, I think we ought to have a national system of high speed rail.

But throughout America, it is a building block. Transportation systems that are needed in a local community particularly are buses; a bus system where if we had the flexibility to put more into that, you will serve more people every day.

But one area that we have not even talked about, that I have worked very hard on, both at the national and county level, but in my State in community, is a the transportation to the disadvantaged community; people that cannot drive, should not drive, will never drive. It is a serious and growing problem in America. You have got to have local systems that solve that, because there are too many differences.

In our community, for example, and this is not an advertisement, we just call it Heartline. It is not my bus system, but it is the Hillsboro Area Regional Transit Authority. I sit on that.

But we also put together the Transportation Disadvantaged Program, for people who are need wheelchairs or kneeling or whatever. So you have got to tie sidewalks to buses or specialized transportation for people that have the dialysis or have critical needs. But then you have got young or older that cannot or should not drive, or you want to discourage; or as you get into larger urban communities, you want a robust transportation system like on buses, that would connect to a rail system.

So I think part of that base has got to be a sound transit system that also not only serves a great part of the population, but specifically also has the ability to serve the transportation disadvantages in America.

Mr. SCHEPPACH. We are a little bit split on policy with respect to that, so I will pass.

[Laughter.]

Senator JEFFORDS. I understand that.

Well, I want to thank you all. It has been very, very helpful testimony. You are the ones that we look to, to make sure that we do the things we should do when we are finished here. It was excellent testimony, and we were pleased to have you here.

With that, the hearing is adjourned.

[Whereupon, at 11:38 a.m., the committee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Thank you for bringing us together today on the subject of the reauthorization of TEA–21. The policies that are decided during this debate will deeply affect each of

our States. You are to be commended as well for calling us together on January 24—our first week back in session this year.

This learning process and discussion is too important to rush through right before legislative drafting begins. You're wise to begin now, and explore this thoroughly.

I have looked at your proposal for 11 hearings this year, and agree with the topics chosen, and the pace of discussion.

This is the first of those proposed hearings, and as such, a great opportunity to look back on lessons learned, and lay out, in general, some priorities and challenges for the next authorization cycle.

You've assembled a great group of witnesses (and I am very pleased to see a Floridian, Commissioner Chris Hart from Hillsborough County, on the panel). Each of them brings perspective from different universe of government: Federal, State, county, and city.

This hearing emphasizes the level of coordination and cooperation that has developed in transportation policy since we emphasized this time of structure and planning in ISTEA.

I'll be interested to learn of our successes, and where we must improve in this cooperative planning process.

I would like a quick moment to reflect on my A "lessons learned" from the last reauthorization process, and outline a few priorities.

Lessons Learned

• Follow the legislative process through to the final regulations. Members of this committee, and witnesses in this room, celebrated the environmental streamlining language that was incorporated into TEA–21. We are now frustrated by the slow progress in the development of regulations that reflect our intent. This next time, I want to work more closely with those who will interpret what we draft in this committee. Better lines of communication can only mean clearer, better public policy.

• Other committees can affect what we draft here. I have been frustrated by the fact that some of the programs that we developed in TEA–21 where grants should be awarded on a competitive basis, are not working that way in reality. As an example, the ITS money provided by TEA–21 is all earmarked and not awarded in the way we intended.

I'd like to work as a committee with our colleagues and find a solution that brings us closer to the intent of what we drafted and passed in TEA–21.

There are more lessons learned, but time is short.

I also hope the committee will seek "lessons learned" from those who have actually been on the front lines of our nation's transportation policy, much like the witnesses who have joined us here today.

Looking ahead, the world has changed in several ways since we finished enacted TEA–21.

There is a focus on homeland security.

We are heading into some tight budget years.

Traffic congestion is affecting quality of life.

We learned quickly after September 11 how difficult life can be if one mode of transportation, such as air travel, suddenly becomes difficult or impossible.

I look forward to working with our chairman, my colleagues here, and all interested parties in taking the next few months to expand our knowledge of transportation issues and challenges, and together drafting the next authorization bill to meet those challenges.

STATEMENT OF HON. TOM CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

I'm happy to be here today as this committee begins its work on the re-authorization of the Transportation Equity Act for the 21st Century (TEA–21). In the 10 years since that bill, and its predecessor, the Intermodal Surface Transportation Act (ISTEA) have been in place, I believe we have made strides in the way we fund and plan for our transportation needs.

ISTEA for the first time allowed State and local transportation officials to work together with their regional partners and with States to develop truly regional transportation systems. It also allowed these new regional transportation entities and to use Federal transportation dollars for the most pressing transportation projects in their region, regardless of whether those Federal dollars were originally designated for highway or transit. When ISTEA was up for re-authorization 5 years ago, I was Governor of Delaware and headed up a group called ISTEA Works along with John Rowland, my colleague from Connecticut. Our goal at the time was to urge Congress to preserve and build on what we were able to accomplish in ISTEA.

Our efforts, along with the work of a number of my new colleagues here in Congress, lead to TEA–21, which maintained the flexibility granted to State and local officials and greatly expanded the funding available for transportation improvements each year. Whereas, before TEA–21, congressional appropriators could set caps on the amount of the Highway Trust Fund that could be spent in a given year, States can now spend the full amount that users pay into the Fund every year.

As we sit down now to re-evaluate our national transportation policy, I again call on my colleagues to build on what has worked so well in the past. First, we should expand the flexibility built into ISTEA to allow States to spend their Trust Fund money on inter-city rail projects. Back in Delaware, commuters set out every day on Interstate 95 in Wilmington to head for jobs in Philadelphia, Baltimore and Washington. Commuters up and down the northeast corridor make similar commutes every day, tying up our highways in frustrating, wasteful gridlock. Delaware can spend as much as it wants to improve its piece of 95. It can't do much with its Trust Fund money to improve rail links to major northeast cities, however. I hope we can work this year to allow States to use their Federal Trust Fund dollars to create regional high-speed rail systems if they choose to do so.

Second, we should continue to improve the way we fund our transportation priorities and examine whether our current funding levels are adequate. TEA–21's budgetary firewalls, along with Revenue Aligned Budget Authority (RABA), have led to dramatic increases in transportation spending in recent years, but we could see reductions in 2003 for the first time. I hope we can work this year to fix RABA and also to look for other revenue sources so that we can effectively fund our transportation needs.

As we begin to take a closer look at what has and hasn't worked in ISTEA and TEA–21 over the years, I think we'll see that most of what we were able to accomplish has had a positive impact on our nation's transportation system. I hope we can build on that success in our re-authorization of TEA–21.

STATEMENT OF HON. JOHN WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Mr. Chairman, I join in welcoming Secretary Mineta to the committee and look forward to a valuable exchange of ideas over the next 2 years as we prepare to reauthorize our nation's highway and transit programs.

It was my privilege to be actively involved in the formulation of TEA–21 in 1997 and 1998 in my capacity as the subcommittee chairman. At that time, we saw a great need in this Nation to respond to many unmet transportation demands to improve mobility in our rural communities, to relieve congestion in our urban areas and to promote the efficient movement of American goods. We responded with an unprecedented increase of 40 percent in highway funding by enacting landmark budget provisions to free up the revenues in the Highway Trust Fund.

TEA–21's revolutionary financing and formula reforms built upon the program reforms of ISTEA. 1991. As we look to the next bill, how will we again provide the vision and tools to ensure that our surface transportation network—highways, transit and rail—will stimulate economic growth?

Our multi-year reauthorization bills have provided a unique opportunity to transform our national transportation system.

Most notably, President Eisenhower responded to the mobility needs with the vision of the Interstate Highway System. In 1991, at the end of the construction of the 40,000-mile Interstate System, President Bush responded with the National Highway System to ensure that an efficient road network reached 95 percent of all Americans.

Also in ISTEA 1991, Senator Moynihan had a keen vision of a seamless national transportation system that connected roads to transit and railroad stations to airports.

In 1997, President Clinton supported the efforts of this committee under the leadership of Chairman Chafee and our Ranking Member, Senator Baucus, to release funds from the Highway Trust Fund.

The budget reforms of TEA–21 were unprecedented. For the first time we fulfilled President Eisenhower's commitment that taxes American motorists pay at the gas pump will be used to build and upgrade our highways.

As we begin today, in partnership with the Administration, to reauthorize TEA–21, our overriding challenge is transportation gridlock.

Bold, new initiatives are needed and I hope that we all will strive for the standard of excellence set forth by President Eisenhower, President Bush, and Senators Moynihan and Chafee.

STATEMENT OF NORMAN Y. MINETA, SECRETARY, DEPARTMENT OF TRANSPORTATION

Mr. Chairman, members of the committee, thank you for the opportunity to speak about the lessons we have learned from the Transportation Equity Act for the 21st Century (TEA–21).

Through this committee's leadership, and with the active participation of our State, local and private sector partners, the Department of Transportation has worked to realize the purposes and objectives of TEA–21. I would like to commend the committee for continuing its leadership by scheduling this series of hearings on the reauthorization of TEA–21.

We are looking forward to working with the members of this committee and with Congress in shaping proposals for the reauthorization of this legislation. Working together, we need to establish the base of resources available for this important legislation in order to meet the transportation challenges facing the Nation.

Three decades ago, when I was Mayor of San Jose, California, I learned that the tool that made the most difference in my community was transportation. Nothing else had as great an impact on our economic development, growth patterns, and quality of life. What I have found in the years since is that this is true not just locally, but also nationally. A safe and efficient transportation system is essential to keeping people and goods moving and cities and communities prosperous.

As is true for many of you on this committee, I take great pride in the enactment of the predecessor of TEA–21, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), during my years in the House of Representatives. With that legislation we established new principles in the implementation of the nation's surface transportation programs—building partnerships with local and State officials to advance the strategic goals for transportation capital investment. They are flexibility in the use of funds; a commitment to strengthening the intermodal connections of the nation's transportation system; expanded investment in, and deployment of, new information technologies for transportation services; and a heightened sensitivity to the impacts which transportation has on our quality of life and on the shape and character of America's communities.

TEA–21 built upon the programmatic initiatives contained in the earlier legislation and through its financial provisions, provided State and local governments and other transportation providers with greater certainty and predictability in transportation funding. It achieved this by reforming the treatment of the Highway Trust Fund to ensure that, for the first time, spending from the Highway Trust Fund for infrastructure improvements would be linked to tax revenue. The financial mechanisms of TEA–21—firewalls, Revenue Aligned Budget Authority (RABA), and minimum guarantees—provided greater equity among States in Federal funding and record levels of transportation investment.

The programmatic and financial initiatives of these two historic surface transportation acts have provided us with a solid and balanced structure around which we can shape this reauthorization legislation.

While the legislation, which the Administration and Congress will work together to see enacted, should continue and build upon ISTEA and TEA–21, we have an opportunity and an obligation to do more than that. This is a time in the transportation sector of extraordinary challenge and opportunity. On September 11 a determined and remorseless enemy challenged one of America's most cherished freedoms, the freedom of movement. The events of that day demonstrated how critical the nation's transportation system is to the security of every American and to the nation's economic well-being.

In shaping this surface transportation reauthorization bill, we must maximize the safety and security of all Americans, even as we enhance their mobility, reduce congestion, and grow the economy. These are not incompatible goals; indeed, the lessons of TEA–21 demonstrate that all of these values are appropriate goals of national transportation policy and that they reinforce each other: it is possible to have a transportation system which is safe and secure, efficient and productive.

TEA–21'S RECORD

In five principal areas TEA–21 has strengthened the nation's transportation system: the predictability, equity and flexibility of funding; safety; mobility and system upgrading; the application of innovative technologies; and quality of life.

FUNDING LEVELS AND PROGRAM EQUITY

TEA–21 revolutionized transportation funding and provided record amounts of spending for transportation, a 40 percent increase over the period of ISTEA. The minimum guarantees and the Highway Trust Fund firewalls created confidence among grantees regarding program funding. Predictability is one of the most important aspects of program delivery for State and local programs. States and local communities have increased their funding levels to match the commitments made in TEA–21. Importantly, TEA–21's minimum guarantees provided unprecedented equity between the States, ensuring that highway funds are distributed in the fairest manner to date.

Equally important is the funding flexibility, first allowed in ISTEA and continued in TEA–21. Flexible funding allows States and communities to tailor their transportation choices to meet their unique needs and enables State and local decisionmakers to consider all transportation options and their impacts on traffic congestion, air pollution, urban sprawl, economic development, and quality of life.

TEA–21's innovative loan and grant programs further augmented the highway and transit programs. The Transportation Infrastructure Finance and Innovation Act (TIFIA) has provided almost $3.6 billion in Federal credit assistance to 11 projects of national significance representing $15 billion in infrastructure investment. These loans, loan guarantees, and lines of credit for highway, transit and rail projects have encouraged private investment in strengthening transportation infrastructure.

SAFETY

The Department's paramount concern is to assure the American public that the Nation has the safest, most secure system possible as our transportation system works to meet the needs of the American economy. The United States has an enviable transportation safety record. However, the challenge of safety on the transportation system remains significant. While the number of highway fatalities in recent years has been relatively flat, despite significantly more vehicles on the nation's roads, more than a quarter million people have been killed on America's highways and roads in the past 6 years, 41,000 deaths each year. In addition, there are over three million injuries annually.

TEA–21 introduced new programs, greater flexibility and increased funding to meet this challenge. Increased TEA–21 funding enabled States to make needed safety improvements to the transportation infrastructure, and States may—and do—use their Surface Transportation Program (STP), Interstate Maintenance, and National Highway System (NHS) funds for safety improvements. Within the STP, funds are reserved under TEA–21 for highway and rail crossing improvements and hazard elimination. The FHWA works closely with States and others to improve our ability to analyze roadway safety challenges and to direct investments to specific projects and programs, which will deliver the most value in terms of lives saved and injuries minimized.

Since enactment of TEA–21, the Department of Transportation has awarded a total of $729 million in highway safety grants. TEA–21 also authorized $72 million annually for behavioral research to determine the causes of motor vehicle crashes, to identify target populations, to develop countermeasures, and to evaluate the effectiveness of programs in reducing traffic deaths and injuries. The Act also established several important, new, safety incentive grants. For example, between fiscal year 1999 and fiscal year 2002, the National Highway Traffic Safety Administration (NHTSA) awarded $210 million in seat belt incentive grants and over $113 million for innovative seat belt programs. Between June 1998 and June 2001, seat belt use had increased from 65 percent to 73 percent. Seat belt use, in total, saves an estimated 12,000 lives annually.

In motor carrier safety, TEA–21, along with the Motor Carrier Safety Improvement Act of 1999, created new programs and tools for the Department and States to improve safety. TEA–21 increased flexibility for grantees, strengthened Federal and State enforcement capacity, and provided flexibility to promote innovative approaches to improving motor carrier safety. TEA–21 placed greater emphasis on targeting unsafe carriers and improving information systems, and increased funding for commercial driver license programs.

MOBILITY AND SYSTEM UPGRADING

ISTEA and TEA–21 placed an unprecedented emphasis on developing a seamless, intermodal transportation system that links highways, rail, transit, ports and airports. The dramatically increased funding under TEA–21 also enhanced mobility by

upgrading the condition of highways, particularly the National Highway System, and transit systems. As a direct result of the increased spending provided in TEA–21, overall highway system conditions—as measured by pavement condition, ride quality, alignment adequacy, bridge ratings, and the condition of rail transit assets—have improved.

As you know, Federal highway funds are used for a variety of system improvement and congestion relief purposes, depending on the priority needs and goals of each State. In recent years, for example, approximately 50 percent of Federal funds were obligated for system upgrading purposes, including reconstruction, widening, restoration and rehabilitation, and resurfacing. These investments have led to a steady improvement in pavement condition: in 2000, 90.9 percent of travel on the NHS occurred on pavements rated acceptable or better.

Moreover, under TEA–21, States continued to reduce the number of bridges rated structurally deficient. In 2001 the percentage of deficient NHS bridges had been reduced to 21.2 percent. In fiscal year 2001, the Federal Highway Administration (FHWA) provided $3.5 billion in TEA–21 funding for approximately 3,000 bridge projects through the Highway Bridge Replacement and Rehabilitation program. Included in this program were 17 major replacement or rehabilitation projects and three seismic retrofit bridge projects that received almost $88 million in funding.

TEA–21 established new programs that enabled improved connectivity across modes, particularly in the area of freight movements. The National Corridor Planning and Development/Coordinated Border Infrastructure Program (NCPD/CBI, also known as the Corridors and Borders Program) has funded numerous freight improvement projects as well as many economic development projects, pedestrian improvement projects, and multi-modal studies, while strengthening the focus on international corridors and gateways with America's NAFTA trading partners. The Alameda Corridor Project used a mix of private funds and public programs to improve rail and highway access and to reduce traffic delays in the critically important area of the Ports of Los Angeles and Long Beach.

As of 2001, the nation's urban rail transit assets comprised 10,427 miles of track, 2,776 rail stations, and 1,310 maintenance facilities. Under TEA–21, the substantial investment in the nation's transit systems has contributed to an improvement in the condition of transit assets and a resulting increase in transit ridership. Preliminary estimates indicate that public transit trips increased by 4.4 percent from 2000 to 2001 to 9.4 billion trips.

TEA–21 also authorized the Job Access and Reverse Commute (JARC) Program to address transportation gaps in the public transit system and to reduce barriers for those moving from welfare to work. This program has made transit services available to many who previously did not have access to adequate transportation and, thus, to jobs. As of fiscal year 2000, the JARC program had made new transit service available at more than 16,000 job sites.

NEW TECHNOLOGIES

Under TEA–21, the Department of Transportation has made strides in research. Research programs include development and deployment of Intelligent Transportation Systems (ITS), pavement improvement, congestion reduction, seismic hardening of highway infrastructure elements, strengthening of bridges, and new tunnel technology. The Highway Safety Research and Development program is the scientific underpinning for the Department's national leadership in highway safety programs, and includes behavioral research to reduce traffic deaths and injuries, crash avoidance research, roadway design and operational improvements, and vehicle safety performance standards. Rail related research and development has focused on the next generation of high speed rail equipment and train control, maglev systems, and innovative technologies to mitigate grade crossing hazards.

TEA–21 authorized a total of $603 million for ITS research for fiscal year 1998 to 2003, and significant progress has been made in applying this technology to our surface transportation system. From 1997 to 2000, we have experienced a 37 percent increase in the number of freeway miles with real-time traffic data collection technologies, a 55 percent increase in the coverage of freeways by closed circuit television, a 35 percent increase in the number of buses equipped with automatic vehicle locations system, and an 83 percent increase in traveler information dissemination on our freeways. Through the Department's Intelligent Vehicle Initiative, research on driver performance, crash avoidance and warning system performance, and motor vehicle safety performance standards offer the promise of future reductions in highway deaths and injuries.

QUALITY OF LIFE

TEA–21 has given States and communities across America additional tools and opportunities to enhance the environment and quality of life for their residents. It continued and increased funding for several programs originally authorized in ISTEA, broadened eligibility for others and established the new Transportation and Community and System Preservation Pilot program (TCSP).

The TCSP program was authorized for $120 million in funding under TEA–21 as a discretionary grant program to strengthen the linkages between transportation and land use. The grants have provided funding for planning and implementation as well as technical assistance and research to investigate and address the relationship between transportation, community and system preservation, and private sector-based initiatives.

The Congestion Mitigation and Air Quality Improvement Program has focused on improving air quality. Under TEA–21, it provided more than $8 billion in funding for use by State and local partners to support traffic flow projects, cleaner fuels, improved transit services and bicycle and pedestrian programs that reduce congestion and emissions and improve the quality of life.

The National Scenic Byways program and the Transportation Enhancements program have helped States and communities improve the environment. Since the enactment of TEA–21, more than $1.4 billion in Transportation Enhancement funds have been obligated to local communities to implement community focused, non-motorized activities that enhance transportation. Many more activities have been programmed and are awaiting implementation.

TEA–21 directed us to streamline environmental reviews. This is a major priority for the Department in assisting States and communities build infrastructure more efficiently, while retaining important environmental protections that maintain our quality of life. Since the enactment of TEA–21 in 1998, streamlining of the planning and approval process for projects has taken root throughout the country: interagency personnel funding agreements that result in faster, concurrent reviews; a merged process for wetland permits with the Army Corps of Engineers; and delegated authority for historic resources. As a result of these actions, the mean time to process environmental documents for major highway projects has been cut by almost 8 months, the median time has been cut by 1 year, and the Department is well positioned for significant future progress. While we have begun the job, more can be done.

BUILDING ON TEA–21

The Department of Transportation looks forward to working with both Houses of Congress, State and local officials, tribal governments, and stakeholders in shaping the surface transportation reauthorization legislation. The Department has established an intermodal process to develop surface transportation legislative proposals for reauthorization. A number of intermodal working groups have already identified key issues and programmatic options for consideration. In the next few months, the Department will work with stakeholders and congressional committees in shaping the reauthorization legislation.

In that effort, the Department will be motivated by certain core principles and values:

- Assuring adequate and predictable funding for investment in the nation's transportation system. This funding can contribute to the long term health of the economy and, by enhancing the mobility of people and goods, promote greater productivity and efficiency.
- Preserving funding flexibility to allow the broadest application of funds to transportation solutions, as identified by State and local governments.
- Building on the intermodal approaches of ISTEA and TEA–21.
- Expanding and improving innovative financing programs, in order to encourage greater private sector investment in the transportation system, and examining other means to augment existing trust funds and revenue streams.
- Emphasizing the security of the nation's surface transportation system by providing the means and the mechanisms to perform risk assessment and analysis, incident identification, response, and, when necessary, evacuation.
- Strengthening the efficiency and integration of the nation's system of goods movement by improving international gateways and points of intermodal connection.
- Making substantial improvements in the safety of the nation's surface transportation system. It is not acceptable that the Nation suffers 41,000 deaths and over 3 million injuries annually on the highway system.
- Simplifying Federal transportation programs and continuing efforts to streamline project approval and implementation.

• Developing the data and analyses critical to sound transportation decision-making.
• Fostering "intelligent everything" in the development and deployment of technology, such as pavement monitoring, message systems, remote sensing, and toll collection.
• Focusing more on the management and performance of the system as a whole rather than on "inputs" or the functional components such as planning, development, construction, operation and maintenance themselves.

This is a moment of great opportunity. As was true when Congress considered the landmark ISTEA and TEA–21 legislation, we have an opportunity to create our own legacy and to serve the needs of the American people. I am confident that, working together, the Department and Congress can preserve, enhance and establish surface transportation programs which will provide not only for a safer and more secure system, but one which is more efficient and productive and enhances the quality of life. One answer to the events of September 11 is to strengthen, not diminish, the right of all Americans to mobility and to grow the economy. These goals should characterize our work on reauthorizing TEA–21.

Again, Mr. Chairman, thank you for the opportunity to testify before you today. I look forward to responding to any questions you may have.

RESPONSES OF HON. NORMAN Y. MINETA TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1a. Does the Administration support transfer of rail tax revenues into a trust fund dedicated to rail-related investment?

Response. The Administration has not yet developed a position on this issue. As I indicated in my oral testimony to the committee, Highway Trust Fund should only be available for modes currently financed by it. If new programs in rail infrastructure are to be addressed in TEA–21 reauthorization, non-Highway Trust fund sources of revenue will have to be identified. The rail fuel tax was originally enacted in 1990 as a deficit reduction tax. Similar taxes were also levied on fuel used by other modes of transportation. Deficit reduction taxes remain on rail diesel, fuel used by commercial vessels on inland waterways, motorboat gasoline and highway gasohol. I look forward to further discussion with the committee on financial mechanisms to support rail-related infrastructure investments.

Question 1b. If so, should those revenues go to the Highway Trust Fund, with broadened flexibility for rail investment, or should a new Rail Trust Fund be established?

Response. The Administration has not yet developed a position on this issue. I look forward to further discussion with the committee on financial mechanisms to support rail-related infrastructure investments.

Question 2. In general, how does the Administration propose to ensure adequate funding so that our nation can enjoy the benefits of world-class rail service for both passengers and freight?

Response. The Administration is committed to presenting proposals relating to inter-city passenger rail in connection with Amtrak reauthorization early this year. We expect to consider and work with Congress on issues relating to freight rail in the context of TEA–21 reauthorization. The Administration and the Congress need to work together to identify the structural reforms and develop solutions that will result in a financially stable rail system that can help this country meet our personal and economic mobility and national defense needs.

RESPONSES OF HON. NORMAN Y. MINETA TO ADDITIONAL QUESTIONS FROM SENATOR NIGHTHORSE CAMPBELL

Question 1. With the enormous responsibilities and requirements which have been placed upon the Department since 9/11, does the U.S. DOT have the time and resources to concentrate on this important TEA–21 Reauthorization or should a 1- or 2-year short extension be considered?

Response. It is our intention to send the Administration's reauthorization bill to Congress right after it convenes early in 2003. The Department has established an intermodal process to develop proposals for surface transportation reauthorization. Over the next few months, the Department will work with stakeholders and congressional committees to shape its reauthorization proposals. To that end, we are currently proceeding under the assumption that the authorization period of this bill will be 6 years, comparable to those of ISTEA and TEA–21.

Question 2. Has there been any consideration of a special category for highway security funding in the next reauthorization?

Response. The Department has established an intermodal process for the surface transportation reauthorization but has not developed specific proposals. The events of 9/11 have demonstrated our need to address security issues and to ensure that America's transportation system emerges from this transformation even stronger and more efficient than before. One of the core principles of the Department's reauthorization effort is emphasizing the security of the nation's surface transportation system by providing the means and the mechanisms to perform risk assessment and analysis, incident identification, and response.

RESPONSES OF HON. NORMAN Y. MINETA TO ADDITIONAL QUESTIONS FROM SENATOR GRAHAM

Question 1a. How do you see the reauthorization of the surface transportation bill in relation to our new focus on homeland security?

Response. The events of September 11 have underscored the pivotal role transportation plays in the Nation's prosperity and quality of life. Our challenge is to create a seamless transportation system that will maximize not only the safety and efficiency, but also enhance the security of the movement of people and goods.

Question 1b. What are the homeland security issues we should have in mind when drafting this legislation?

Response. Following the September attacks, the Department took immediate steps to work with State and local officials to enhance security. Adding security personnel, emphasizing security awareness and response training, and hardening our transportation infrastructure against the threat of terrorism are critical security components. In this effort, we will work with the various modes of transportation to assess risks and to develop incident reporting and response systems. We look forward to working with Congress on these critical requirements as the reauthorization process continues.

Question 1c. Will U.S. DOT and the Office of Homeland Security be following the reauthorization process together?

Response. In developing its reauthorization proposals, the Department will be consulting with other Federal agencies including the Office of Homeland Security as appropriate.

Question 2. Under TEA–21 we created the "tapered match" program and other alternatives for State matching requirements so that projects did not have to be delayed. Has the "tapered match" or other alternatives been used by States during the past year? Do you know of any transportation projects that have stalled because a State could not meet its match requirement?

Response. "Tapered match" provides relief for any State experiencing a temporary shortage of State matching funds. The Department is aware of nine States that have used the tapered match provision. Also, 20 States are currently eligible to use non-cash toll credits to match Federal funds, which will also help ease a cash-flow shortage. While we have heard that some States are reprogramming funds to obtain sufficient matching funds, we are not aware of any Federal-aid projects being delayed because of insufficient matching funds.

STATEMENT OF HON. BOB WISE, GOVERNOR OF WEST VIRGINIA

Chairman Jeffords, Senator Smith, and members of the Senate Environment and Public Works Committee . . . it is my great pleasure to be with you today to offer my testimony as you begin to debate the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21). I am especially pleased to be one of the lead Governors on transportation for the National Governors Association (NGA). I also appreciate the chance to follow United States Secretary of Transportation Norm Mineta. As you are aware, I was a member of the U.S. House of Representatives Transportation and Infrastructure Committee when Secretary Mineta was chair. I can assure you that there is no better person to guide our nation's transportation policy. I also wish to commend West Virginia's United States Senators and your colleagues, Senators Byrd and Rockefeller. Having two senators of their caliber makes my job as Governor much easier.

When I was a member of the U.S. House of Representatives, I was always a supporter of TEA–21 . . . because I firmly believed that investing in our nation's transportation infrastructure was a key ingredient to economic prosperity. After a year in office as the Governor of West Virginia, I am even more convinced that TEA–

21 is essential to the future of my State and this Nation. West Virginia is a wonderful State, but we have unique transportation challenges because of our beautiful, yet rugged terrain. One of my most important jobs is to continue to improve our road system so that we can take full advantage of the opportunities presented by having a modern transportation system. West Virginia has committed itself to doing that by maximizing our State gas tax to leverage as much local investment as possible.

The State-Federal partnership fostered under TEA–21 has been one that has greatly benefited the surface transportation system throughout the Nation as a whole. The Governors are committed to maintaining a safe and efficient transportation infrastructure, and we urge the reauthorization of TEA–21. To meet that goal, a number of important issues must be addressed and considered.

As this body debates the reauthorization of TEA–21, care should be taken to fortify and protect the Highway Trust Fund. This fund is the major financial mechanism that redistributes dedicated highway related revenue . . . such as fuel taxes and user fees to the States for maintaining and improving the nation's transportation infrastructure. It is critically important that Congress and the Administration take measures to ensure that the annual revenues to the Highway Trust Fund are used for their intended purpose. This has been achieved during TEA–21 through the workings of the Revenue and Aligned Budget Authority (RABA) Program. While this concept is commendable, we now see that it is not working as efficiently as it could. This program will provide a total of $4.1 billion more for infrastructure investment than was anticipated when TEA–21 was first enacted; however, that figure represents the net effect of the very substantial increases the States enjoyed in fiscal years 2000, 2001, and 2002. Between 2002 and 2003, the States may see their apportionments of obligation authority from the Trust Fund drop by about 30 percent. This translates into a $9.1 billion drop in Federal highway funding from the fiscal year 2002 level. These figures are projected by the U.S. Department of Transportation based upon new projections of the Revenue Aligned Budget Authority (RABA). The potential magnitude of a $9.1 billion funding decrease has the result of nearly 144,000 jobs being lost over the next 2 years.

The longer term impact on the highway program could extend for a number of years for two reasons. First, the sharp reduction will affect the ability of States to use bond financing for construction. Second, the fiscal year 2003 funding numbers would serve as a baseline for the calculations of the next reauthorization legislation. These extreme peaks and valleys make it impossible to conduct a consistent, well-planned investment program. Going into 2003, commitments to several road projects around the country will have to be revisited, and contractors will be without work. Since the redistribution of RABA funds have been based largely on revenue estimates from year to year, I encourage the committee to pursue changes that ensure that all Trust Fund revenues continue to be distributed to the States but in a fashion that smoothes out the extreme peaks and valleys we will experience during the TEA–21 period. States are in the process of researching solutions to achieve a more stable and reliable distribution mechanism in light of new negative RABA projections. We would like to work with you and your committee to ensure a rapid and bipartisan action.

Our States are responsible for the vast majority of the maintenance of our nation's roads and finance more than one-half of all public investments in surface transportation. My fellow Governors are committed to maintaining a first-class transportation system and continuing the partnership with the Federal Government developed through TEA–21 . . . but in order to do that, it is important that each State be granted the flexibility and authority to make the key decisions that affect transportation.

The public transportation system is largely the responsibility of States and local governments. It is important that the next authorization should not weaken or preempt State authority. The Governors oppose unfunded mandates and urge Congress not to impose new standards without a Federal financial commitment to the States to offset any financial impact. Furthermore, the Governors urge the use of incentives rather than sanctions to encourage the achievement of national goals.

The nation's Governors strongly support sound environmental protection efforts. It is important that TEA–21 has a strong environmental component; however, it is important that States have the necessary flexibility to meet those environmental guidelines. Reasonable and sound environmental policy can be achieved without sacrificing improved transportation and economic development. One area of frustration for West Virginia that resulted in numerous major delays in important projects has been Section 4(f) of the Department of Transportation Act of 1966. This section was originally intended to protect certain highly valued recreational and natural resources from significant impacts, which is certainly something I agree with. How-

ever, over time the Section 4(f) requirements have been extended to cover historic properties which are also protected under Section 106 of the National Historic Preservation Act. A complicated and rigid "avoid at all costs" mentality has developed regardless of how insignificant the historical resource or impact. Eligibility has broadened to include many properties that are in fact unremarkable. This "broadening" at times includes very large districts surrounding the property. As you debate reauthorization of TEA–21, I think this is an area that also needs some consideration. This provision has led to many delays to vitally important projects and has hindered the process of making transportation more accessible and safe.

The safety of our citizens on the nation's roads is a major concern for the Governors. While modern transportation systems have greatly helped reduce injuries and deaths on our nation's highways, safety programs should be strengthened. States should be allowed to focus safety resources on their most pressing individual safety needs. Implementing any new national safety standards without State involvement will only complicate the process.

TEA–21 can be further strengthened through streamlining and eliminating administrative processes that are duplicative. The recent Notices of Proposed Rulemaking (NPRM) released by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) concerning streamlining regulations will complicate TEA–21 rather than simplify it. I urge you to carefully consider any new administrative guidelines that will only hinder the process. It is a waste of time and resources to delay projects for unnecessary and burdensome administrative processes.

In conclusion, I hope my statements today offer some insight into the policy positions of the nation's Governors. It is very important for all the States that TEA–21 is reauthorized and the advice of the nation's Governors is heeded in the process.

On behalf of the citizens of West Virginia, I urge you to take all that I have said into consideration as this process continues. I believe for West Virginia to prosper, we must have a modern transportation system. Many sound policies were put into place in TEA–21. One of them was the commitment of direct contract authority from the Trust Fund toward the completion of the long-promised Appalachian Highway System. The completion of this system was promised 37 years ago to the people of Appalachia. While the interstate system is now 100 percent complete, only 82 percent of the Appalachian System is complete. These incomplete portions represent some of the most dangerous segments of roads in the Trust Fund can the Appalachian States be able to make meaningful progress on transportation.

Once again, thank you for the opportunity to be with you today on behalf of the National Governors Association and the people of West Virginia. I would be happy to answer any questions.

RESPONSE OF HON. BOB WISE TO ADDITIONAL QUESTION FROM SENATOR JEFFORDS

Question. Governor, in your testimony, you said, "States should be allowed to focus safety resources on their most pressing individual needs. Implementing any new national safety standards without State involvement will only complicate the process." During enactment of the National Highway System legislation a few years back, I worked to ensure that States had design flexibility so that roadways would remain compatible with their surroundings. Can I infer from your statements today that the Governors continue to favor such an approach?

Response. Senator Jeffords, the Governors appreciate the effort that you and others have made to allow for proper State flexibility. We continue to strongly support flexibility in roadway design. Every transportation situation is different and it is very important that design flexibility be retained. I would strongly urge that you continue to keep State flexibility in TEA–21. It is an important part of the process.

RESPONSES OF HON. BOB WISE TO ADDITIONAL QUESTION FROM SENATOR CAMPBELL

Question 1. Are there transportation related security projects in which your State could use Federal funding as a result of September 11?

Response. September 11th has forever changed the way this nation protects itself. After the attacks, I heightened security across the State including monitoring and patrolling of key transportation assets such as bridges, tunnels, and major interchanges. State Police and the West Virginia Department of Transportation, along with other State agencies, used considerable financial resources to meet that challenge. While it is unlikely that all transportation infrastructure can be protected at all times due to the length of roads, railroad, and pipelines, certain key assets and segments should be protected and watched. Without Federal financial assistance, it

is nearly impossible for the States to maintain that kind of security for any length of time. I believe that assisting the States financially on all aspects of homeland security is vitally important to the nation's national security.

Question 2. Would you support the creation of a specific highway security funding category in the next reauthorization?

Response. Governors would certainly welcome Federal funding to assist with homeland security costs related to transportation and other issues. However, it is important that the revenue for this purpose not be diverted from the Highway Trust Fund but come as a new revenue source. Simply creating a new security funding category may only get in the way of building our nation's roads if it does not include funds above what is being dedicated for the purpose of building and designing transportation projects. Frankly, there needs to be more focus on assisting the States financially with homeland security in all areas and not just transportation. Better security should not come at the expense of continuing to improve our transportation infrastructure. We need to find the financial resources to both continue transportation enhancements and improve homeland security.

RESPONSE OF HON. BOB WISE TO ADDITIONAL QUESTION FROM SENATOR GRAHAM

Question. You served in the House of Representatives during the development of ISTEA and TEA–21, and come before us today as a Governor. After being on both sides of the equation, what would be your top suggestion(s) on enhancing the coordination and cooperation between the Federal Government and State government?

Response. Efforts need to be continued to streamline the Federal review and approval process. Environmental concerns, air and water quality, historic issues, and other important areas of concern should be handled by the lead agencies in those areas. Without streamlining the process, duplication by multiple agencies will continue to unnecessarily delay important transportation projects. I alluded to an example of the need for streamlining in my testimony. West Virginia has suffered through numerous delays on very important highway projects because of the duel consideration of historical sites. Eliminating administrative duplication and streamlining the process would be a major step forward in improving the nation's transportation system.

RESPONSES OF RAY SCHEPPACH TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. Your comments on the current fiscal condition of the States are very informative and somewhat disconcerting. Please place those comments in context of the history and future of the Federal surface transportation program. Specifically, please address the following:

a) What share of the nation's highway and transit investment has been born by the States over the last 10 years?

Response. Transportation represents 8.8 percent of total State expenditures. In 2000, States spent $83.1 billion on transportation, a 4.1 percent increase from the 1999 level of $79.8 billion. Figures for capital spending on transportation by States show actual 2000 expenditures of $37 billion. State transportation expenditures are primarily funded from earmarked revenues (major source is gasoline tax) placed in special transportation (highway) trust funds.

Question 1b. Has State spending on transportation as a percent of all State spending increased under ISTEA and/or TEA–21?

Response. State budgetary data indicates that States have increased transportation expenditures from fiscal year 1999 to fiscal year 2001. In fiscal year 1999, State transportation spending totaled $79.85 billion; in fiscal year 2000, $83.14 billion; and in fiscal year 2001, $91.10 billion.

More specifically, in fiscal year 2002, State expenditures for transportation were funded as follows: 1) 62.2 percent from other State funds; 2) 27.4 percent from Federal funds; 3) 5.6 percent from bonds; and 4) 4.8 percent from general funds.

The landmark Intermodal Surface Transportation Efficiency Act (ISTEA) legislation passed nearly a decade ago was the beginning of a true State-Federal partnership in approaching the national transportation system. It acknowledged the growing need for integration across all levels of government and permitted States and localities to have more flexibility in the use of Federal funds and allowed decision-making authority at the State level. State flexibility was granted in determining project eligibility requirements, allocating the required 20 percent State funding match, and in leveraging Federal funding.

Since the enactment of the Transportation Equity Act for the 21st Century (TEA–21) in 1998, which increased Federal investment in highway and transit systems by 40 percent, States and localities have leveraged the guaranteed Federal funding to maximize State specific transportation priorities. The increased level of Federal investment has allowed States to: 1) increase highway preservation and performance; 2) obtain record-levels of transit rider-ship; 3) decrease highway fatalities; 4) provide transportation programs for Welfare-To-Work recipients; and 5) achieve a greater level of fairness in the distribution of funds.

Question 1c. Have States raised additional revenues for transportation to complement the increased Federal funding levels?

Response. Yes. Since fiscal year 1998, States have raised additional revenues by increasing the State motor fuel tax rate. In fiscal year 2000, an additional $212.50 million was collected; in fiscal year 1999, $22 million; and in fiscal year 1998, $462 million.

Currently, 11 States have variable rate motor fuel taxes which are adjusted at specific intervals to sustain funding levels. Also, four States have provisions or "triggers" in statute that would enable them to increase their State motor fuel tax rate if the Federal tax rate should decrease. Other States would require State legislative action to adjust fuel taxes.

Because TEA–21 made it possible for States to aggressively plan out and secure State funding through innovative finance for new transportation projects, Governors continue to take measures to fully put into action newly available Federal funds and accelerate critical, but often-delayed projects. Such examples include:

- In Illinois, Governor George Ryan's "Illinois First" initiative makes $10.5 billion available for highways and $4.1 billion for transit over 5 years.
- In California, Governor Gray Davis and the State legislature authorized $8 billion for a congestion mitigation program, which when matched with Federal and local funds will commit $23 billion to 141 projects."

Question 1d. In light of their present fiscal difficulties, will the States be able to match the increased level of the Federal transportation program in FFY 2002?

Response. States are expected to match funding requirements for approved projects in fiscal year 2002. However, in 2002, States that pre-finance with Federal highway funding may need to reprogram, delay, and reconsider funding critical transportation projects in light of the Administration's fiscal year 2003 budget proposal. For example, a cut in FY2003 spending from the current level would deleteriously impact many States' construction planning. Most States begin to plan this time of year, enter into contracts near the beginning of the construction season, and implement their 2003 budgets on July 1, 2000. Numerous States that pre-finance with Federal funds expect a reimbursement very early in the Federal fiscal year to continue for the next year's planning. This means that a 27 percent fiscal year 2003 cut will have the effect of reducing expenditures well before July of this year.

Question 1e. Based on current forecasts, will the States be able to match a Federal program funded at or above the TEA–21 level ($218 B) during the next reauthorization period?

Response. Yes. States will continue to be a sound partner in maintaining and developing an integrated national transportation system."

Question 2. Among the core principles of ISTEA and then extended in TEA–21 was a broad commitment to flexibility in meeting State and local surface transportation needs, ranging from highway and bridge improvements to pedestrian/bicycle and public transportation needs. At the same time, we note that two-thirds of the States have constitutional prohibitions on the use of State funds for intermodal investments, while TEA–21 emphasizes such flexibility in meeting transportation needs.

Is there something that Federal law could do to incentivize States to revamp their restrictions on the use of State funds to further promote flexibility in development of a more balanced mix of surface transportation investments?

Response. ISTEA made it national policy to "encourage and promote development of a national intermodal transportation system in the United States to move goods and people in an energy efficient manner . . ." TEA–21 continued this precept and directed that a study be conducted to review the condition of and improvements made since the designation of the National Highway System (NHS) connectors that serve seaports, airports, and other intermodal freight transportation facilities.

The evidence shows that despite the increased funding for intermodal connectors, interconnectivity between all the modes of transportation in the areas of passenger and freight mobility is still lagging.

Any future reauthorization legislation should recognize that States continue to overcome challenges in implementing intermodal passenger and freight connector

projects. Scarcity of funds, project eligibility and differing responsibilities and philosophies between States, Metropolitan Planning Organizations (MPOs), and localities creates a complex web in the decisionmaking process. An added dilemma is the lack of quantitative tools that would allow States and local governments to properly analyze and evaluate economic benefits of freight investment to the region and the country. States believe that optimal management of the intermodal connectors can be achieved when public, private and multi-jurisdiction elements are working collaboratively for a desired result.

I agree with the study's finding that "as an incentive to freight project development, additional funding for planning and coordination could be used to financially support States and MPOs who are identifying, conceptualizing and planning for freight projects . . ." and, such funding be made available via incentive grants to agencies and areas that have demonstrated a commitment to intermodalism and have meaningful private sector involvement.

The next surface reauthorization legislation should continue specific intermodal-related programs such as the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) credit assistance program for major transportation investments of critical national importance, Intermodal Connectors Program, and the Surface Transportation Program (STP).

STATEMENT OF HON. PETER CLAVELLE, MAYOR, BURLINGTON, VT

Thank you Chairman Jeffords, Ranking Member Smith, and members of the committee for the opportunity to appear before you today to discuss such an important issue to the nation's cities. I am Peter Clavelle, Mayor of Burlington, VT. Today I am pleased to be here not only as a Vermonter, but also as a representative of the National League of Cities.

The National League of Cities represents 18,000 cities and towns and over 140,000 local elected officials. NLC represents all cities, regardless of size—our largest member is New York City with a population of 8 million, our smallest member is De Graff, Minnesota with a population of 149. As the representative of the nation's local leaders, NLC has a vital interest in the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21).

NLC's Transportation Infrastructure and Services committee, one of seven standing policy committees, appointed a special TEA–21 Reauthorization Task Force which recently completed a year-long rewrite of our surface transportation policy in preparation for reauthorization. Our new policy was adopted by NLC's full membership at our annual meeting in December 2001.

In addition, NLC has joined other groups representing local officials to comprise the Local Officials Transportation Working Group. The working group includes representatives of city and county elected officials, public works professionals, development organizations, and city/county managers. The working group was created to provide a unified voice of local government for the reauthorization of TEA–21. We look forward to working with the committee and our other Federal and State partners throughout the reauthorization process.

In addition to representing NLC today, I am here of behalf on my city of Burlington, Vermont. With a population of 40,000, Burlington is Vermont's largest city. I am currently serving my sixth term as Mayor, and just this fall I concluded a 2-year term as President of the Vermont League of Cities and Towns. I also serve on the Advisory Board of the United States Conference of Mayors.

PARTNERSHIPS

The title of today's hearing is "Partners for America's Transportation Future." The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and its successor, TEA–21, in 1998, shepherded a new era of transportation partnership in this country.

First, it forged a new partnership among Federal, State and local governments by empowering Metropolitan Planning Organizations (MPOs) in the transportation decisionmaking process. This elevation of the role of MPOs insured a more equal partnership between local and State governments in both the planning and funding decisions for transportation projects. This is a partnership that must be preserved and strengthened in the process of TEA–21 reauthorization.

The second category of partnerships created by these two landmark laws is among the modes of transportation to which the legislation allocates funding. The various modes—automobile, trucking, transit, rail, ferry, bicycle, and walking—were challenged to become truly intermodal. We began to pursue the vision of creating a

seamless, uninterrupted system to accommodate the need to efficiently and equitably serve our communities by transporting both people and goods.

In Burlington and Vermont, transportation partnerships facilitated by ISTEA and TEA–21 have allowed us to build on a strong tradition of local planning. Working through the Chittenden County MPO we have accessed funds to manage our planning activities on a local level, bringing transportation planning efforts to the front porch and the neighborhood school gymnasium. We have also worked closely with our Agency of Transportation in assuming management of many of our transportation projects. The city of Burlington today is managing the revitalization of a neglected commercial street (North Street), improvements to our pedestrian mall (the Church Street Marketplace), the design and construction of a major roadway (the Champlain Parkway), the development of an intermodal transit facility, and the design and construction of a bike path.

These partnerships, local, State, and Federal are vital to the success of the nation's surface transportation program. As we begin to work on the reauthorization of TEA–21, we must continue to work together to protect the program and ensure that all levels of government, no matter how small, play a part in the process.

BUDGET ISSUES

As we embark on the reauthorization process, we must take into account the current climate in Washington, DC and the Nation. These are tough economic times and in the aftermath of September 11th, local officials are shifting priorities.

One of the greatest successes of TEA–21 was the establishment of a direct link between gasoline taxes collected at the pump and Federal transportation spending. Because of that landmark change in law, funding for the program was increased to its highest levels in history. The Revenue Aligned Budget Authority (RABA) mechanism guaranteed that even additional, unanticipated gas tax revenue must be spent on the program. TEA–21 was a strong signal from Congress and the Administration to the traveling public that the nation's transportation system is an important priority.

Therefore, we find it very disturbing to hear reports that this year's RABA levels may be much less than anticipated in TEA–21. We look forward to the President's budget submission to Congress in the coming weeks and hope that a continued commitment to infrastructure investment is demonstrated.

NLC supports the current budgetary mechanism in TEA–21 and we pledge to work with you to protect the funding guarantees. We are, however, concerned about the trend in recent years to redirect transportation spending to specific projects through the appropriations process. NLC supports discretionary programs under TEA–21 and would advocate that the process remain open for all to apply and compete for those dollars.

TRANSPORTATION SECURITY

Following the tragic events of September 11th, the nation's local officials have been urgently reassessing priorities in their communities. In several NLC surveys of municipal officials conducted after September 11th, 52 percent were reevaluating their emergency preparedness plans. Respondents reported immediate shifts in city priorities to security issues, moving personnel to protecting transportation facilities, water supply facilities, nuclear power plants, schools, and government buildings. At the Burlington International Airport, we have more than doubled the number of police officers providing security.

In addition, the survey results show that fiscal conditions are worsening for many municipalities, with a 4 percent decline in revenue after September 11th and an over $11 billion decline nationwide. 43 percent of cities say they are "less able" to meet their financial responsibilities after September 11th.

In my own city, revenues are projected to increase by a very modest 1 percent for the next fiscal year. Simply to maintain our current level of municipal services will require a 4-percent increase in expenditures.

Cities nationwide are shifting valuable resources to public safety expenditures; with over half (51 percent) of the cities reporting they are increasing spending on public safety and security. The majority of cities surveyed reported they would reduce spending in other areas to meet the new public safety funding gap. This means cities may have to postpone or cancel some needed transportation projects to shift funding to security. This March, Burlington voters are being asked to approve a 6-cent increase in their property taxes to maintain and improve fire and police services.

We want to highlight this trend to underscore the need for protecting the valuable gains of TEA–21, while considering how transportation security issues could be part

of the next reauthorization bill. The shifting of local revenue to a public safety related budget is unavoidable. The question becomes, what will be the role of the next Federal surface transportation program in homeland security? Will the Federal Government be able to offer greater assistance to cities to meet their needs?

LOCAL PRIORITIES FOR TEA–21 REAUTHORIZATION

A recent survey of local officials conducted by Public Technology, Incorporated, a non-profit technology organization supporting local governments, found that:

• 62 percent of respondents (local officials) indicated that congestion is a major political issue in their community; and

• 64 percent of respondents claim that transportation has a significant impact in their community and their citizens' quality of life.

NLC members identified congestion as a major concern when they created the TEA–21 Task Force to review NLC's surface transportation policy. The Task Force spent last year developing new policy priorities for the reauthorization of TEA–21. The themes of funding, flexibility, and intermodalism, permeated the discussions about congestion and the future of the surface transportation system.

FUNDING

As previously mentioned, NLC supports the current budget mechanism developed in TEA–21, which directly links transportation user fees to transportation spending. We call for all transportation taxes, including those levied on gasohol and alternative fuels, to be deposited into the highway trust fund. To that end, we are supportive of the Highway Trust Fund Recovery Act, (S. 1306), sponsored by Senate Finance Committee Chairman Baucus.

NLC supports the Federal—State financial matching relationships that currently exist and opposes any reduction of the Federal financial commitments. States and localities that want to provide greater financial resources than the minimum requirement, such as a transit new start project, should receive higher priority for Federal funding.

In addition, we support innovative financing programs and techniques such as tolls, State Infrastructure Banks (SIBs), and the Transportation Infrastructure Finance and Innovation Act (TIFIA). These programs support the development of public—private partnerships and provide creative ideas for meeting the infrastructure needs in our cities.

FLEXIBILITY

NLC supports local flexibility to design, manage, and operate cities' transportation systems. No "one size fits all" surface transportation program will be able to meet the needs of the traveling public in the diverse regions of the country. Local officials are on the front lines and therefore better able to develop strategies to deal with transportation challenges in their communities. ISTEA and TEA–21 embodied these themes and we look to the committee to continue this commitment through the reauthorization process.

Many programs in TEA–21 have supported localities' innovative solutions to congestion and gridlock. Whether a positive change in the system comes from an added lane on the highway, a new bus route, a bike path, a pedestrian walkway, a telecommuting program, or something as simple as better traffic signal timing, communities are thinking of new ways to increase quality of life by reducing daily commute times.

To continue to provide the most options to local governments, NLC supports the continuation of the Congestion Mitigation Air Quality program (CMAQ), Transportation Enhancements program, the Transportation and Community and System Preservation Pilot Program (TCSP), and the Intelligent Transportation System program. These programs have made a huge impact on localities and had a positive effect on quality of life.

In Vermont, the Transportation Enhancements program is so popular that we have programmed 133 percent of available funds. In Burlington, we have benefited from several of the programmatic innovations contained in ISTEA and TEA–21. We have utilized the Enhancements program to launch the revitalization of an historic commercial center along North Street. We've implemented street lighting upgrades and streetscape improvements. We've benefited from TCSP funds for improvements to the Church Street Marketplace. Congestion Mitigation Air Quality (CMAQ) funding has enabled us to try new approaches to solve downtown parking and transportation problems. We have also made key additions to our local and regional bicycle-pedestrian system, providing bike shelters and placing bike racks on buses.

In addition, NLC believes that to maintain economic viability, congestion mitigation programs must be available to cities and towns. A comprehensive, Federal funding program to address congestion would foster project innovation, enhance intermodal planning, promote savings in infrastructure investment, and increase the livability and economic viability of communities across the country. NLC urges the committee to consider the development of a congestion mitigation program that recognizes that congestion is a local issue and provides direct funding to cities and regions of all sizes to address related problems in their communities.

NLC believes that a congestion mitigation program may help alleviate future air quality issues in many areas. We recognize that many metropolitan areas are currently not in attainment under the Clean Air Act. In addition to a metropolitan congestion program, we remain strongly committed to a Federal funding program, like CMAQ, for non-attainment areas to address emissions from mobile sources.

Additionally, NLC supports streamlining the Federal transportation project delivery process to help reduce unnecessary delays in implementation, which will allow for more effective and efficient use of Federal funds. We look forward to working with the committee and the Administration to achieve a positive change without harming the environment or sacrificing citizen participation in the process.

INTERMODALISM/MULTI-MODALISM

It is essential that the nation's transportation system be seamless, with complimentary and supportive relationships amongst all modes. Both freight and passenger transportation should be facilitated by the right mix of multi-modal connectors, minimizing the disruption associated with movement through high density areas, especially at peak times such as "rush hour".

NLC strongly supports Federal programs, which fund different transportation modes such as the Federal transit and rail programs. Passenger rail—commuter rail, inter-city rail, high-speed rail and MagLev—provides communities with other options to consider as part of a transportation and smart growth plan. In my small city, commuter rail service has been instituted.

We support funding to both preserve existing transit systems and for New Starts. In addition, we support a change in the law to allow States and localities to use TEA–21 dollars for inter-city passenger rail. We support the development of a national high-speed rail network. NLC joined our local and State partners in supporting the High Speed Rail Investment Act, (S. 250), which is pending before the Senate Finance committee.

Federal policies should encourage "closing the gap" of independent modal elements of the transportation system, with the goal of ensuring that efficient connections are available for the movement of people and goods. Accordingly, NLC supports the development of intermodal facilities and would recommend that projects shown to improve the efficiency of the connecting modes of intermodal facilities should be recognized as a matter of national significance. Specifically, we would ask the committee to examine the intermodal system and determine if a specific funding program may be needed to help alleviate congestion.

In Burlington we will break ground this fall on an intermodal transit facility that will provide seamless connections for regional transit, passenger rail, bicycle, and lake ferry services. This facility and all of its interconnected modes will make our waterfront accessible to greater a number of visitors-without overwhelming it with automobiles.

CONCLUSION

In conclusion, the nation's local elected officials stand ready to work with you throughout the reauthorization of TEA–21. We understand the delicate balance among the priority objectives all of the partners from the Federal, State, and local levels testifying before the committee today. The National League of Cities is committed to working with our partners to help develop the next surface transportation program. We value our seat at the table in this process and accept the responsibility of planning and implementing innovative transportation strategies to meet the needs of our citizens.

It is clear to us that congestion remains one of the nation's top complaints and is affecting quality of life. In addition, safety and security have become top priorities in this new post-September 11th climate. We believe the Federal Government can strike a balance between protecting our citizens and enhancing their quality of life. We continue to strive for an innovative, intermodal, and multi-modal transportation system.

RESPONSES OF PETER CLAVELLE TO ADDITIONAL QUESTIONS FROM SENATOR NIGHTHORSE CAMPBELL

Question 1. Are there transportation related security projects which your State or community could use Federal funding for as a result of 9/11?

Response. First, the most significant transportation related security challenge facing the city of Burlington as a result of 9/11 relates to airport security. The city of Burlington owns and operates the Burlington International Airport. The Burlington Police Department is responsible for policing this facility. A total of 1.1 million passengers utilized the airport in 2001.

After September 11, security at the Airport has been significantly increased. The number of police officers assigned to the airport has been increased from four to fourteen. Vermont National Guard personnel have been deployed to inspect vehicles at the entrance to the airport parking garage and to generally supplement existing security forces. Federal funding of the National Guard's presence at the Burlington International Airport is being terminated effective April 1, 2002. The additional security related expenses to be incurred by the City at this small airport are estimated to be $650,000 per year. These costs will be passed on to the airlines and/or consumers. Additional Federal funding to offset these expenses would be most welcome.

Second, 9/11 has demonstrated the importance of offering a national transportation system that is multi-modal and diverse. Among the highest priorities of the city of Burlington is the improvement of both rail infrastructure and rail service to our community. We are committed to expanding commuter rail service, extending Amtrak service, and reducing freight-carrying truck traffic on our streets and highways. We also look forward to the creation of high-speed rail corridors servicing our city and connecting communities across our Nation.

Mayors across America, from cities large and small, believe a national rail policy is essential for our economy and our security. We cannot depend too heavily on any single mode of transportation. I urge Congress and the Senate EPW Committee to support the re-authorization of Amtrak and increased investment in our nation's rail system.

Question 2. Would you support the creation of a specific highway security-funding category in the next reauthorization?

Response. The National League of Cities established a Working Group on Homeland Security in January to be a front line resource on homeland security to help define the new role of local governments in national defense and what those new responsibilities require in terms of Federal support, intergovernmental partnerships and local budgets. Former Dallas, Texas Acting Mayor Mary Poss and Dearborn, Michigan Mayor Michael Guido are leading the Working Group.

NLC's Transportation Infrastructure and Services Committee will be deliberating throughout the summer with the Working Group to identify the needs of local governments for transportation security. Through multiple surveys, NLC has determined that cities are drastically increasing funding to public safety operations to protect vital city services including transportation. The most recent NLC survey revealed that cities expect an increase of 62 percent in first responder overtime costs and a 26 percent increase in new public safety equipment purchases and security upgrades.

Local emergency response and evacuation plans include a transportation system component. Surface transportation systems can be considered a potential target, like a transit system or bridge infrastructure and provide the tools for a successful evacuation of a downtown, such the Washington DC metro system did on 9/11. This underscores the importance of protecting these facilities. NLC believes that TEA–21 programs like the Intelligent Transportation System (ITS) program will be integral to increased transportation security in the nation's cities.

The ability of local government to use technology, through a program like ITS, to coordinate communications among local transportation agencies, public safety officials, and the public is vital to saving lives in an emergency.

We look forward to working with the EPW Committee throughout the year to determine whether a specific security-funding category will be needed in the next surface transportation law.

STATEMENT OF HON. BRENT COLES, MAYOR OF BOISE, ID

Mr. Chairman and members of the Senate Committee on Environmental and Public Works, I am Brent Coles, Mayor of Boise, Idaho.

I appear today on behalf of The U.S. Conference of Mayors where I serve as the Conference's immediate past president and member of the executive committee. The Conference of Mayors represents more than 1,000 cities with a population of more than 30,000.

Mr. Chairman, I want to thank you and other members of this panel for holding these hearings today, as we approach the next phase of "Transportation Equity Act for the 21st Century" or TEA–21.

On September 11 the world witnessed an attack on America that was unimaginable. The attacks instantly revealed the importance to our national security of a balanced, multi-modal, resilient, and secure transportation system. While our transportation agencies and businesses struggled heroically to deal with the tragedy, many travelers did not make it home for a week. Securing our transportation system is viewed as a prerequisite to eliminating the anxiety that has accelerated the nation's economic downturn and to achieving economic security for the Nation.

Fortunately, we have tools to deal with this crisis, provided by visionary Federal transportation laws known as ISTEA and TEA–21. TEA–21 provided the resources necessary to make investments in our transportation network that enabled immediate and quick emergency response.

In the weeks since that attack, mayors across the Nation have mobilized the local resources provided through TEA–21 to protect their citizens in the event of further terrorist activity. The national security benefits of ISTEA were hardly anticipated when the bill was passed 10 years ago, but the events of 2001 demonstrated the critical importance of this law. As they always have done in times of crisis, mayors assumed visible leadership roles, both in their cities and throughout their metropolitan regions. They have engaged in critical examinations of the local, State and Federal resources, as well as the security infrastructure that exist to do this.

Now, as the Nation recovers from the tragedy of September 11, America's mayors stand ready on the domestic front lines at assist in every way possible. We are the "domestic troops" in the war on terrorism, as Conference President Marc Morial of New Orleans has stated. The wealth of resources provided by TEA–21 has most certainly strengthened our ability to do this.

OVERVIEW

When Fort Worth Mayor Ken Barr, the Conference's Transportation and Communications chair, testified before the subcommittee last April, his statement highlighted a number of issues pertaining to TEA–21. I will speak to these issues and others in more detail in my testimony.

As a starting point, I want to emphasize a statement by Mayor Barr, which captures the Conference's broader view on TEA–21. He said, "TEA–21 certainly provides the tools and the laboratory, but it doesn't guarantee success. This is up to local elected officials working with the Governors and State transportation officials to use the tools you have provided."

We commend this committee and others in Congress and the Administration, for providing us with the opportunity under TEA–21 to meet our surface transportation challenges. Mr. Chairman, I know that in your capacity as Senator of Vermont, you are one of the pioneers of the concept of transportation-oriented development. Transportation touches every aspect of our modern lives. We thank you for your leadership in this area.

I am here to provide context for our views on where we are today with the implementation of TEA–21. Many of the issues highlight the importance of cities to the success of the TEA–21 partnership.

NEW IDEAS INFLUENCING TEA–21 DECISIONS

(By Mayor Ken Barr, Ft. Worth, TX)

First, I would like to call your attention to several emerging issues that have considerable bearing on the committee's review of TEA–21 implementation.

First, let me talk about the Conference's work on developing new information on the role of city/county metro economies in fueling U.S. economic growth. Since 1999, we have released annual data, prepared by Standard & Poor's DRI, which measures the Gross Metropolitan Product (GMP) figures for the nation's city/county metro areas.

As the focal points of economic activity, metropolitan areas are vital to the nation's continued economic development. The contribution of metro areas to the national economy has increased over the last decade, a trend that is expected to continue over the next 25 years.

If they were counted as a single country, the gross product of the five largest U.S. metropolitan areas ($1.59 trillion) would rank fourth among the world's economies, trailing only the U.S. ($9.96 trillion), Japan ($4.6 trillion) and Germany ($1.87 trillion). The importance of metro area economies can also be illustrated by their size relative to the output of U.S. States. The gross product of the 10 largest metro areas exceeds the combined output of the 31 smallest States. In the study, we found that 47 of the top 100 economies in the world are U.S. city/county metro areas.

The size of metro area economies illustrates their importance to the Nation. Mr. Chairman, the implications of this information for Federal and State policymakers are far-reaching. There is no doubt in my mind that the resources provided by ISTEA and TEA–21 have played a significant role in the economic vitality of cities and metro regions. The Conference stands ready to work with you and this committee as you craft future surface transportation policy.

MAYORS' VIEWS OF TEA–21 IMPLEMENTATION

In anticipation of this discussion, we recently surveyed a group of mayors, principally those serving on the Conference's transportation committee, to solicit their general views on how the TEA–21 is working. Let me provide a quick review of the responses from 40 mayors who completed the survey.

Nearly one-half of the mayors indicated that under TEA–21, their State had committed additional funding or planned to commit additional funds to local projects of particular priority to the city or region. When we asked if their metropolitan planning organizations (MPOs) had set any targets for fair share funding under TEA–21, one-half of the respondents said yes.

Based on the survey, it appears that States are reaching out to local governments under TEA–21. Seventy percent (70 percent) of the respondents indicated that their Governors or State transportation officials had contacted them about new funding available under TEA–21. However, only 40 percent of mayors have been asked to participate in a State process to decide funding priorities for TEA–21 dollars.

When asked to indicate the single most important surface transportation priority in their city or region, the mayors' top three responses were System Preservation at 35 percent, Congestion Relief at 20 percent and New Rail Projects at 15 percent. The remaining 30 percent of the responses included alternative transportation, new freeways, freeway expansion, transportation access to brownfield sites, safety, bridge repair and major road widening. Mayors were asked to write the response, rather than choosing from a list.

I do not think mayors can overstate the importance of infrastructure to the economic health of our cities and regions and transportation infrastructure is clearly one of our highest priorities.

TEA–21 IS WORKING

Treasure Valley Partnership

Though suburban sprawl may conjure up visions of LA or Phoenix, the rugged, southwest corner of Idaho also faces significant traffic and air quality problems stemming from rapid growth. During the past decade, Boise, Idaho had the second highest growth rate in the country.

For the first time, our residents began to think seriously about transportation issues. Our legendary "rush-minutes" lengthened and people began to experience longer, less tolerable commutes. Policy makers began to look at ways to protect our quality of life from the impacts of sprawl. Our highly conservative region began to discuss ideas like transit oriented development, protection of open space, and commuter rail.

Four years ago, we formed a working group called the Treasure Valley Partnership. The Partnership consists of mayors and commissioners from general purpose governments in two counties. This group embodies the collaborative principles set out in TEA–21. As a Partnership, we have brought together business, community groups, and local government to make new connections between transportation and land use. I believe that our entire process of governance in the region has been improved and policy decisions are made in more informed and strategic manner, so that all citizens are better served.

The Partnership began to look seriously at what our region will look like at full build-out. For the first time, we put our comprehensive plans side by side to see if they are consistent with each other. Our planning staffs have begun to talk more and cooperate more. Our transportation plans have more regional buy-in.

The Partnership has directly benefited from TEA–21. Working in collaboration with Idaho Smart Growth and our MPO, we obtained a $500,000 grant for a visioning process that has engaged the entire region in a discussion of sprawl and

traffic, and their link to land use. The money has been leveraged with other grant funds to conduct pilot projects which model the conclusions of the broader study.

Based on the principles of TEA–21, the city of Boise purchased more than 18 miles of railroad track and right-of-way that was about to be abandoned by Union Pacific Railroad. We used general fund property tax dollars for this purchase, even though the track is located entirely outside our corporate city limits. We raised private funds to purchase Boise's historic train depot. We did this to preserve the infrastructure that will be needed someday for commuter and passenger rail service in our region.

The residents of our two-county area went to the Idaho Legislature for the authority to establish regional transit programs. Then, voters overwhelmingly approved creation of a regional transit authority. We have yet to be given a dedicated funding source by the Legislature, but Boise City has provided funding to hire an executive director and we are allowing the regional transit authority to assume operation of our bus system.

This is progress that would not have occurred without the guidance and encouragement provided by ISTEA and TEA–21. There is more to be done, but we believe we are on the right track.

CLOSING COMMENTS

Now, Mr. Chairman, last Friday I was informed of the potential $9 billion shortfall in TEA–21 allocations to the States for fiscal year 2003. If the shortfall is passed onto States, the funds allocated under TEA–21 in fiscal year 03 would be less than the base amounts promised to States for highways and transit. As you might imagine, this would have serious repercussions. The State of Idaho, for example, would lose more than 25 percent of our Federal transportation funding. California would lose $741 million dollars and Texas would lose $626 million. It's estimated that nationwide we would lose an estimated 144,000 jobs by fiscal year 04.

I know that this is new information and that the impacts of the shortfall have yet to be fully explored. I pledge to you the assistance of the Conference of Mayors as you work toward resolution of this issue.

Mr. Chairman, the issues I have discussed today affect all of our cities. Our cities as neighborhoods—protecting quality of life—and our cities as regions—competing in a global economy—must have transportation funds as tools to carry out our responsibilities within the regional context. In our region, adequate funding and air quality constraints continue to hamper our potential success. You have the opportunity to permit us to respond better to both our responsibilities to enhance quality of life and increase competitiveness in a world economy.

The nation's mayors believe in the ISTEA partnership, and look forward to the opportunity to build upon this success under TEA–21.

Mr. Chairman, as you move forward on TEA–21 Reauthorization, you can count on the mayors' active participation and support. Thank you for this opportunity to present our views.

STATEMENT OF CHRIS HART, COUNTY COMMISSIONER, HILLSBOROUGH COUNTY, FL

Good morning Mr. Chairman and members of the committee, I am Commissioner Chris Hart, County Commissioner of Hillsborough County, Florida. Today I am representing the National Association of Counties (NACo)[1] where I serve as chairman of its transportation steering committee. On behalf of NACo, I want to thank the committee for inviting me to appear before you on the topic of TEA–21 reauthorization. I am delighted to share this panel with West Virginia's Governor Wise, Mayor Clavelle of Burlington, Vermont, and Mayor Coles of Boise, Idaho. My county seat is in Tampa, where I directly represent over 1 million citizens on the central West Coast of Florida. It is an urban center of seven counties with over 3.5 million people. It is also the economic engine of the Tampa Bay region, in great measure because of our focus on improving the transportation network, and our major international air and seaports that connect us to the global economy. On a lighter note Senators,

[1] NACo is the only national organization representing county government in the United States. Through its membership, urban, suburban and rural counties join together to build effective, responsive county government. The goals of the organization are to improve county government; serve as the national spokesman for county government; serve as a liaison between the nation's counties and other levels of government; achieve public understanding of the role of counties in the Federal system.

if you haven't had a call for the head coach position of the Tampa Bay Buccaneers, rest assured you will—everyone else has!

NACo has a broad interest in transportation policy. NACo has been very active over the past 50 years in assisting Congress in developing legislation that benefits our member counties, as well as our partners in the cities and States. Much of our focus has been on the highway program for the simple reason that counties own 44 percent of the nation's highway mileage and 45 percent of the nation's bridges. With 3,066 counties in our vast nation, NACo's membership is diverse. It's in America's thousand urban counties where both economic and population growth is occurring. Metropolitan counties, or in urban centers like my home on Tampa Bay, account for 84 percent of the gross domestic product, and have over 125 million people living in just 100 of the most populated counties. Strong economic growth will occur only with a sound transportation system. Of course, the downside of that growth has been increasing traffic congestion, which at times threatens our quality of life and deprives citizens of their ability to move around in a safe and efficient manner. Conversely, there are two thousand rural counties with a dwindling tax base that must maintain and improve their highway and bridge systems if they are just to remain competitive in today's economy and retain their current population.

TEA–21 and its predecessor, ISTEA, have been very helpful to our members and to our Nation as a whole. There is little doubt in my mind that these programs have contributed to the overall economic growth that our Nation experienced in the last decade. ISTEA, in 1991, began a trend to increase the Federal investment in the highway program, and TEA–21 provided a 40 percent boost. The increase was needed and we have seen the benefits. For example, last year the State of Florida appropriated over $1 billion for a combination of improvements to the local, State, and Federal transportation system in the Tampa Bay region. This was a direct result of increased funding because of TEA–21. The leadership of NACo supported the funding increase for transportation in TEA–21, and fought hard to support the financing changes in TEA–21 that made this level of spending possible. It would be an economic disaster if Congress were to eliminate the firewall established in TEA–21 or began to use the Highway Trust Fund to either finance other programs or mask the deficit. Mr. Chairman and members of the committee, the financing decisions made in 1998 were the right ones!

Let me also add that I also believe that our highway infrastructure performed well on September 11 and in its aftermath. We should all remember that the Federal highway program was begun to ensure our nation's defense. While the tragic events of last September were never anticipated, the security function of our highway and bridge system worked. When NACo's Homeland Security Task Force met for the first time in October, it was Secretary of Transportation Noman Mineta, along with Governor Tom Ridge, that the task force wanted to hear from.

Aside from funding, the key change in highway legislation over the last 10 years has been the creation of a flexible program that has relied on greater input from local elected-government officials. The result has been better planning, better decisionmaking on project selection, and better projects. It is likely that the Federal Government will continue to spend substantial Federal resources each year on highways and bridges, and that makes it essential that both local and State government leaders sit together at the table when decisions are made. The reauthorization of TEA–21 should continue and accelerate that partnership. ISTEA required cooperative decisionmaking through the metropolitan planning organization (MPO) process on how surface transportation program funds, the most flexible category, were to be spent. TEA–21 continued that requirement; and that legislation also called for cooperation and consultation between State and local decisionmakers in other Federal highway programs. TEA–21 expanded this to rural areas and statutorily called for a consultation process in each State for obtaining rural local officials input in the statewide transportation plan. I must add that while some States have a process and the Federal Highway Administration did issue guidance on this change to its field offices, the U.S. Department of Transportation has yet to issue final regulations on rural planning requirements.

Last fall, I established NACo's TEA–21 Reauthorization Task Force under the able leadership of my colleague Commissioner Glen Whitley from Tarrant County, Texas. Mr. Chairman, he and our staff have been diligent in their efforts, have met several times with members throughout our country, and are now in the process of finalizing NACo's recommendations for TEA–21 reauthorization. However, I am confident that I can state without reservation that environmental streamlining will be a top issue for our members. Also, I want to be very clear that we will not be calling for the repeal of any of our nation's environmental protection laws. Rather, we will be recommending that the reauthorization include provisions that ensure projects are completed in a timely and efficient manner, and the delays in the current sys-

tem that unnecessarily slow down projects are eliminated! Simply put, Mr. Chairman and committee members, we are asking for a concurrent process, rather than an uncoordinated, sequential one. In the broadest sense, this means that we need to get all the players in a project involved at the outset. This means the local elected officials, State DOTs and its other regulatory officials, all Federal agencies having a role to play, as well as the environmental community, and most especially, the affected citizens. No one should be ignored, and no Federal agency should be allowed to operate independently of the other participants. In my State of Florida, for instance, this effort is a work-in-progress, but it will not be successful without collaboration from the Federal Government.

Congestion will be another key policy issue that Congress must address in the reauthorization. Urban counties, their citizens, tourists, and our commerce are strangling on congestion. Time, money, and productivity are all lost when commerce, the American commuter and tourist are stuck in traffic. There is no one solution, except that we must apply common sense to the challenge of congestion. Solutions must be found through very close State-local cooperation. Congestion occurs on county highways, not just on the State networks. We must remember that we have a system of highways, and when one part of the system breaks down, the others are affected too. Any new legislation should provide for those highways and streets we have now, to ensure they are properly maintained, so that they can move traffic safely. We must invest more money in highways to guarantee that our current system is maximized. We know that as much as 50 per cent of congestion occurs due to breakdowns and accidents on the roadways. Therefore, we must be smart enough to establish simple, efficient methods for getting these incidents resolved quickly. Here again, Federal agencies and their resources can partner with local and State government to save time, money, and lives. We need to have systems and procedures in place that include all the various agencies involved in incident management; from the highway departments, police, fire/rescue, to EMS and wrecker services, all communicating with one another. We can do better. Let me illustrate. How many times have you seen a breakdown or accident in one lane of traffic, with emergency vehicles taking up the other lane or lanes, and if we're really lucky, perhaps we are able to pass after an hour or so in morning and evening rush hour traffic. Systems and procedures for incident management could go a long way toward relieving congestion. Another key to relieving congestion and moving traffic is signalization. We have all been on highways where the signals are coordinated and traffic flows. We have also been on roads where we are stopping at every red light. Many local governments need additional resources to modernize traffic signals. The good news is that electronic signals, and now Intelligent Transportation Systems, or ITS as it's commonly called, are giving us an 8 to 1 return on our investment as compared to other alternatives. By the way, what we don't need are automatic signs that say "congestion ahead" when we are already caught in traffic, or where there are no alternative routes.

Now, Mr. Chairman, I would finish my remarks by addressing a major concern we all share, rural roads. Rural roads are in need of substantial Federal investment. Safety is the primary reason. According to a U.S. General Accounting Office report in July 2001, rural local roads had the highest rate of fatalities per vehicle mile traveled of all types of roadways-over six times that of urban interstates. In 1999, over 25,000 fatalities occurred on rural roads across the United States; and that figure was 2.5 times greater than the fatality rate from accidents on urban highways in areas like Las Vegas, Miami, St. Louis, and Cleveland. If Congress wants to reduce auto fatalities, there is no better investment than on roads in rural counties. Because rural roads are the most dangerous roads in America, and are the most costly in human lives, NACo will be proposing a new program to address rural road safety in the coming months. Rest assured, Mr. Chairman, that we would work closely with your committee in developing it.

Mr. Chairman, this concludes my testimony. I thank you and the committee for the opportunity to be here today, and would be pleased to answer your questions.

RESPONSES FROM CHRIS HART TO ADDITIONAL QUESTIONS FROM SENATOR GRAHAM

Question 1. I wholeheartedly agree with your assessment that Incident Management Agreements could help ease congestion. Could you offer examples of where they have been implemented and worked, or where congestion has worsened because of a lack of coordinated response to traffic accidents?

Response. The State of Florida has 10 freeway incident management teams and 52 community traffic safety teams. Florida also created a statewide Traffic Incident

Management Steering Committee to improve the management of incidents on our highway system.

Incident management also relates to the issue of highway security. Our awareness of ensuring the security of our highways and ability to prepare for and respond to unexpected catastrophic events has been heightened since 9/11. The same organizational arrangements, training, communication systems, and procedures that one would need to manage traffic incidents would be similar to those needed to address highway security. Intelligent Transportation System technology must be a key element in addressing this need.

Question 2. I share your concern that the environmental streamlining regulations are still not finalized, and I plan to encourage DOT to come forward, at the appropriate time, with regulations that reflect what we hoped to do in TEA–21. I hope, however, that we are moving toward an era of increased cooperation even without the regulations. What have been your recent experiences, either in Florida, or through your leadership with NACo, of infrastructure projects being stymied by lack of coordination between different agencies? Is the coordination effort improving, staying the same, or getting worse?

Response. Florida is a leading State for the area of environmental streamlining. Section 13098 of the TEA–21 reflected Congress' concerns about delays, unnecessary duplication of effort and added costs often associated with the current process for reviewing and approving transportation projects called "environmental streamlining". This legislation challenged the Florida Highway Administration and Federal Transit Administration to implement a more efficient transportation planning and review process. Florida was selected as a pilot State for developing and implementing a streamlined planning and project development process.

To date, Florida has developed a more efficient process, the Efficient Transportation Decision Making process, which uses available information starting at the long-range planning stage. It is also designed to encourage earlier and ongoing coordination among agencies to ensure the understanding and development of satisfactory approaches to addressing environmental issues with the goal to ensure timely permitting as early in the process as possible. Florida is attempting to make the National Environmental Protection Act (NEPA) and the environmental process a single process, and not create a situation where agencies review the environmental work during the NEPA process and then revisit the project again during the permit process.

With this process, Florida hopes to avoid the problems it has encountered in several major projects. One example that is very familiar to Senator Graham is the proposed expansion of US1, from Florida City into the Florida Keys. This project was challenged by the Army Corps of Engineers and still awaits resolution of the environmental issues. Another example is the extension of SR 7 in Palm Beach County. Planning for this four-mile extension of SR 7 that passes through sensitive environmental lands moved forward with the planning and project development with no resolution of the issues. In both of these cases, millions of dollars were spent only to have the projects stopped or withdrawn when environmental concerns could not be resolved. The Efficient Transportation Decision Making process would hopefully identify these issues much earlier in planning and the project development phases before expensive project development and design phases proceed.

RESPONSES OF CHRIS HART TO ADDITIONAL QUESTIONS FROM SENATOR CAMPBELL

Question 1. Are there transportation related security projects which your State or community could use Federal funding for as a result of 9/11?

Response. Florida's geographic location and extensive coastline presents security challenges to Florida's ports and communities. In addition, our State's reputation as a major tourist destination and commercial center generates significant air traffic. Florida's ports and airports are committed to providing the citizens of surrounding communities the utmost safety and security.

Specifically, the Florida statewide Ports Council submitted a statewide Port Security Issue projects list to the Florida Transportation Outreach Program Advisory Council. This project could be in turn submitted for Federal funding. All major airports have been actively working to meet and integrate new federally mandated security procedures. Part of these funds will come from the Federal Aviation Administration and U.S. Department of Transportation. Specific airports are seeking additional funding such as Tampa International Airport's new Passenger Facility Charge Application which will provide roughly $9 million to accommodate modifications to existing facilities to implement 100 percent screening of checked baggage.

Question 2. Would you support the creation of specific highway security funding category in the next reauthorization?

Response. We need to prioritize and identify specific items within funding categories that either serve a direct security function, or have a dual purpose such as ITS signalization with cameras at intersections. Cooperative arrangements among different highway and public safety agencies, common "first-responder" communication frequencies, interlocal agreements, and standardized response procedures could all be used to deal with both transportation incidents and potential security threats. Such protocols could be required performance standards in the reauthorization legislation, and produce more effective response capabilities nationwide at a low-cost.

REAUTHORIZATION OF TEA–21

MONDAY, FEBRUARY 11, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION, INFRASTRUCTURE AND NUCLEAR SAFETY,
WASHINGTON, DC.

DEPARTMENT OF TRANSPORTATION'S FISCAL YEAR 2003 BUDGET

The committee met, pursuant to notice, at 1 p.m. in room 406, Senate Dirksen Building, the Hon. Harry Reid [chairman of the subcommittee] presiding.

Present: Senators Reid, Wyden, Baucus, Inhofe, Chafee, Jeffords, and Graham.

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. The Subcommittee on Transportation, Infrastructure, and Nuclear Safety will come to order.

We welcome everyone to today's hearing on the Federal Highway Administration's fiscal year 2003 budget proposal and budget issues related to the reauthorization of TEA–21, the Transportation Equity Act for the 21st Century.

The President's budget raises some important short- and long-term concerns, but I do very much welcome the opportunity to discuss these issues today with you, Administrator Peters, and other distinguished witnesses.

The present budget cannot be sustained. A 27 percent cut in highway funding is a move in the wrong direction, given our Nation's transportation needs. It would mean the elimination of hundreds of thousands of good jobs, and it would be a drag on our economic recovery.

I am pleased that Tom Stephens, our very fine Director of the Nevada Department of Transportation, is here to testify on behalf of State Departments of Transportation across the Nation. I am sure that Mr. Stephens will speak to the negative impact these cuts will have on Nevada.

Nevada is the fastest growing State in the Nation. We have huge needs for new road capacity, not to mention new transit and rail initiatives. A $50 million-plus spending cut in Nevada next year would force the State to cut back on critical transportation projects. The results would be more congestion, reduced productivity, worsened air quality, and loss of jobs.

This is not an acceptable outcome. Nevada has significant unmet transportation needs, and these cuts cannot be allowed. Nevada is really the poster child for the rest of the country. Every State has these same problems.

The Revenue Aligned Budget Authority, or RABA, mechanism was created to ensure that spending from the Highway Trust Fund was tied to revenues in the Trust Fund. This is a goal that I support. However, the RABA mechanism clearly needs to be fixed so that we can avoid the dramatic swings in spending that we have seen over the past few years.

One of the first reasons that we authorized TEA–21 for 6 years and created the budget firewalls for highway and transit, was to provide States with some certainty as to the level of funding they would receive each year. A stable and dependable funding stream is essential for States to develop long-term transportation plans, and efficiently manage projects.

I agree with the philosophy behind RABA, that spending from Highway Trust Funds should be connected to revenues, but I do not think it is necessary for us to follow a broken mechanism off a spending cliff.

Regardless of the spending adjustment mandated during RABA, we cannot allow a 27 percent drop in highway funding next year. Adequate funding of our Nation's highways is important, not only for obvious, short-term economic stimulus and highway improvement needs, but for long-term reasons, as well.

This subcommittee will be working with the chairman and the ranking member of the full committee to put together a TEA–21 reauthorization proposal early next year. One of my priorities is to ensure that adequate funding is available to meet our Nation's significant transportation needs.

It is important to understand that the funding level that Congress enacts for 2003 will serve as the baseline from which our committee's reauthorization proposal will be scored.

Therefore, if we base reauthorization on the President's fiscal year 2003 budget proposal, we will have $28 billion less available to us than fiscal year 2003 spending equals the amounts authorized in TEA–21. That is a tremendous burden for us to bear.

A spending baseline that is $28 billion below TEA–21 baseline would spell disaster for the whole transportation system. In fact, my focus is on doing just the opposite, in finding a way to increase funding for all the components of our surface transportation systems: highway, transit, and rail.

This is why the leaders of the Senate Environment and Public Works Committee have worked on a bipartisan, bicameral basis with the House Transportation and Infrastructure Committee, to introduce the Highway Funding Restoration Act.

This legislation, which every member of this committee co-sponsored, will ensure that funding in fiscal year 2003 is at least at the level authorized in TEA–21. Rest assured that I will be advocating for the highest funding possible, but I cannot accept a penney less than the amount authorized in TEA–21.

I know that Administrator Peters shares some of my concerns about the impact of these proposed highway funding cuts. Administrator Peters, I welcome you to this hearing. Let me tell you how

pleased I am that someone so familiar with the transportation challenges faced by fast growing Western States is at the helm of the Federal Highway Administration. I look forward to working with you to develop a top-notch reauthorization bill.

[The prepared statement of Senator Reid follows:]

STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Welcome to today's hearing on the Federal Highway Administration's fiscal year 2003 budget proposal and budget issues related to the reauthorization of TEA–21, the Transportation Equity Act for the 21st Century. The President's budget raises some important short and long-term concerns and I welcome the opportunity to discuss these issues today with Federal Highway Administrator Mary Peters and our other distinguished witnesses.

I will get right to the point—the President's budget cannot be sustained. A 27 percent cut in highway funding is a move in the wrong direction given our nation's transportation needs. It will also mean the elimination of hundreds of thousands of good jobs and be a drag on our economic recovery.

I am pleased that Tom Stephens, our fine Director of the Nevada Department of Transportation, is here to testify on behalf of State Departments of Transportation across the Nation. I am sure that Mr. Stephens will speak to the negative impact these cuts will have on Nevada. Nevada is the fastest growing State in the Nation and we have huge needs for new road capacity, not to mention new transit and rail initiatives. A $50 million spending cut in Nevada next year will force my State to cut back on critical transportation projects. The result will be more congestion, reduced productivity, worsened air quality, and lost jobs. This is not an acceptable outcome. My State has significant unmet transportation needs and these cuts cannot be allowed.

The Revenue Aligned Budget Authority—or RABA—mechanism was created to ensure that spending from the Highway Trust Fund was tied to revenues into the trust fund. This is a goal that I fully support. However, the RABA mechanism clearly needs to be fixed so that we can avoid the dramatic swings in spending that we have seen over the past few years.

One of the reasons that we authorized TEA–21 for 6 years and created the budget firewalls for highways and transit was to provide States with some certainty as to the level of funding they would receive each year. A stable and dependable funding stream is essential for States to develop long-term transportation plans and efficiently manage projects. I agree with the philosophy behind RABA—that spending from the Highway Trust Fund should be connected to revenues, but I do not think it necessary for us to follow a broken mechanism off a spending cliff.

Regardless of the spending adjustment mandated by RABA, we cannot allow a 27 percent drop in highway funding next year. Adequate funding of our nation's highways is important not only for obvious short-term economic stimulus and highway improvement needs, but for long-term reasons as well. This subcommittee will be working with the chairman and ranking member of the full Environment and Public Works Committee to put together a TEA–21 reauthorization proposal early next year. One of my priorities is to ensure that adequate funding is available to meet our nation's significant transportation needs.

With this in mind, it is important to understand that the funding level Congress enacts for fiscal year 2003 will serve as the baseline from which our committee's reauthorization proposal will be scored. Therefore, if we base reauthorization on the President's fiscal year 2003 budget proposal, we will have $28 billion less available to us than if fiscal year 2003 spending equals the amount authorized in TEA–21.

A spending baseline that is $28 billion below the TEA–21 baseline would spell disaster for our transportation system. In fact, my focus is on doing just the opposite and finding a way to increase funding for all of the components of our surface transportation system—highways, transit, and rail. This is why the leaders of the Senate Environment and Public Works Committee have worked on a bipartisan and bicameral basis with the House Transportation and Infrastructure Committee to introduce the "Highway Funding Restoration Act."

This legislation, which every member of this committee cosponsored, will ensure that funding in fiscal year 2003 is at least at the level authorized in TEA–21. Rest assured that I will be advocating for the highest funding level possible, but I will not accept a penny less than the amount authorized in TEA–21.

I know that Administrator Peters shares some of my concerns about the impact of these proposed highway-funding cuts. Administrator Peters, welcome, and let me tell you how pleased I am that someone so familiar with the transportation chal-

lenges faced by fast growing western States is at the helm of the Federal Highway Administration. I look forward to working with you to develop a top-notch reauthorization bill.

I also welcome Assistant Secretary for Budget Donna McLean and look forward to further discussion on these important budget issues.

Senator Wyden.

OPENING STATEMENT OF HON. RON WYDEN, U.S. SENATOR FROM THE STATE OF OREGON

Senator WYDEN. Thank you, Mr. Chairman, and thank you very much for holding this important hearing. I think this is a critical issue, and I very much appreciate your leadership.

My view is that the Administration's budget for transportation is the equivalent of putting an automobile in reverse, when the country wants to move that car forward. It just seems to me that if you are serious about economic stimulus, you cannot propose such serious cuts in transportation projects.

The fact of the matter is, the projects that are being slashed are projects that are ready to go. These are projects that will put people to work immediately.

Oregon transportation officials calculate that the Administration's proposal to cut TEA–21 funding will mean the loss of $80 million for Oregon's economy, and more than 1,600 family wage construction jobs. Now we have got the highest unemployment rate in the country. So these transportation cuts are draining the life blood out of Oregon's economy.

Now I support the committee's bipartisan's legislation to restore funding at least to the levels called for in TEA–21. But I also want to note that I think we need to look beyond the immediate budget crunch at what could be an even bigger problem that is ahead down the road.

Our country's transportation energy policies are on a collision course. Transportation projects are primarily funded by taxes on gas; the more gas we use, the more money to build roads. At the same time, there is a bipartisan agreement in Congress that we need to develop energy policies, and decrease our dependence on foreign oil.

Increased production can help, but the only way to truly reduce dependence on foreign oil is to reduce dependence on oil, period. Now in the coming years, these conflicting policies are going to bump up each other. Hybrid gas and electric powered cars that get 60 miles per gallon are already on the market and on the road.

Cafe standards will require more miles to the gallon for cards and light trucks. It is predicted that fuel cell technology and other alternatives will be prevalent by the end of this decade. As all of these things evolve, gas tax revenues will continue to decline, and transportation funding will feel the pinch, unless changes are made.

I am hopeful that we can continue, under Senator Reid's leadership, to explore new ways to fund transportation projects that do not depend solely on the gas tax.

My home State is already starting to look at this concept, with our Road User Fee Task Force. The Federal Government ought to be doing more to encourage this type of creative thinking.

As part of TEA–21 reauthorization, I am interested in working with the bipartisan leadership of this committee to create a pilot program, where States can develop and test their own home-grown approaches that best meet their needs.

The time to act is now. That is why it is so important that Senator Reid has convened this effort to deal with what I think are overly harsh cuts that will hurt communities across this country now. Then we need to work together on a bipartisan basis to find responsible alternatives for the future.

I thank you, Mr. Chairman.

Senator REID. Senator Wyden, thank you very much for your statement.

We are joining by the Ranking Member of this subcommittee, Senator Inhofe of Oklahoma, who has always been very diligent. I have come to a lot of these hearings. I do not stay as long as you do, normally, but you are very diligent in all the hearings, and I appreciate your being here today.

Senator Inhofe.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Mr. Chairman. I am pleased to be with you here today in welcoming our witnesses. It is always a pleasure to hear from the Federal Highway Administrator, Mary Peters. We are very fortunate to have an Administrator at the Federal Highways that understands some of the problems that the States have.

Mary's background in the State of Arizona, which is not very unlike Oklahoma in some of the local problems that we have, puts you in a position, I think, to really understand these things very well.

And it is nice to have Ms. McLean here. We served together over on the House Public Works and Transportation Committee in a few different capacities, and I am sure it is going to work out really well.

I am anxious to hear from Thomas Stephens, Director of the Department of Transportation in the chairman's home of the State of Nevada. Again, I believe we can never hear too much from the State officials to show how some of the things we are doing might or might not be working at the State level.

It is always good to hear from Bill Fay. His group, the Highway User's Alliance, will play an important role in reauthorization.

Finally, I had hoped to be welcoming my friend and fellow Oklahoman, Jim Duit, to testify on behalf of the American Road and Transportation Builders Association. Unfortunately, Jim Duit—his company had a fire which virtually burned down everything that he had there. This was on Saturday evening. I did call him up and talk to him. So obviously, he could not join us today.

However, I do have the oral statement that he had planned on making. I would ask unanimous consent to submit it for the record, and at the same time, unanimous consent to have the written statement of Ken Wert, who is President of Haskill/Lemon Construction in Oklahoma City, made a part of the record, Mr. Chairman.

Senator REID. Both requests are granted.

Senator INHOFE. Thank you, Mr. Chairman.

We are fortunate that Mr. Tom Hill, Chief Executive for Oldcastle Materials, Inc., could join us today to present the industry's perspective on the proposed 2003 budget. I appreciate your rearranging the schedule on such short notice, and look forward to hearing your testimony, today.

Thank you, Mr. Chairman.

Senator REID. We are joined today by the chairman of the Senate Finance Committee, Senator Max Baucus, who as most everyone knows, has been the ranking member and the chairman of this committee in the past.

We are expecting great things out of the Finance Committee to help us through the problems that we have with this bill, Mr. Chairman. Welcome to our committee, today.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. Thank you very much, Mr. Chairman. I was afraid you were going to mention something about helping with the whole budget that we are facing.

Administrator Peters, we are very happy to have you here. We had scheduled a meeting some time ago, but unfortunately, this country's greatest tragedy on our soil happened that day, and our meeting was canceled.

I want to just emphasize to you something which you already know; but I think it is important to reiterate: how important this program, the Highway Program, TEA–21, is to us all. It is the life blood of our country.

Certainly, in my State of Montana, you know, we are not a seaport State, we are not a barge State. We do not have large international airports. We just have a lot of space, but not a lot of people. We depend almost totally on our roads and highways.

We have more Federal highways, per capita, than any other State in the Nation. That includes Alaska. That includes Wyoming, and every other State. We have more Federal miles of roads, per capita, than any other State. It is everything to us.

In many respects, too, it is our economic development program. As I walked in, I heard my good friend from Oregon talking about unemployment rates in the State of Oregon. We, in Montana, have the Nation's lowest, or second to lowest, per capita income rates. We are 50th or 49th.

So in many respects, the Highway Program is our jobs program. It is our economic development program. These are obviously great paying jobs, compared with some other jobs that we have in our country.

So I just cannot emphasize too much the importance of a very strong highway program. That includes the various components; you know, the bikeways and the various provisions which allow States, and correctly, to make their own determinations in towns and municipalities and so forth. But it is just critical that the program be strong.

Second, I understand that RABA, which is a bit of a question before us, is not a question at all to members of this committee. We

need to have at least the four and-a-half, or whatever the figure comes out to, restored.

Now I know Administrations will say, "In our budget request to the Congress, we just followed the law." Well, all Administrations submit budget requests that are sometimes inconsistent with the law, and that is their prerogative. Presidents make budget requests and sometimes conditions change. So they make requests which are, if not inconsistent with the law, at least Administrations have lots of flexibility.

So that is not an excuse in this case. Every member of this committee is a co-sponsor of that bill, which I frankly think it should be a full nine. That is, the RABA went up for a year, and then it came down. There was a net difference of about $9 billion. Because if we restore the RABA loss for the most recent year, then the problem is, that is going to still mean lots of jobs lost; that is, jobs that are dependent upon the higher level that was provided for under RABA in the previous year. It is going to be job loss. Even with the restoration of roughly $4.5 billion, it is still going to be job loss.

I think it should be $9 billion. But most members of this committee, I think, have a contrary view. But the contrary view is still definitely an increase. I think we should just agree that we are going to do the increase, and just get on with it; because Congress will pass that increase. There is no doubt about that, in my judgment.

Also, while we are here, I want to just reemphasize the need for meaningful environmental streamlining. We have been wrapped around the axil on this issue for a long time, years, with no sufficient progress. The last Federal Highway Administrator, or maybe not quite the last, and I am not sure exactly when, submitted major streamlining to this Congress. They were steps backward; not forwards, but backward.

It was so frustrating to us, that I am thinking of the Highway Administration telling the Administration what the environmental streamlining is, in legislation. It was such an insult, the last steps backward. I just urge you very strongly, to appropriately and solidly figure out ways to get this done more quickly.

I might say, in one small respect, it is getting more fish and wildlife personnel in the States, so we can get ahead of the curve with these projects. If you can get ahead of the curve, you can design around environmental problems in advance.

But mostly, I am just urging you to streamline and just do it, so we are not wrestling with this issue anymore. It might take you a year. I do not know how long it is going to take you, but I urge you very strongly just to get on with it. I know you have a good background. I also want you to know that we, on the committee, will work very closely with you.

One final point, in the Finance Committee, we are going to be looking for ways to increase dollars into the Trust Fund. One is to take those few cents that go to the General Fund, ethanol provisions, and put those 2.5 cents into the Trust Fund. That is one idea I have, and I have got a couple of other ideas, to make sure that the Trust Fund is larger, to enforce the firewalls, to make sure the

dollars are spent on highway projects; because it is one program that Americans depend very much on.

You will work well with this committee, because you will find a lot of support on this committee for an even stronger TEA–21.

Thank you, Mr. Chairman.

[The prepared statement of Senator Baucus follows:]

STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

I am pleased that for the first time before the Transportation Subcommittee, since her nomination hearing, we will be hearing from our newest Federal Highway Administrator Mary Peters. Welcome Mrs. Peters, I look forward to your testimony and the testimony of the others.

I'd like to start off this morning by mentioning how much TEA–21 has helped our Nation address our infrastructure needs and our employment needs. This is especially true in my State of Montana. TEA–21 has been a crucial tool for us. The bill is not perfect, but it's a very good bill that an overwhelming majority agreed upon, at the end of the day. Along with Senators John Chafee and John Warner and others, I was directly involved in drafting TEA–21 in the Senate. I am proud of that work and I look forward to working closely with the leadership of this committee on the next bill.

My concern here today is held I'm sure, by all the committee members—the shortfall in highway funding for fiscal year 03. This is unacceptable. This country cannot afford a 27 percent decrease in highway funding.

For the past 6 months Congress has been discussing the best ways to stimulate the economy. Even though we are no longer working on an economic stimulus bill, we face a real crisis that will negatively affect our economy. We face unprecedented losses to our highway program. Every State will lose money.

If we want to create true stimulus and maintain jobs for our citizens then there is an easy solution. Highways. For every $1 billion that goes into the highway program, 42,000 jobs are created. In an attempt to address unemployment concerns and immediate stimulus to the country's economy, I, along with others on the Environment and Public Works Committee, have introduced S. 1917. This bill would restore the authorized levels for fiscal year 2003. It doesn't get us all the way there, but it's a start.

This is about jobs. Skilled and unskilled jobs in highway construction are well-paid. These jobs provide employment opportunities for workers who have lost manufacturing jobs, with minimal training requirements. In addition, we need to ensure that current jobs will not be lost in many of the supplier and heavy equipment manufacturing industries. Without at least restoring TEA–21 levels, over 360,000 jobs will be lost.

For my State of Montana that means a $71 million loss to our highway program. And in Montana, Highways are our lifeblood. We need the highways and we need the jobs created from new highway funding. Also, we can't afford to lose any highway-related jobs because of this under funding.

There is $20.5 billion in the Highway Trust Fund. We can afford at least the $4.369 billion from that balance to be distributed over the next year. We could afford more. In fact, we can't afford not to.

This extra $4.369 billion only begins to take care of this huge problem that we face. I would like to see even more of an increase to the fiscal year 03 level.

Considering the President's focus on jobs in his 'State of the Union' address, I am dismayed that the President's budget did not take these concerns into consideration and propose these changes.

I am hopeful, however that given the State of the economy and our need for highway investment and jobs, he will support at least the fiscal year 03 authorized level if not more.

Given our limited highway resources, it is my intention as chairman of the Senate Finance Committee to take measures to increase the money in the Highway Trust Fund. I will be looking at the effect that the ethanol subsidy has on the Highway Trust Fund and also at Highway Fuel Tax Evasion. I am committed to the use of ethanol-blended fuels, but I am insistent that the Highway Trust Fund be held harmless to any costs. Resources are too scarce to tolerate losses.

Additionally, I will be working with the leadership of this committee to explore innovative ways to fund highway projects to supplement the Highway Trust Fund dollars.

The next issue I'd like to speak about is environmental streamlining. To your credit, Administrator Peters, you have made repeated statements regarding the

need to streamline the process by which environmental approvals are obtained to construct new transportation projects. Before you were nominated for this position, you were a strong advocate for streamlining the planning and environmental processes. It is my hope that your zealousness continues and you remain active on this front.

At present, the process for allowing highway projects to move forward is painfully long. The rule that was issued 2 years ago clearly missed the mark. It is my hope that you will go back to the drawing board, as they say, and issue a regulation that will help States expedite the project approval process without and I emphasize without weakening environmental protections.

Thank you for the time Mr. Chairman. I look forward to today's testimony.

Senator REID. I would say this, Senator Baucus. Having traveled the State of Montana mostly by air, I can imagine the vastness of that State, and how there would never be an end to the need of roads through that massive State.

Senator BAUCUS. Well, that is right, Mr. Chairman. That is one reason that for a long time, we did not have a highway speed limit, because we value our roads very much.

[Laughter.]

Senator REID. Well, we, in Nevada, had the same situation.

Senator BAUCUS. I know that. I remember going to school, I would drive through Nevada.

Senator REID. I bet it felt like home.

Senator BAUCUS. It felt just like home. I had a VW bug, and a friend had a VW bug, you know, and we would just put the pedal to the metal. We would go flat out, and we would see who could pass whom, streaming through Nevada.

Senator REID. Well, do not be admitting that, though.

[Laughter.]

Senator REID. And we go from Montana, and do they still need highways in Rhode Island, Senator Chafee?

[Laughter.]

Senator REID. We will be happy to hear your statement.

Senator CHAFEE. Route 95 comes right through Rhode Island.

And when you have the pedal to the metal in a Volkswagen, Senator Baucus, what are you at, 55/60?

[Laughter.]

Senator BAUCUS. Well, it depends on whether you are going uphill or downhill. Downhill is a lot faster than uphill.

[Laughter.]

OPENING STATEMENT OF HON. LINCOLN CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. I just look forward to the statements of those giving the testimony today. It is a difficult budget year, and we want to make sure that we make good, responsible decisions, and at the same time, keep our highways and our employees, as Senator Baucus said, working; which is, of course, always the best stimulus that you can have for the economy.

I look forward to your testimony.

Senator REID. Thank you very much, Senator Chafee.

The witnesses today have been advised that we would like to hear from you for 5 minutes. What you cannot cover in that 5 minutes, we will make part of the record. Our staffs will pour over that, and bring to our attention what we did not bring out in the

hearing. Following your testimony, members of the committee will ask you questions.

Administrator Peters.

STATEMENT OF HON. MARY E. PETERS, FEDERAL HIGHWAY ADMINISTRATOR, U.S. DEPARTMENT OF TRANSPORTATION; ACCOMPANIED BY: HON. DONNA MC LEAN, ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS, U.S. DEPARTMENT OF TRANSPORTATION

Ms. PETERS. Thank you, Mr. Chairman.

Mr. Chairman, I do appreciate your holding this hearing today on this very important topic. I also appreciate your consideration during my confirmation, and my pleased to testify before you today for the first time as Administrator of the Federal Highway Administration.

It is an honor, also, to be here today with the Assistant Secretary for Budget and Programs and the Chief Financial Officer of U.S. DOT, Donna McLean. With your permission, we will submit a joint written statement for the hearing record, as you indicated.

Our highways, as each of you have spoken to, are critical links in our Nation's multi-modal surface transportation system. The challenge is to maintain our high quality network, while increasing safety, improving mobility, and promoting environmentally responsible project decisions and, of course, efficient program delivery, as well.

Of course, our ability to accomplish these objectives is related to the adequacy and availability of transportation funding. TEA–21 provided a mechanism for ensuring the revenues into the Highway Trust Fund are spent, and that the funding level for the Highway Program is aligned with Trust Fund receipts.

Over the past 3 years, revenue-aligned budget authority has provided more than $9 billion in additional highway spending, funding that is now working in our economy.

Due to the recent economic slow-down and current projections of future Highway Trust Fund receipts, a downward adjustment of the Highway Program occurred when the highway spending was aligned with revenues in the Highway Trust Fund for 2003. The calculation, as was mentioned, is not a policy call. It is a calculation based in law and reflected in the budget.

The $24.1 billion funding level for highways proposed in the President's 2003 budget reflects the funding level enacted in TEA–21, as adjusted for the latest Highway Trust Fund revenue figures.

As we approach reauthorization, we need to look for ways to smooth out the current positive and negative swings that result from this adjustment. However, we should not abandon the adjustment concept.

Linking highway spending to receipts is a fundamental principle of TEA–21. Even with the negative calculation in 2003, over the life of TEA–21, RABA adjustments will provide a net gain of $4.7 billion in highway spending.

The 2003 reduction can serve as a wake-up call for all of us. Current trends in fuel use, as well as technological advances, including the new fuel cell technology, will require us to consider new sources of revenue and leveraged funding, if we are going to have sufficient

funds for our highway system in the future. Reauthorization will give us the opportunity to consider these important factors.

The FHWA budget emphasizes four priority areas: safety, mobility, environmental stewardship and streamlining, and oversight. Safety remains our first priority and our greatest challenge, and we will work aggressively to improve the safety record on our Nation's highways.

We also can improve the operation of the system. We have made significant progress in the deployment of intelligent transportation systems (ITS), but need to complete that deployment in both urban and rural areas.

The 2003 budget provides almost $360 million for research and technology funding that will support innovations in safety, system preservation, and congestion mitigation, including expanded deployment of ITS. Continued progress in streamlining the delivery of transportation improvements will also improve safety and congestion.

We must, at the same time, remain respectful stewards of the environment. However, meeting our Nation's mobility needs and environmental stewardship are not mutually exclusive goals.

I am happy to report that the median time it takes to complete an environmental impact statement and get to a record of decision has been cut by an entire year. While it is an excellent start, we are committed to accomplishing much, much more. The budget proposes $6 million in additional funding for streamlining efforts.

We will continue to improve Federal oversight and accountability to ensure, as Secretary Mineta has said, that the public gets what it pays for.

We owe a good return on investment to the public for transportation funds that they entrust us with, and I like to call this the public value, in place of dividends.

We must keep our infrastructure secure, and we must strengthen our commitment to reducing highway injuries and fatalities, even as we obtain additional capacity from the system. Working together, we can provide the American people with a safe, efficient, affordable, and accessible transportation system.

Mr. Chairman and members of the committee, I thank you for the opportunity to make a brief opening statement. On behalf of Assistant Secretary McLean and myself, we will be pleased to answer any questions that you may have.

Senator REID. Madam Secretary, we will follow the same rule that we ask our witnesses to follow. Each member will get 5 minutes. Thereafter, if there is still a need for more questions, we will do a second round.

I was happy to hear in your statement, that it appears that you are willing to work with us to try to come up with some additional funding, recognizing that there are some new things happening out there to cut back on highway funds, in addition to the September 11th incident. Is that right?

Ms. PETERS. Mr. Chairman, that is correct. While the President's budget did follow the law, we certainly are willing to work with you. We are aware of the bill that has been proposed, and will be pleased to analyze that and provide any technical assistance we can.

Senator REID. You can imagine in Arizona, what would happen if they had a 27 percent cut in their Highway Construction Fund. It would cause a lot of problems, would it not?

Ms. PETERS. Mr. Chairman, it certainly would.

One of the things that I think is important for us to remember, Mr. Chairman, while as you said, a 27 percent reduction is important, this funding will not stop immediately. We believe that capital outlay will be down around 3 percent per year, based on the relatively slow spend-out. So we do have some time to look at this important topic, and take care to do it right.

Senator REID. Well, the problem is, it establishes a baseline that will make it almost impossible to work with. We have to have, for next year, a different baseline than the one that you have given us. Otherwise, programs are drastically affected in the so-called out years.

What initiatives has the Federal Highway Administration taken in regard to the security of our highway and bridge infrastructure since September 11th?

Ms. PETERS. Mr. Chairman, we have been actively working on security on our bridges and our infrastructure, across the entire system, and not just in aviation.

Senator REID. By doing what, though?

Ms. PETERS. In the days immediately following September 11, Secretary Mineta established within the Department of Transportation, a National Infrastructure Security Committee (NISC). We have undertaken a number of efforts related to security. I will pull a few notes here.

This is what we have done to date, in terms of surface transportation. We have assessed and addressed potential threats to the highway system. It is a challenge, given the openness of the system. We are looking at the redundant capacity, making sure that we have identified alternative routes and alternative modes of transportation.

We have worked with the States and local governments to identify high consequence, high value, high vulnerability facilities; and assisted in conducting vulnerability assessments, sharing best practices across the country. We are scheduling regional emergency management workshops to ensure that areas are prepared for evacuations, quarantines, and restoration of operations, should that become necessary.

We are performing cases studies on the transportation response to the September 11th incidents in both the Washington, D.C. area and New York, as well as the Howard Street tunnel fire in Baltimore and the Northridge earthquake in California. We have prepared an emergency preparedness checklist for State and local governments, and are assisting them in emergency planning and operations.

Further, we have just recently announced an ITS solicitation for projects that will be focused on improving security, using technology. A freight technology exposition is scheduled for April 27th, and we have under way ITS operations tests for security. Three are in progress and two more will be conducted. A national conference on incident and emergency management will be conducted in Irvine, California, March 11th through 13th.

We have assisted State and local governments in conducting tabletop exercises, such as what was done in the Ft. Worth area. We are working closely with the American Association for State High-

way Officials (AASHTO) task force on transportation security. Secretary Mineta has asked us, and we are all working closely together with NISC, to focus on intermodal security issues, and to coordinate U.S. DOT's security focus across all modes. NISC is also working very closely with the Office of Homeland Security.

Senator REID. There are concerns being raised about both the accuracy of Treasury's fiscal year Highway Trust Fund revenue figure, that is 2001, and the reasonableness of Treasury's future revenue projections. It appears to some of us that Treasury has based future revenue projections on fiscal year 2001 revenues, which may represent a low point, due to the recession.

Has your office taken a look at Treasury's numbers, and are you comfortable with the 2001 figures being accurate, and that future year projections are not under-estimated?

Ms. MCLEAN. If I could take that one, sir, yes, we have looked at them. Treasury, actually, when they estimate future receipts, uses the same assumptions that are in the rest of the President's budget. So there are no unique estimates made just for the Highway Trust Fund beyond the obvious, the taxes. But those are based on assumptions on the economy's growth, which is the same for the rest of the President's budget.

So we believe that they are accurate, and we have walked through them with Treasury. I am sure that Treasury can go into more detail on that, if you would like to.

Senator REID. The 27 percent funding cut in your budget for 2003 will have a substantial impact on State programs. Has the Federal Highway Administration made any effort to assist the impact on State programs for the year 2003?

Ms. PETERS. Mr. Chairman, we have calculated the numbers and provided to each State what we believe will be the projected reductions in their program, as a result of the calculations.

Senator REID. I understand the dollar amounts, but the impact of what it will do to the highway and transportation systems in those States, have you taken a look at that?

Ms. PETERS. We have done some initial assessments, sir, and we are working with AASHTO to try determine whether there would be more significant impacts.

As a former State transportation official, as you and several other members of the committee have mentioned, I do understand what those impacts can be. I understand where I would be, had I been in the job that I was in just a year ago, and looking at those impacts. It is not good news. I will not attempt to whitewash that in any way. It is not good news at all.

There are some tools that the States can use, and we will help them in looking at those tools, to determine whether or not they can smooth out of the effects of this reduction in funding.

One of the tools is that this year, we have a positive RABA, a positive $4.5 billion RABA. Next year, of course, RABA will be negative, based on the current projections. We will be able to smooth that out, using tools such as advanced construction and other methods of financing.

It is accurate that this does not bring more money to the table, but those are some of the methods that we have looked at in terms of being able to smooth this out over the period.

Senator REID. Senator Inhofe?

Senator INHOFE. Thank you, Mr. Chairman.

Madam Administrator, I know you are in an awkward situation with this budget and coming before us. You are facing a committee that is pretty much unanimous on a bipartisan basis, in feeling that this budget is not adequate.

For that reason, I believe every member of this committee, Democrat and Republican, have co-sponsored S. 1917, as well as almost all of them over on the House side.

I agree with Senator Baucus. I have served for 15 years on this committee, with eight of those years in the House. I can remember many Administrations coming forth with a budget that really was not adequate, and changes can be made.

Now in your statement, and I am quoting now, you say that the budget "honors the highway category guarantees in TEA–21." I think there is some disagreement on this point.

I would just like to ask you the question, does the Administration have a position on S. 1917, and do you believe that the Highway Trust Fund could accommodate the provisions of S. 1917? Maybe that would be Ms. McLean on the latter question.

Ms. PETERS. Mr. Chairman, in terms of taking a position on the proposed legislation, we have not yet taken a position on the legislation. But as I indicated earlier, we would be happy to look at that, and to work with you, in terms of doing a technical review. I will defer to the Assistant Secretary for the second question.

Ms. MCLEAN. I believe the bill would allow funding up to $27.5 billion at the TEA–21 estimated level. Is that correct?

Senator INHOFE. And I might add that a lot of the people out there do not feel that S. 1917 is adequate. They would like to have a freeze of the 2002, which would be about $4 billion more, I believe, than S. 1917 would provide for.

Ms. MCLEAN. I can answer both of those pieces.

Senator INHOFE. Yes.

Ms. MCLEAN. We believe that looking at the Trust Fund balance right now, that it can accommodate the $27.5 billion, basically the original TEA–21 funding level.

But once you get above an obligation limitation level in 2003, above the $30 billion and the $31 billion range, the Trust Fund would not be able to support that level of obligation limitation in the out years. In the first couple of years, it would be able to, but in the out years, it would begin running a deficit.

Senator INHOFE. Do you feel that that is pretty conclusive in your thinking, when we have already experienced that we really cannot predict into the future what that is going to be? I can remember 3 years ago, when RABA first appeared, I thought, one of these days, this is going to happen; and, of course, it has happened. Anyway, that is something that you can take a look at. Real quickly, I have heard the statement that for every $1 billion in transportation construction funding, it creates about 42,000 jobs. Does that sound unreasonable to either one of you?

Ms. PETERS. Mr. Chairman, it does not sound unreasonable. I do not have the basis for the number, but it does not sound unreasonable.

Senator INHOFE. Yes, well, I would think, as a former State administrator, you probably have seen the effect it could have. I would only ask that you keep that in mind,

Right now, we are doing everything we can for a stimulus package. I honestly cannot think of anything that would do more to stimulate the economy than to provide the jobs that will come with increased funding and construction.

I would ask you if that was one of the considerations that you made during your negotiations with the White House in coming up with this budget, and if it something that you should be looking at.

Ms. MCLEAN. The decision was made to follow the TEA–21 legislation, because we just did not believe that abandoning the concept of linking highway spending to receipts the fundamental concept and principle of TEA–21 was the position to take at this time.

We did consider, however, the fact that additional spending in highways is linked to jobs. But at the same time as Ms. Peters pointed out previously, the reduction in outlays for the first year is a reduction of less than 3 percent.

We believed that that was something that could be managed, balancing the fact that there was increase in funding in 2002 above anticipated levels.

Senator INHOFE. I have always felt very strongly about a very robust highway program. You know, back when Republicans were important, I chaired this committee. I have not changed my thinking since that time.

I have one last question, and my time has expired. Let me just ask one question, and they can answer it for the record, if they do not have a position on it.

Does the Administration have a position on a proposed change in the tax treatment of gasohol, with some of the things that are being discussed right now?

Ms. PETERS. Mr. Chairman, the Administration has not yet taken a position on that. We are reviewing several proposals, including that of Senator Baucus, with regard to the 2.5 cents, but have not yet taken a position.

Senator INHOFE. Thank you very much.

Thank you, Mr. Chairman.

Senator BAUCUS. Do you have any idea when you might take a position?

Ms. PETERS. I will defer to the Assistant Secretary for that one. [Laughter.]

Ms. MCLEAN. I do not have a timetable for you, sir, but I can get back to you.

Senator BAUCUS. I mean, the earlier the better, so we know where we all are.

Ms. MCLEAN. Sure, I understand.

Senator BAUCUS. Second, on the Treasury's estimates, could you just tell me how deeply you or your staff examined the assumptions and the data with Treasury.

Ms. MCLEAN. Well, we have looked at their estimates. They are all based on, as I have mentioned, the President's economic assumptions. But there is a level of detail that Treasury deals with on their own. They do not provide all of the details of their estimates, and that has been a policy that Treasury has had for years.

We can, again, provide you some additional information from Treasury on that. But, again, the estimates are based on the same assumptions that the President uses in the rest of the budget.

Senator BAUCUS. Have you asked Treasury for more details, and have they refused to give them, because of long-standing policy? I am just trying to determine this here.

Ms. MCLEAN. No, they have been very cooperative in sharing their estimates with us. We understand that the reduction in actuals for 2001 are based on primarily three phenomena: a reduction in the overall economy, a reduction in receipts from the retail tax on trucks, and increased substitution of gasohol for gasoline. So we are very aware of the differences in the look-back calculation.

Senator BAUCUS. Do you know whether Treasury uses only the estimates at the beginning of the year, or whether they are updated, as the economy changes?

I ask that question because, regrettably, there is a quiet disparity between OMB and CBO, with respect to tax matters, to the Joint Tax Committee. That is, whenever we, in the Congress, particularly near the end of the year, when generally tax legislation comes to the Floor, are asking the Joint Tax Committee for estimates. Of course, they look at the economy and look at lots of other facts.

But by tradition, they use the economic estimates made at the beginning of the year, in January. They do not update them; why, because OMB does not. So all this data is really dated. I am curious whether you know, in doing your RABA estimates, like I said, the January Administration estimates, or whether they are ever updated to more accurately reflect the state of the economy.

Ms. MCLEAN. The TEA–21 legislation requires that the adjustment for the revenue aligned budget authority and the other adjustments to the obligation limitations are done at the time of the President's budget release. So the law dictates that it is done at that time.

Senator BAUCUS. That is a legal requirement?

Ms. MCLEAN. Well, it specifically says in law that in the President's budget, the President shall submit these adjustments.

Senator BAUCUS. Well, there is another adjustment. I hope it does not reflect the Trust Fund balance. That is very interesting. There must be some meaning in that. I do not know what it is.

[Laughter.]

Senator BAUCUS. I urge all of us to go back and see if we are using the right criteria. I urge FHA, DOT, and all of us who are interested in this subject to do so. Perhaps we are not using the right criteria in making these estimates. For example, there may be some specific highway criteria that we are just not using, and should.

I have no further questions, Mr. Chairman, except to state that I urge the Administration to work very strongly for, as Senator Inhofe stated, a robust highway program.

Senator REID. Mr. Chairman, if they go back and find that is the correct, what were the words you used, "program numbers"?

Senator BAUCUS. Oh, the numbers.

Senator REID. Well, my point is, if they find that those are the right numbers, they should find some different ones, because we need to do something.

I would ask unanimous consent, if the committee has no objection, that statements by the Department of Treasury and the General Accounting Office be made a part of the record.

Without objection, so ordered.

Senator REID. Senator Wyden?

Senator WYDEN. Thank you, Mr. Chairman.

I want to go over the question of the implication of the cuts, Ms. Peters, because I am still not clear, in terms of your view on this.

What I am hearing from State transportation officials in my State, and I think this is true across the country, is that these cuts are going to mean significant delays for many urgently needed transportation projects. Do you disagree with that assessment?

Ms. PETERS. Mr. Chairman, Senator Wyden, no, I do not disagree that there will be delays. What I was saying, and perhaps I could and should clarify for the record, is that transportation construction projects that are underway today likely will not be delayed, because States will be able to use the higher level of RABA during the current year, and smooth that out over time.

Perhaps it would be best if I would frame it, if I were still a State administrator, would I cut existing transportation projects, those that are being built today? The answer to that would be no; that we would be able to work out funding for those projects.

In terms of the future program, the Highway Program does spend out at a slower pace than do many other programs. For example, capital outlay, on average, 27 percent of a project will spend out in the first year; approximately 41 percent the second year; 16 percent the third year; and 10 percent the following year.

Because States, and especially a State like Oregon, have a number of transportation projects ongoing at any given time, then you average that outlay over a period of time. So what I am saying is, I do not see any immediate transportation projects being stopped, or layoffs as a result of that.

However, you are correct, sir, in terms of the long-term program. People would generally take a 5-year program and perhaps spread that out over a longer period of time, given the projected downturn in revenue. So it will have an effect, but what I am saying is, it will be more of a delayed effect than an immediate effect.

Senator WYDEN. Could you provide me and other members of the committee your independent assessment of how you reached that judgment, because that is not in line with that I am hearing in Oregon, and I do not think it is in line with what the Congress is hearing.

If you think that somehow there can be some budgetary slight of hand, I would like to see your assessment, as to how you are going to limit the damage here, because it is not a view that I share. Could you provide that to us?

Ms. PETERS. Mr. Chairman, Senator Wyden, we would be happy to do that.

Senator WYDEN. Let me ask a question of your colleague, as well. Were you asked by the Administration about the consequences of these budget cuts? It seems to me that it runs completely contrary

to what the President said at the State of the Union Address. I am just wondering if you or anybody else in the Administration was asked about the consequences of cuts of these magnitude.

Ms. MCLEAN. We did discuss the details surrounding a funding level for highways at the amount proposed in the President's budget. It was a concern of the Administration.

The decision was made, again, not to abandon the concept of TEA–21, which is to have highway tax receipts reflected in the level of highway spending. Again, we believe that RABA has provided a total benefit of $4.7 billion to highway spending, and that was something that we did support.

Senator WYDEN. But you made the judgment that this could cost jobs and that this would have regrettable economic consequences, and you went ahead anyway for the reasons that you described.

Ms. MCLEAN. Well, as you probably are aware, in TEA–21, any additional funding beyond what was proposed in the President's budget, because the President's budget complies with the current law, would be spending above and beyond what is allowed in the firewalls. Such spending would essentially either increase either the deficit, or would have to be balanced by reductions in spending in other domestic discretionary programs.

As the President also stated in his State of the Union Address, we have several priorities in the President's budget, including fighting the current war, and balancing those priorities are difficult choices.

Senator WYDEN. Let me ask one last question for you, Ms. Peters. In the last TEA–21, Senator Graham and I, under the leadership of then Chairman Baucus, worked on this streamlining issue. The history of how it has been implemented is certainly very different than the three of us envisioned.

We saw that the whole idea was to ensure that environmental requirements would move forward concurrently with the project development requirements; that you put the two of them on the same track. We are now 3 years plus into this, and it just seems like we are still moving backward.

Why is it so difficult to take a concept that Senator Graham and Senator Baucus and I thought was pretty straight forward—environmental track, project track, work together—why is it so difficult to get this implemented?

Ms. PETERS. Mr. Chairman, Senator Wyden, I share your frustration. In fact, I spent some time before Congress in my prior role, talking about environmental streamlining and how important it is. I do share your concerns.

In trying to process things concurrently, what I have found in the short time that I have been with the Federal Highway Administration is that there are as many reasons as there are projects out there.

But to summarize some of those reasons, the U.S. Department of Transportation, while it was tasked with environmental streamlining, does not have authority over a number of other environmental regulatory areas.

I believe, however, there are ways we can work through that. Certainly, the Secretary feels that we can work through that by working more closely with the other environmental resource agen-

cies and finding a way, as you indicated, to more concurrently process requests for project approval, rather than having them be sequentially processed and then have to loop back.

Further, we believe there are ways to allocate resources, as was mentioned earlier, to the U.S. Fish & Wildlife Service and other resource agencies, so that they can more timely move those process approvals forward.

We believe that states can process a number of environmental approvals. We believe that we ought to be able to delegate authority to the states to do a number of them, most specifically, categorical exclusions; so again, we can move the process much more quickly.

I believe, and the Secretary believes, that there are ways that we can, within the existing law, substantially decrease the time that it takes to get environmental approvals without compromising the environment, and we are very committed to doing so.

Senator WYDEN. Thank you, Mr. Chairman.

Senator REID. The chairman of the full committee, Senator Jeffords, has arrived. He has indicated he will not give a full statement.

I will call on Senator Chafee now for his questions.

Senator CHAFEE. Thank you very much, Senator Reid.

I believe, Ms. McLean, you mentioned several contributors to the fall-off in revenue to the Highway Trust Fund. From a chart I have here, it looks like the retail tax on trucks is the biggest culprit. Could you just describe what that tax is, and why it fell off so much? It is $2 billion, from this write-up.

Ms. MCLEAN. Yes, it is a 12 percent tax on purchases of new heavy trucks, trailers, and similar pieces of equipment. Obviously, when the economy is good, companies are making large investments in capital in their businesses.

That is basically what was happening in 2000. In 2001, however, those sales declined, and as a result, our tax revenues into the Highway Trust Fund declined. If these pieces of equipment are resold, there is no tax that is deposited in the Trust Fund.

Senator CHAFEE. And is this up-to-date? If it is 2001, is it right through December, all those zero percent deals? At least in Rhode Island, my dealers are telling me, they had some of their best years ever, with some of the incentives that were offered.

So it is just such a surprisingly low number, from the previous year. I was just wondering as to the accuracy of it. Is it up-to-date, all through December?

Ms. MCLEAN. The figures are for the Federal fiscal year, ending in September.

Ms. PETERS. Mr. Chairman and Senator Chafee, our understanding in talking with Treasury is that it is. Apparently, there was quite a peak in the sale of new trucks in the 1998/1999 timeframe. Then, because the economy has cooled in more recent years, dealers, instead of buying new trucks, are keeping the trucks they have.

One of the things that the trucking industry, in my experience as a State administrator, was able to do, in lean times, is put the trucks idle for awhile, and not have to purchase new trucks or not

run those trucks. The variable cost component of their industry is rather large, so they have the ability to do that.

Initially, at least reading through with the Treasury, as we were aware of it, it appears that that indicator is now moving up. I believe that the last factor that I would mention is that, of course, the last quarter, the fourth quarter revenue figures, I believe, are not based on actuals, but on projected from the third quarter.

Ms. MCLEAN. Simply because those estimates are made right before the President's budget is released, which is right at the beginning of the year, those estimates just have not come up.

Senator CHAFEE. So theoretically, that number could change.

Ms. MCLEAN. It could. But once again, if you go back to the TEA–21 language, the adjustment that is made for both the obligation limitation and the revenue aligned budget authority, those are required to be made at the time the President's budget is released. So those new figures could come in, but TEA–21 requires that adjustment to be made at the time of the release of the President's budget.

Senator CHAFEE. OK, and last, what is the answer? You mentioned RABA is going to look better in the future in the next year, and hopefully you would work with us to maybe just smooth out some of the rough spots here, and the differences between the years. Maybe you could just expand on that, and how you can work with us to do that.

Ms. PETERS. Mr. Chairman, Senator Chafee, I would be glad to talk with you a little bit about that. We are looking at two concepts. One is the calculation of RABA, per se, and is there a way to perhaps smooth out the peaks and valleys?

The unfortunate circumstance that resulted in the number that we are looking at today is a double negative, if you will. In the look-back, as it was calculated, there were overly optimistic projections for 2001, based a few years back. Then when we calibrated those to what the actual receipts in 2001 were, that was a negative. The look forward was negative as well.

The look-forward, however, is not as negative, if that is not a redundant term, to say it is not as negative going forward. But nonetheless, it was not a positive number either. So the combination of the look-back, which was a negative $3.5 billion, and the look-forward, which was a negative $0.9 billion, resulted in what we have today.

I believe, and we have discussed this somewhat within the Department, and certainly the Secretary mentioned it in his testimony before this committee earlier, that there may be ways to smooth out the peaks and valleys, by looking at the method with which we calculate RABA.

But, as the Assistant Secretary said, and we do feel very strongly, that tying spending to receipts is an important concept to continue with in the future. So perhaps we can work with the way the formula is calculated, to smooth out those peak-and-valley effects in the future.

Senator REID. Chairman Jeffords is here. Chairman Jeffords is, I am sure, feeling good today. The first gold medal in the Winter Olympics was won by a person from Vermont. Her name was Clark, as I recall.

Senator BAUCUS. Kelly.

Senator REID. Was the last name Kelly?

Senator BAUCUS. The first name.

Senator REID. Yes, I thought Clark was right. But anyway, she is a real daredevil on that snowboard. She better be careful.

[Laughter.]

Senator JEFFORDS. It was not unexpected.

[Laughter.]

Senator REID. Which is true.

[Laughter.]

Senator JEFFORDS. Ms. Peters, I want to commend you on the leadership you are providing in the area of environmental stewardship in the so-called streamlining. You site New Hampshire as the leader in this regard, and of course, they probably stole everything they did from Vermont.

[Laughter.]

Senator JEFFORDS. But putting that aside, I encourage you to continue to highlight best practices around the country, and to work with your colleagues in the resource agencies.

I would like to see you make as much administrative progress as possible before we legislate further on this topic. Please comment on your plans in this regard.

Ms. PETERS. Mr. Chairman, Senator Jeffords, thank you.

We have a number of efforts underway, where we believe that we can make some inroads, using the administrative means that we have available to us today.

As I mentioned earlier, one of the things that we believe has prevented us from moving forward as aggressively as we would like is the working relationship between Federal resource agencies and U.S. DOT. Accordingly, our Deputy Secretary has met with his counterparts in other resource agencies, and we want to work very closely with the Council on Environmental Quality, as well, to move forward streamlining efforts.

We believe that we can do this by raising to a high level the issues where projects do get hung up and are in dispute, and by developing a dispute resolution process to move them through much more quickly, so that we are not delayed in moving projects forward when disputes do come about.

As I mentioned earlier, we need more concurrent processing, rather than sequential processing. I have to say, one of the really frustrating things for me, as a former State Administrator, was to finally get agreement, for example, with the U.S. Fish & Wildlife Service, and then have to go to the Corps of Engineers, and get a 404 permit from them.

They would make a change, and then I would have to go back to U.S. Fish & Wildlife Service, and take the change that I had to make to get the 404 permit back to them. I felt a little like a rat in a maze sometimes.

We think that we can change some of those processes so that we still are mindful stewards of the environment, but we are not playing this constant loopback game.

Further, there are a number of projects that require categorical exclusions. These are generally projects that are not taking new right-of-way, and are not major expansions, meaning that they

would not add capacity. Improvement projects such as safety and maintenance need to be able to move forward much more expeditiously than they are today.

These, again, are areas where we believe states can be given authority, when they have a good environmental record, to move forward with projects, without having to then come to Federal officials for another layer of approval. So those are some of the methods, sir, that we think we can use to expedite the process.

One more that I would mention is working with the AASHTO Center for Environmental Excellence. We are allocating some of the money that you made available to us for environmental streamlining to get that Center started. It will collect and share best practices, and send teams out to help people work through environmental issues when they do hit a roadblock in project processing.

Senator JEFFORDS. In your written testimony, you mention that FHWA has modified its bridge performance measures. In my State of Vermont, we have many historic bridges, both covered bridges and steel truss bridges. How will the new measures impact our ability to preserve those bridges?

Ms. PETERS. Mr. Chairman, we certainly want to be sure that we are preserving historic bridges.

If I am not speaking accurately, based on what my written testimony was, I will certainly get back to you. But this is one of the factors that we came up against, and this has to do with the bridge rehabilitation fund (BRF).

If a bridge had had a rehabilitation project in the past 10 years, they were not then able to use BRF funds for future repairs or maintenance on that bridge that would extend the life of the bridge. We felt it was important not to restrict that funding, because clearly we want to extend the life of bridges.

So we wanted to make available that funding category to use on bridges, so that we could do restorative work and continue to extend the life of the bridge.

Senator JEFFORDS. Thank you, that is helpful.

Thank you, Mr. Chairman, and thank you for calling the hearing.

Senator REID. Thank you for being here.

There is one last question that I have. You may have stated this in your opening statement, or it could have been in response to Senator Baucus, who asked you a number of questions about environmental streamlining.

You said that it had been improved by 1 year. Well, if 1 year is 1 year from seven, tell us what that means. Instead of 1 year, it is what?

Ms. PETERS. Mr. Chairman, I do not have the base data with me. But the median time that it takes to complete an environmental impact statement has been reduced by 1 year.

Senator REID. But you do not know what that means?

Ms. PETERS. I believe it was from 7 years, sir, but let me get the exact data, so that I do not misspeak to you today. I believe it was from 7 years. But, as I said, it is still too long.

Senator REID. Yes, people who are waiting to have something done, to tell them that it is multiple years, and we have increased it by 1 year, that is a big help. We appreciate that, but we are going to have to do much better than that.

Based on your experience in the State of Arizona, as you explained to us, you felt like a rat in a maze. That is how people explain this to us; that they are shuffled back and forth, from the Corps of Engineers, to the EPA, plus Fish & Wildlife, and all this. It just becomes a burden that makes us all look a little bit foolish.

So I think we should really follow the admonition of Senator Baucus, and do whatever we can to streamline this. If you need legislative help, we would be happy to take a look at that.

Ms. PETERS. Mr. Chairman, I appreciate that. I certainly will work with you on that. You have my commitment.

In fact, I will say, when I spoke to the Secretary about taking the job as Federal Highway Administrator, I mentioned to him how important this was, and I will continue to focus on it.

Senator REID. Senator Inhofe, or any other Senators?

Senator BAUCUS. Yes, I have just a couple of questions, very briefly.

Ms. McLean, I just want to make sure that I heard your statement correctly; that is, when Senator Wyden asked you about whether there will be job layoffs or not.

I want you to please clarify this, because there are many, particularly in the contracting industry, who say just the contrary. That is, there will definitely be jobs laid off, if the Administration's recommended budget is adopted by the Congress. In fact, I think a panelist on the next panel, my guess is, is going to testify very much to that point. So I just want to make sure we heard straight what you said.

Ms. MCLEAN. What I said, or at least what I meant to say, was that we were looking at all the factors and all of the details surrounding proposing a funding level at the level that is in the President's budget.

We are well aware of those suggestions that the reduction in funding, or an increase in funding, results in either a loss or a gain of jobs. So that was part of the discussion.

Senator BAUCUS. So is it your analysis that the swing of roughly $8 or $9 billion will result in lost jobs or not? I am just curious what your analysis shows and what your testimony is.

Ms. MCLEAN. I do not have today what a number would be. What the reduction in Federal-aid highway program outlays of 1.3 percent in 2003, that would be the reduction in funding level.

Senator BAUCUS. I am just asking the simple question, are there going to be jobs lost or not, based upon the Administration's budget submission?

Ms. MCLEAN. I would say that there would be a reduction in funding for highways, which would result in the level of construction in highways. But I could not tell you the number of jobs.

Senator BAUCUS. So the answer is yes, there would be loss, but you do not know the number.

Ms. MCLEAN. I do not know the number.

Senator BAUCUS. Thank you.

I have one other question, if I might. I have just some ideas on how to get at environmental streamlining. It is my thought that because of all the boxes and the rabbits running around the maze and so forth, and it somewhat legitimate, but I do not think en-

tirely, that DOT be made the lead agency, with respect to purposes and need and scope and alternatives.

You know, all agencies can be consulted, and should be, the appropriate agencies. But you need some lead agency; somebody that can organize all this.

It is my understanding that there really is not a well defined lead agency, at this point. So one thought might be and, in fact, in the bill that I will be introducing at the appropriate time, it will include such language.

I am also wondering if it might make sense to have sort of a deadline by which an agency has got to respond, at some date. It would be something that is reasonable and make sense, but at least some date.

I mean, the world is usually run by deadlines. For a lot of people in Government, it is not. I am not being critical, but I am just making an observation.

For example, all of us run by deadlines. You know, lots of you can think of all kinds of people in their daily lives who operate by deadlines, and the businesses have deadlines. You have quarterly reports in the business sector, and you can name it. But a lot of agencies do not seem to have deadlines within which to make their recommendations, their suggestions.

It just seems to me that the agencies should have deadlines. You know, it would force them to think a little bit. Frankly, they might find something pretty creative, if they have got a deadline, so long as it is reasonable. That, too, will be in the bill. Deadlines will be included in the bill that I intend to introduce.

But if you could just think about that, when you make your recommendations to us, as we further discuss the legislation, we would deeply appreciate it. Thank you.

Ms. PETERS. Mr. Chairman and Senator Baucus, I think those are good suggestions, and we will consider those.

Senator REID. Max, I think that is a great idea, because a lot of times, these agencies are waiting around for one of the other agencies to do something.

I think that that, combined with your idea to have a time, and as you have indicated, a reasonable time, we have got to do that, because there is no pressure for them to do anything. They can wait forever on this. So I think that is a great idea.

We have been joined by Senator Graham of Florida. Do you have a statement you want to give?

Senator GRAHAM. Mr. Chairman, I do not have a statement, but I do have a few questions, if this would be appropriate.

Senator REID. We would be happy to have you ask those. This is totally appropriate.

OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Senator GRAHAM. Now I am going to violate what I just said, to make a brief statement.

Senator REID. It does not matter. It is counting against your 5 minutes, anyway.

[Laughter.]

Senator GRAHAM. I heard the discussion about the number of jobs affected by this. I know, as a former Governor, during a period of economic downturn in the early 1980's, we analyzed all the things that the State Government could do to try to play a positive counter-cyclical role.

We concluded that one of the most significant things to do was to accelerate our highway maintenance programs; that they were quick starting, they were heavy employment-oriented, and they left behind a better community and a stronger economic infrastructure.

So I do not know how the States and other territories that are beneficiaries of these funds are allocating it, as between new construction and maintenance. But if a significant amount of that is in maintenance, as I know it is in my State, you are talking about very large number of job losses, if you cutoff those funds. So this is a real economic, as well as a transportation, issue.

Having said that, when did the DOT first begin to suspect that the RABA calculation would result in such a large negative number?

Ms. MCLEAN. Sir, during the mid-session review, which the White House puts out around August——

Senator GRAHAM. This was August of 2001?

Ms. MCLEAN. Correct, there was a release that showed a negative, and I believe it was around, I want to say, $1.2 billion/$1.3 billion at that time.

Senator GRAHAM. What steps were taken in August of 2001 to alert the States that they might be facing significantly reduced funds in the next year?

Ms. MCLEAN. We did notify them, and I think Administrator Peters can respond to that, as well. But I know that AASHTO was aware, and some of the other user groups were aware at that time, that a negative RABA or a negative adjustment was something that was very possible, due to the tax revenues.

Senator GRAHAM. What steps did the States take to take that into account?

Ms. PETERS. Mr. Chairman and Senator Graham, I could not tell you specifically what steps the States took. But we did know as early as mid-summer, that RABA would likely be negative.

In fact, in early July, we were hosting a Western States Symposium of State Transportation Officials in Phoenix, Arizona, shortly before I was able to come to Washington. We were talking about the probability that RABA would be negative at that point in time. By the fall, as we began to get more data together, it was more evident and we were having discussions with various interest groups.

I do know very specifically in early December of 2001, when I had an opportunity to speak to the AASHTO organization, which is the State Highway Transportation Officials, we talked very openly about negative RABA at that point in time.

I was not party to discussions among the members about what specifically they might do. Again, I can only look back and tell you what I would have done, had I still been a State administrator. I would have been looking at trying to even out the flow between 2 years, so that I could try to keep my programs intact, and then look at the out years of the program, at perhaps extending the date of projects out into the future.

One thing that is important, that we certainly have talked about, and I have talked about with some members of AASHTO is that this is news that is not good in the short term. But, as I mentioned earlier, because of the rather slow pay-out of highway spending, we are not going to fall off the "plateau," if you will, immediately.

But we do have reauthorization coming up and, as I think the chairman mentioned earlier, we are starting reauthorization at a lower level. In looking at the overall life of reauthorization of the transportation funding act, it is very important for us to look at this and try to provide more stability in funding over the long run.

Senator GRAHAM. My time is short, and I am going to make what may be more of a statement than a question. But I understand that you talked earlier about the Intelligent Transportation System Program.

I have been very concerned that the high level of earmarking of that program had undercut its basic objective, which was to learn something about how ITS programs worked in real world applications, so we would do a better job in the future of reducing highway congestion.

Toward that end, last year, I offered an amendment, which was adopted in the Senate, and stayed essentially in fact in the final bill, which said that the following sums shall be made available for ITS system projects, that are designed to achieve the goals and purposes set forth in Section 5203 of the ITS Act of 1998.

I encourage the Department of Transportation to look at these three pages of earmarked ITS projects, and evaluate them against that standard of, are they consistent with the purposes that led to this ITS Act in the first place; and if you find them not to be consistent, that you not disburse the funds. I will be interested in seeing which of these many, many projects you find not to be consistent with the statutory purpose.

Senator REID. Senator Graham, for those that are watching this, and members of the committee know, has done hundreds of jobs and put in full shifts over the years that he was Governor and the years he has been in the Senate.

My question is, Senator Graham, have you done anything dealing with highway construction?

Senator GRAHAM. Many, probably 10 or 15 highway construction jobs, from bridge building to asphalt pouring.

Senator BAUCUS. I might say to my good friend and chairman, I have followed Senator Graham's lead. I know that he has done that. I thought it was a great idea, so I have done the same thing, and I might say the same.

I have operated heavy equipment and raked gravel on highway jobs. I commend it to all of us on the committee, because it gives you a really good sense of, you know, what is going on here, as you talk to the guys and gals.

I do not know if this happened to you, Senator Graham. I was also a sign person 1 day, and I was trying to get the traffic to stop. I jumped out in front of this traffic to get them to stop, because equipment was on the road, and instead of flashing the stop sign, I flashed the slow sign.

[Laughter.]

Senator BAUCUS. A guy went through, but he knew more about what was going on than I did. He stopped, and he just read me the riot act, because I had flashed the wrong sign.

[Laughter.]

Senator BAUCUS. But he knew exactly what was going on.

So we all have had our great experiences on these jobs. I highly commend it.

Senator REID. Well, I could rake the gravel, and I think I could do the sign; but heavy equipment should be left for someone else.

Senator BAUCUS. Well, 1 day they put me out in any empty field for 3 hours by myself, to make sure I did not cause too much damage.

[Laughter.]

Senator REID. Thank you very much. We appreciate both of you being here.

Ms. PETERS. Thank you.

Ms. MCLEAN. Thank you.

Senator REID. The next panel of witnesses that we have today is the Honorable Tom Stephens, Director of the Nevada State Department of Transportation. He will testify on behalf of the American Association of State Highway and Transportation Officials.

We will also hear from Mr. William Fay, President and CEO, American Highway Users Alliance, Washington, D.C.; and Mr. Tom Hill, Chief Executive, Oldcastle Materials, Incorporated, on behalf of the American Road and Transportation Builders Association.

As has been indicated by Senator Inhofe, we were expecting Mr. Duit here today, but sadly, his business burned down Saturday night, and he is therefore unable to be here.

I have said this, Senator Baucus, to Senator Graham, but I hope the two of you do something in the form of putting together your experiences. I think that would be really entertaining and really rewarding.

Senator BAUCUS. We can do that.

Senator REID. But I think it is great that the two of you have done that. It is certainly a way to find out what is going on out there, and there is no other way.

I have done it on a very limited basis, and have to acknowledge that I have not spent full shifts out there. I will come and do a few things and then leave. But I know that you and Senator Graham have put in full shifts, which is very hard to do.

We are first going to hear today from Tom Stephens. Tom, please proceed. As each of you know, here is the little lamp. It will say "talk," and when you have 1 minute left, it says, "sum up," and then "quit." Please proceed.

STATEMENT OF HON. THOMAS E. STEPHENS, DIRECTOR, NEVADA DEPARTMENT OF TRANSPORTATION, ON BEHALF OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

Mr. STEPHENS. Mr. Chairman and members of the committee, I am Tom Stephens, Director of the Nevada Department of Transportation. I greatly appreciate the opportunity to speak with you today on a topic of extreme concern to every member of the American Association of State Highway and Transportation Officials.

Mr. Chairman, we, in the States are stunned by the fiscal year 2003 budget proposal to slash $8.6 billion from the current highway funding levels. In the midst of a recession, this would cut the Federal Highway Program by 27 percent, because of an apparent slow-down in Highway Trust Fund Revenues, which triggered a complex revenue aligned budget authority reduction.

Losses of this magnitude can wipe out much of what we have accomplished in the past 4 years to reduce the backlog of needed highway improvements. It would set the clock back to ISTEA.

We strongly support the bill you all introduced last week to restore highway funding to not less than the $27.8 billion level authorized in TEA–21 for fiscal year 2003. We commend you for your appreciation of how important sustained highway investment is to the country, and thank you for your leadership in putting forth this legislation.

It is our emphatic view that the "not less than" for fiscal year 2003 should be no less than the $31.8 billion level provided in fiscal year 2002.

With 36 State Governors and legislators already contending with severe budget shortfalls, it is vital to maintain current Federal funding. Otherwise, State and local officials will have to begin the task of cutting billions of dollars in highway projects from their fiscal year 2003 Transportation Improvement Programs.

Final decision on these cuts will be made public in September, affecting nearly every community in the Nation. Construction contractors throughout the country will cut back on equipment purchases, and lay off tens of thousands of well paid construction workers.

Stock prices of several heavy equipment companies and construction companies have already dropped. Engineering consulting firms, already hard hit by the recession, will almost immediately have to start laying off engineers and technicians, as design work for next year's projects is delayed or canceled.

Let me give you just a few State-specific examples, based upon a survey that AASHTO now has underway. In Nevada, a $50 million cut in Federal funding will translate into a $50 million reduction in construction contracts. Future year programs will be downsized, as well. This funding cut would jeopardize our progress on numerous projects to meet the demands of the Nation's fastest growing State.

In Oklahoma, a total of $120 million in construction and right-of-way projects would be delayed or canceled, and the State's proposed $1 billion GARVEE Bond Program would be jeopardized.

In Montana, a $67 million reduction would result in the loss of 2,800 jobs, roughly equivalent to a quarter of the new jobs created in Montana in 2001.

In the longer term, we are concerned that the fiscal year 2003 cut, from $32 billion down to $23 billion, will be used as the baseline for the reauthorization of TEA–21. Over the next 7 years, the Highway Program would lose $60 billion, the equivalent of 2 years funding under TEA–21, with the Highway Trust Fund locking up tens of billions of dollars by the end of the period.

Not only do we need to ensure that the fiscal year 2003 funding levels are restored, but also that the firewalls for the distribution of the Highway Trust Fund receipts are perpetuated.

This damage to our highway system and the Nation's economy need not occur. As the chart next to me shows, there is over $19 billion in the Highway Trust Fund. By using only $2.4 billion for outlays in fiscal year 2003, we can keep highway investments at the fiscal year 2002 level.

Now no matter what you think about the calculations, when you look at the numbers here, the fact is that the Highway Trust Fund has grown from $8 billion in the last 4 years, up to $19 billion. No matter how you calculate it, there is a lot more money in the Highway Trust Fund today than there was 4 years ago.

Clearly, the RABA mechanism needs to be refined, and calculations by the Treasury Department need scrutiny. But there are two principles adopted in TEA–21, which must be maintained.

The first is to provide funding guarantees to provide the reliability essential to multi-year investments. The second is to preserve the firewalls in the Budget Enforcement Act, to assure that all of the revenues which flow into the Highway Trust Fund are spent for transportation.

Let me conclude by saying that transportation has enabled the economic prosperity that America has enjoyed since the 1950's. It is a simple equation: better transportation equals productivity gains and economic growth.

As we struggle to regain our economic vitality, we dare not pull the plug on our transportation investments. America's fuel taxes collected for highways should be spent on highways.

Thank you, Mr. Chairman. I would be pleased to answer any questions.

Senator REID. Mr. Fay?

STATEMENT OF WILLIAM FAY, PRESIDENT AND CEO, AMERICAN HIGHWAY USER'S ALLIANCE

Mr. FAY. Mr. Chairman, thank you for inviting the Highway User's to testify at this important, very timely hearing on highway funding.

We are one of the most broad-based and diverse advocacy groups in the U.S. We are a consumer's group for America's motorists and truckers, buses and RVs. We represent vehicle manufacturers; the oil industry; the service stations that fuel them; 3-M, insurance and other safety interests; farmers; industries that produce concrete, stone, asphalt; and contractors and equipment manufacturers that turn those substances into highways.

It seems like yesterday that we were asking for $5 billion to stimulate jobs in the economy. Now we are here on a far graver task, to avert the job and economic disruption that will result from the loss of $9 billion in highway funding next year.

Simply stated, slashing 27 percent from our Nation's largest infrastructure program is too much. It will have serious economic repercussions for a Nation struggling to climb out of recession. Cuts ranging from $28 million in Delaware, to $618 million in California, will be nothing short of calamitous.

The mere announcement of these cuts has already cost Americans jobs. Appended to my statement is a Joint Economic Committee study, estimating the cost of losing one's job: the financial hardship, the loss of health care and health insurance, rising mortality, divorce, and suicide. Quoting from that study, the longer jobless endures, the more likely it becomes that frustrations will be vented on the family or on the rest of society.

Road investments not made also delay positive societal benefits: the safety benefits of reducing crashes, the air quality, time saving and fuel saving benefits of relieving gridlock, the productivity benefits of speedier deliveries. They are the reason that the highway tax is the tax Americans pay most willingly. But they are only realized if highway taxes are used as intended.

No where are these gains clearer than in our study evaluating the 20 year benefits of improving America's 167 worst bottlenecks, 287,000 fewer crashes, 1,150 fewer deaths, 141,000 fewer injuries, 45 percent less carbon monoxide, 44 less VOCs, 71 percent less CO2, 20 billion less gallons of fuel consumed, and 19 minutes knocked off the time it takes to drive through the bottleneck.

For commuters, that is 38 minutes a day that they can spend with their families, at work, at errand, or recreation. That is why this funding shortfall is so crucial to our 45 million members.

In the short term, we strongly support prompt enactment of S. 1917. We are mounting a nationwide media and grassroots campaign to enlist co-sponsors, and urge appropriators to do their part, once it is enacted.

We wish the funding levels were more, but we commend this committee for its unanimous support and leadership, and for its bill, that actually sets obligation levels at a little under the amount that the Administration's budget says is going to be collected in taxes in 2003.

America's highway users have an ironclad case that sets us apart from other interests asking for funding. We have already paid the $19 billion in taxes, and they are just sitting here in Washington.

To make matters worse, even using the Administration's conservative revenue estimations, this surplus is going to double by the year 2008. The taxes we want released have already been paid. If they are not released, even more funds will languish in Washington, as our roads crumble.

Let me be clear. We knew that RABA could go both ways. We have enjoyed record funding, because receipts have exceeded expectations. If there was not a Trust Fund surplus, we would be just another interest group with its hand out. But we have already paid the taxes that S. 1917 will invest.

Turning to reauthorization, TEA–21 restored the concept of highway taxes paid equal highway investments made. While that concept must be preserved, we might make some minor adjustments that are going to eliminate future funding swings.

To us, the fact that Treasury has failed to predict the adverse impact of the recession on revenues from diesel fuel and truck and tire sales, their models fail to understate future revenues, particularly if the economy picks up.

To us, that suggests several clear priorities, and they are included in my statement. We need to enact S. 1306, which will shift

over $400 million in ethanol tax receipts into the Highway Trust Fund. We need to further stop tax evasion. We need to invest the $19 billion Trust Fund surplus.

Mr. Chairman, thank you for inviting me here to testify. We look forward to working with this committee to continue to support the vital role that our highway system plays in our economy and our every day lives.

Senator REID. We will now hear from Mr. Tom Hill from the private sector.

STATEMENT OF TOM HILL, CHIEF EXECUTIVE, OLDCASTLE MATERIALS, INC., ON BEHALF OF THE AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION

Mr. HILL. Mr. Chairman and members of the committee, my name is Tom Hill. I am the Chief Executive Officer of Oldcastle Materials. We are the largest material supplier and paving contractor in the United States, headquartered here in Washington, D.C.

I am here today on behalf of the American Road and Transportation Builders Association, where I am privileged to serve as Senior Vice Chairman. ARTBA has been representing the transportation construction industry here in Washington for over 100 years this week.

Oldcastle has operations in 25 states and employs over 15,000 people in the transportation construction industry. We are a federation of companies, and to help illustrate our reach, we have significant operations in several of your States.

In Montana, we have Jensen Construction in Missoula, and Maronic Construction in Helena, Montana. In Connecticut, we have Tilcon, a very major employer in the State. Tilcon also has a large presence in Rhode Island.

In Ohio, our Shelley Company is the largest paving contractor in the State, with well over 1,000 employees. Mr. Chairman, we also have a fairly small operation in Elko, Nevada.

I greatly appreciate the opportunity to appear before you today, because the proposals currently before Congress relating to Federal highway investment in 2003 will have a direct impact on our business and the hard working people we employ.

Our deep involvement in transportation improvement projects across the Nation provide me with a unique perspective on what the real world impacts of this will have today and in 2003.

Mr. Chairman, I can tell you that people like myself, contractors, material suppliers, equipment manufacturers, and State transportation officials across the Nation, are having a hard time understanding why we are suddenly looking at nearly a 30 percent cut in Federal Highway Program funding next year.

This is nothing but a crisis for our industry. Share prices dropped on the release of the President's budget. More importantly, our employees are deeply concerned about their jobs and their families.

This is not a 2003 problem, and let me reemphasize that. It is not just a 2003 problem. States are already delaying projects. Companies like mine are curtailing capital investment, and the impact is being felt right now.

Then we learn that the cut is being triggered because the program funding level is dictated by a truly convoluted mathematical formula, that hinges on the accuracy of economic forecasts that try to guess the future. It is confusing.

When we learn that since TEA–21 was enacted in 1998, that the Highway Trust Fund's account balance has grown to close to $20 billion that includes billions in surplus revenue, we do not even know why there is a problem.

My understanding of TEA–21 was that it was based on the principle that, for the first time, all incoming highway user revenues to the Trust Fund would be spent in a timely manner on needed transportation improvements. If there is a $20 billion balance in the Trust Fund, that clearly has not happened.

The RABA adjustment cut of $8.6 billion is not just some academic exercise that takes place in a vacuum. I was out amongst our companies last week, meeting with employees on this issue. I can tell you, they are scared and energized to reverse this cut in any way they can.

The $8.6 billion is already sustaining 360,000 American jobs in companies like mine. If you waive a magic wand and take it away, just because someone in Washington made a mistake in predicting the future of the economy, then those jobs will be lost. Real American workers and companies will be hurt.

Let us use that $20 billion Trust Fund balance to maintain the program next year at this year's level, so that we are not creating unemployment, disrupting State highway programs, and delaying critical safety improvements.

I am not an economist, and I am not going to pretend to be able to explain all the nuances of Federal transportation funding that are contained in ARTBA's testimony. That is why I brought Dr. Buechner, who is the economist at ARTBA, along with me.

The ARTBA written statement outlines a number of ideas for improving the RABA mechanism and for meeting the Nation's transportation needs in the TEA–21 reauthorization bill. I ask that our statement and all attachments to it be included in the record of this hearing, so they can be studied and considered by Congress.

Senator REID. Hearing no objection, that will be ordered, and that is the American Road and Transportation Builders Association to which you refer.

Mr. HILL. Mr. Chairman and Senator Inhofe, we deeply appreciate your leadership, and that of your entire committee, in introducing S. 1917 last week, which would set a floor on fiscal year 2003 highway funding at the authorized guaranteed firewall level. That has got the ball rolling in Congress, and ARTBA supports your bill.

We also hope that over the next weeks, we can work with you and Congress to maintain funding next year at the current $31.8 billion level. Cutting the program by $4.1 billion makes no more sense than cutting it by $8.6 billion.

Please use the Highway Trust Fund for its intended purpose, to fix this legislative glitch. The user fee revenues are coming in to do it.

I thank you for giving me the opportunity to share my views, the concerns of our employees, and the positions of my industry's associations with you and the committee.

Senator REID. Thank you for your testimony, Mr. Hill, and thank you for appearing here on such short notice.

The statement about which I am going to make has no partisan ramifications. But it does have ramifications to what I think is a bureaucracy that really prevents us from doing certain things here in Washington. I mean, this is just not right to have this in the budget. Some people should have advised the President of its ramifications.

Using the figures that Tom Stephens gave us, I did this on a calculator. I thought maybe I was wrong, so I did it by hand: $60 billion is 2,520,000 jobs—2,520,000 jobs. These are high paying jobs. Each person that has one of those jobs is paying taxes, buying refrigerators and cars. I mean, we just cannot let this happen.

Now we have been talking about an economic stimulus package here for months. One of the things I talked about was having what I refer to as an American Marshall Plan, infrastructure.

In Nevada, we have problems that are different than in New York. They have things that are old. We have things that are new that need to be done. So we have different problems all over the country. But our infrastructure is in drastic need of help.

We did not have it, in the Democratic proposal, even though I tried, and it certainly did not have any support in the Republican proposal. I cannot imagine why we did not go with that.

I spoke at the National Mayor's Association. They went crazy. They know it is the right thing to do. I have gotten support from all over America, with State legislators. But here in Washington, the bureaucrats have stymied me. A simple program like building roads, I cannot get it through the bureaucracy.

So I just think that not only do the cutbacks hurt programs about which I just spoke, but the other thing that happens, and I say this to all the panelists, if you cut back on a project, it makes it more expensive before you finish it.

If on the road, we are going to build between search light and railroad passes, little local stuff, I mean, if we are going to do that over 3 years instead of 2 years, the project is more expensive.

So I am so glad that we have the support of the Republicans in the House and Republicans in the Senate. This is something that we are all joining together on. I mean, they are happy and the Democrats are supporting it. We have got to join together and get this done. This is more than just fluff.

So I have some questions that I will submit to all of you. Your testimony has been tremendous. Mr. Hill, we appreciate very much your coming on such short notice.

When anyone ever says that Government cannot create jobs, they are wrong. Government does create jobs with programs like this. As far as I am concerned, there are two major programs that really get people to work: building houses and doing things with roads and bridges and dams and things of that nature. That creates lots of jobs.

Senator Inhofe?

Senator INHOFE. Thank you, Mr. Chairman.

You know, I think most of you were here when the previous panel was here, and Senator Baucus said something that I recall also. That is that quite often, under different Administrations, Democratic or Republican Administrations, they start with a number that is lower than we end up. I think that has just become a reality.

Your economic analysis, all three of you, it is pretty stark, when you talk about some of the things that could happen. Now what would be helpful to me, for example, the $1 billion and the 42,000, to see just how you came up with these figures.

You might remember, I asked the Administrator and Ms. McLean that question. They did not question it, but I think it would be helpful for us to actually, Mr. Stephens, come up with something where we can say, this is how this works.

I would make the same request for the fact that they have said that we could take the additional figure that is found in S. 1917. But the Trust Fund could not support the higher figure that you folks are talking about, and you say that they can.

So this would be helpful to us to have your analysis, so that we could look over and make our own determination, and we could be more persuasive in presenting our case. Are there any thoughts about that?

Mr. STEPHENS. To address your first point, that is published data. The Federal Highway Administration put it out in a pamphlet, in preparation for TEA–21, where they showed the number of jobs, direct, indirect, et cetera. I will be happy to send you a copy of that pamphlet.

At that time, I happened to be the chairman of the AASHTO Economic Committee, so the economic impact of highway expenditures was a big deal to us, and the Federal Highway Administration published that. So maybe it is only 40,000 per one billion now, because of inflation.

Senator REID. Or maybe it is 45,000.

Mr. STEPHENS. Or maybe it is 45,000; but that was published data by the Federal Highway Administration.

Senator INHOFE. Well, that is very helpful, Mr. Stephens, because I was not aware of that. When we can show that, that helps in establishing the case. Do not always assume, when you come up with a figure, that we have the background on that figure.

And do not put me in an adversarial relationship. I agree with you. I just want to be able to see it, so that we can present it with conviction; yes, sir?

Mr. HILL. If I could just comment on that. You know, the real world effects are, we invest in asphalt plants and quarries, crushing plants, for 20 and 30 years. When all of a sudden, there is a blip in what has been a fairly steady stream of Federal moneys for the last 30 years, it really puts doubt on whether you should invest for 20 and 30 years.

In fact, you know, we are reassessing our capital program for next year with this in mind. That just is where the real life effects of it are. Our equipment manufacturers are worried, and they should be.

You know, it is not just the jobs on the road. It is not just the guy on the back of the paver. It is the guy in the plant in Iowa

that manufacturers the crushing equipment and so on. It is very real.

Senator INHOFE. Go ahead, Mr. Fay.

Mr. FAY. Mr. Chairman, Senator Inhofe, what Mr. Hill said is exactly right. He just mentioned the words "capital budget." This is our Nation's capital budget, the infrastructure of this Nation. Yet, it is treated in much the same way as the pencil you are holding, you know, Mr. Chairman, in the way that it is accounted for.

Thankfully, TEA–21 actually brought some sanity to that process by setting it apart and having a connection between revenues received and the amount that is appropriated and budgeted. But this is a capital program. It is just not treated that way. A lot of States may treat it that way.

Senator INHOFE. No, I understand that, and believe me, I have had a lot of conversations with our people at Oklahoma. As you know, Mr. Duit was going to be here; and Mr. Hill, I appreciate your being here on such short notice.

Well, the other thing, and you can just give me this for the record, and that is that the numbers support S. 1917, but according to the Highway Administration, may not support the others; but you say they are supported. So we would just need to have your data to help us out.

Mr. Chairman, I have no more questions.

Senator REID. Senator Inhofe, I just advised my staff, just so you and Senator Chafee understand, as to the way I like to conduct the subcommittee hearings. Those people that get here first, they give their statements in the order that they show up. But after that, what I do is, I try to go on the basis of seniority.

So Senator Graham, questions?

Senator GRAHAM. Thank you very much, Mr. Chairman.

Mr. Stephens, when did your State Department first learn that there was going to be significant reduction in 2003 funding?

Mr. STEPHENS. I hate to quibble with words, but we were first officially notified of this in a letter of January 24th, 2002, signed by the Administrator, Mary Peters.

I will acknowledge that people had talked about RABA in various forums before then. But this is the letter which drove the point home, saying that we were only going to get $146 million for the State of Nevada, instead of the $203 million that we had gotten the previous year, and it talks about the adjustment.

I, frankly, had never looked at the adjustment in great detail, and I am not somebody who is shy about crunching numbers. I understand numbers. But when I got into the RABA adjustment, I was just amazed at how they did the look-back, the look-forward, estimates, authorizations, obligation authorities, and receipts.

The receipt estimates, those are actual receipts from 1998 through 2001, $24 billion to $33 billion, and then down to $30 billion. The last year, they are saying, is $27 billion.

We are not experiencing that kind of fluctuation on the State level in our revenues for diesel and fuel tax. We are not seeing where they are coming up with the figures from the truck tax. For example, they say the truck sales tax went down 55 percent. Well, the sales only went down 24 percent. So what is going on there?

I do not know that the GAO report had shed any light on that. Maybe people in the recession decided not to pay their taxes last year and are paying penalties. I have no idea. But we are not seeing the same data.

Now it has flattened out. Revenues have flattened out. They are not increasing, but they are not dropping the way that they have indicated on the State level. What they are doing on the Federal level, we do not run the Treasury.

Senator GRAHAM. It was indicated that the first signal that the Department had was in August of last year. They thought they had communicated it through AASHTO or other intermediaries; but apparently, the full impact had not reached the States affected until January.

Would it have been helpful if there had been a more formal method of early identification to you and other State highway administrators, as to what your budget was likely to be for 2003?

Mr. STEPHENS. It certainly would have been helpful, and I think probably in a going-forward basis, and I do not mean to be critical of the Federal Highway Administration. This has never happened before in this manner. So I do not want to be critical of Mary Peters and her tenure there. She is excellent.

But it would be helpful if, when they do this mid-year review, I guess, which comes out in August, if they would sent that out in a letter to every Director, Secretary of State, DOT, indicating to them what was going on, so that we have really got it on our radar screen.

Somebody saying something in a meeting, in a national meeting, where there might be 25 percent of the Directors in the meeting, and maybe only two-thirds of the States represented, that does not hammer it home. What hammers it home is a letter like this, that I got from the Federal Highway Administration, dated January 24th.

Senator GRAHAM. As you know, this committee will soon be turning to the task of reauthorization of the Surface Transportation Act. I would appreciate, from all three of you and the members that you represent, your ideas as to how can we create a more predictable and stable funding level.

I recognize that there is the business cycle. It has not been repealed and, therefore, there are going to be ups and downs, over an extended period of time. I think it is important for people who have the responsibility of planning projects that take multiple years to complete, to have some degree of predictability within that up and down, as to what their resources are going to be.

Maybe some things like multi-year averaging or other steps that would help to knock down the peaks and valleys of funding would be helpful. But you could be very helpful to this committee, if you would give us the benefit of your suggestions as to how to try to build as much stability into this program as possible.

I mentioned in my opening statement that, at least from the Florida perspective, we found that expenditures on highway maintenance were some of the highest job creation activities.

These numbers are almost 20 years old in my mind now, but I think at the time, we were projecting that for every million dollars of expenditure, that you could create somewhere in the range of 40

to 50 annualized jobs. This was in early 1980 expenditure levels. It is probably a little bit less today.

But what is your estimate? What percentage of your funding is going into maintenance, and how many jobs does every million dollars of that maintenance expenditure generate?

Mr. STEPHENS. Well, on the National level, the $1 million to 42,000 works out to about one job for $25,000. So it works out into your range of figures: the 40,000 to 50,000 for $1 million.

I do not have a study that shows this. But my feeling is that you are exactly correct, that maintenance work creates more jobs than construction work.

There are several reasons behind that. One, the lead time on design of a maintenance project is shorter, because you do not have all the complications of designing new bridges and whatever. You do not have to buy right-of-way. You do not have to get interrupted by long environmental delays.

So you can get the money out a lot quicker on the maintenance project. To some extent, maintenance projects are more labor intensive, like doing an asphalt overlay, than buying the steel for a bridge for example, and building a new bridge.

So you are exactly correct. To what extent maintenance versus new capacity projects and how that relates, I cannot tell you. But it is certainly my very strong feeling, after 7 years of experience as the Director, that that is exactly correct.

Mr. HILL. Senator, as the largest paving contractor, we think all the money should go to maintenance.

[Laughter.]

Senator INHOFE. Senator Chafee?

Senator INHOFE. Well, I want to say, Mr. Chairman, on your interest in my work days, one of my early work days was laying asphalt on a maintenance project. It happened to be on Graham Street in South Daytona Beach.

So if you want to come down to the big race in Daytona Beach this weekend, I will arrange for you to go to Graham Street and see what a good job maintenance I did.

[Laughter.]

Senator REID. Well, you do a good job of maintenance here. I am sure you did a good job on Graham Street.

Senator Chafee?

Senator CHAFEE. Thank you, Mr. Chairman.

Some of the comments here, I have to agree with, are calamitous cuts. I think Mr. Fay said that. I think just in hearing Mr. Stephens talk about what, a $50 million cut in your budget, is that accurate?

Mr. STEPHENS. Yes.

Senator CHAFEE. Those would be just calamitous for all our States.

I also have to agree about the accuracy and, I think Mr. Stephens, in your testimony or at least your written testimony, you did question the accuracy. It just seems to me also that we have to get to the bottom of that.

So at least we are being responsible, using real dollars and making sure they are going toward the projects that they are designated toward. But if they are there, we want to use them, cer-

tainly. Other than that, I have no other questions, except for Mr. Hill. I was just wondering what does Oldcastle Materials make?

Mr. HILL. We are the fourth largest producer of construction aggregates, and we are the largest producer of asphalt in the United States.

Senator REID. You mentioned this, Mr. Fay, very briefly, and I want to elaborate on it, because of personal experience. I have talked to Tom Stephens many times about the road to my hometown of Searchlight, where I have a home.

After September 11th, and I have no complaint about that, and I am glad they did this, they took a lot of the truck traffic off of Hoover Dam. But that has created a road from what we call Railroad Pass to Searchlight, 36 miles, that is a death trap.

I do not want my children to come and visit me when I am in Searchlight, because I am afraid they are going to get killed on that road, and I am not exaggerating. Thousands and thousands of trucks, big trucks, come over that road every day that did not come before.

The one thing that you talked about, that I want to stress, this road construction saves lives. I mean, we have had scores of people killed on that Searchlight road. It is 36 miles. People do not know how to drive on a two lane road anymore, and they become anxious and they pull around. There is something facing them, and it is death for one or more.

People say, well, when I get money for home, they criticize and say, Reid brings pork home, you know. But I have never apologized for a single penny that I brought home for road building and other things. Because I believe I am bringing home things that make people more comfortable, it makes businesses more efficient, and saves injury and death.

Now would anybody disagree with that, that is on the panel today?

[Laughter.]

Mr. FAY. Mr. Chairman and members of the subcommittee, 117 Americans will die today on our roads, and 788 will die this week.

I am a Trustee on the Roadway Safety Foundation, which is a non-profit educational group that just puts out materials like the fact that adding one foot to the width of a lane reduces fatal crashes by 12 percent; adding two feet reduces them by 23 percent. Every time Mr. Hill improves a road, he does save lives.

When you take a look at safety experts, they have a lot of great data on this. They have calculated that 30 percent of all fatal crashes in the United States are due to outmoded road design.

These are roads that are carrying way too much traffic than they were designed to carry, or roads that area not in good condition or not well maintained. Those are roads that are killing people. It is a real travesty.

I just point people sometimes to our interstate highway system, because it is the safest road system in the world, in terms of fatality rates. What is that? It is because it is designed for that. The lanes are wider. The shoulders are wider. There is a gentle slope off the side of the road. The lanes are divided to prevent head-on collisions.

If you remember, we had two head-on collisions within a couple of weeks on George Washington Parkway out here. They just simply put up guardrails, and we have not had one since then. These investments really do save lives.

I had gotten into a tremendous argument with an NBC reporter that was talking about highways as the fleecing of America. I took great umbrage because I said, as a person that represents the taxpayers, we do not feel fleeced. What we feel is that not enough investments are being made to save our lives and to make our commutes easier.

The greatest personal problem that is facing Americans today, when you look at polls, that personal problem is time management. We do not have enough time in the day to do all the things that we need to do.

The investments that this committee puts through, and the investments that your bill is going to put through, are going to save people's lives. They are going to give us more time with our families, and we commend you for them.

Senator REID. Mr. Hill, I have one question. You have brought an economist with you, and I would like to have his information be made a part of this record. I am anxious to hear how he feels about this analysis of the Treasury's revenue estimates.

I am intrigued by what you said, that this organization that you are representing here today is 100 years old. Is that right?

Mr. HILL. That is correct. It is in 2 weeks, or is it this week?

Senator REID. Anyway, it is recently, and we want you to give us the benefit of your organization's information about what has happened with the Treasury Department.

Mr. Stephens, I would like you to do the same.

Mr. Fay, if you have anything, we will take that, too.

We will make this part of the record.

Senator REID. Senator Inhofe?

Senator INHOFE. I have nothing further.

Senator REID. This has been a very good hearing. I especially appreciate the members of the committee for being here and being so attentive.

This is an issue that is, and I repeat, of a bipartisan nature. We are going to work very hard to get more money. We recognize that we are in a fiscal downturn. But if you want to really get in a downturn, cut back road building the way that has been talked about.

The subcommittee stands in adjournment.

[Whereupon, at 2:53 p.m., the subcommittee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Thank you, Senator Reid. First, let me say that I look forward to working closely with you as we proceed toward reauthorization of the Surface Transportation Program. This subcommittee will be our think tank in the months ahead.

Let me also thank all of our fellow EPW Committee members for joining me in sponsoring S. 1917, the Highway Funding Restoration Act. ThroughS. 1917, we have taken an important step toward ensuring that the nation's transportation program will be properly funded in fiscal year 2003.

We have borne many burdens as a Nation over the last few months. Now is not the time to backslide on our commitments to the traveling public. The construction season is just around the corner in my State of Vermont. Literally thousands of jobs are supported by our investment in transportation. We can't shortchange this sector if we expect to pull out of recession.

S. 1917 is fiscally responsible. It funds the highway program at the authorized levels. At those levels, the balance in the Highway Trust Fund can support the spending.

I look forward to hearing from our witnesses today about both the immediate budget outlook and the longer-term picture.

Good afternoon to Assistant Secretary McLean and to Administrator Peters. Your partnership and cooperation in our process is greatly appreciated.

I'm delighted also to see the outstanding panel of industry representatives and State officials. These folks understand the outcomes of our budget decisions. I am most concerned with outcomes.

I know that resources will be the heart of the matter as we craft the committee's reauthorization proposals. It is vital that we get spending right for the coming year. Fiscal year 2003 will set the base for the 6-year program we are about to authorize.

I want to achieve a balanced transportation system in this country. I want a system that provides choices to our citizens, that is secure and reliable.

As we proceed with the committee's hearing agenda, we will receive a detailed accounting of the transportation system's needs and opportunities for the future. I expect that the needs will be great and the opportunities breathtaking! We must ensure that the resources are there to be called on.

So again, I thank you Senator Reid.

STATEMENT OF HON. TOM CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

I'd like to thank the chairman for holding this important hearing today and for giving me the opportunity to make a statement before his subcommittee on an issue that is important to all of our States.

When President Bush released his Fiscal Year 2003 budget 1 week ago today, the budget for the Federal Highway Administration, particularly for the Federal-Aid Highway program, was one of the more attention-grabbing pieces. After 3 years in which States received more than $9 billion in aid above the numbers projected in TEA–21, the program was cut by nearly $9 billion. As we all know, this cut came as a result of Revenue Aligned Budget Authority (RABA), which, for the first time, was negative due to lower-than-expected revenue into the Highway Trust Fund. This means that, under the president's budget, Delaware, for example, will experience a nearly $30 million cut in Federal highway aid in 2003, about 24 percent less than its 2002 allocation. Other States will see even more dramatic cuts. At a time when the economy is just beginning to recover from recession, when combined State budget shortfalls are at $15 billion and many States are being forced to trim their budgets or raise taxes, Congress should act to restore some of these cuts. That's why I joined all of my colleagues on the full committee in co-sponsoring S. 1917, the Highway Funding Restoration Act, a bill that would raise Federal highway aid next year to the 2003 level called for in TEA–21.

In the coming year, I look forward to working with my colleagues to fix RABA to ensure that, in the future, States are provided with a steadier stream of highway funding. The Federal-Aid Highway program should not be as subject as it is now to the ups and downs of the economy and the Highway Trust Fund should not suffer from the nation's increased reliance on alternative fuels. At the same time we are addressing these issues, however, we must enhance the flexibility TEA–21 gave States in spending their Federal transportation dollars by allowing them the discretion to spend at least a portion of their highway and transit funding on inter-city rail projects. Just last month, in the first hearing the full committee held on TEA–21 re-authorization, we heard from representatives of the National Governors' Association, the National Association of Counties, the U.S. Conference of Mayors and the National League of Cities, all of whom expressed strong support for expanding the flexibility built into TEA–21 to cover inter-city rail. The mayors, in particular, released the results of a transportation survey showing that increased funding for new inter-city rail projects was one of their members' top priorities. I was pleased to hear several of my colleagues echoing the witnesses' testimony that day when they spoke about the desire among their constituents for passenger rail service that can connect them to our growing national system. Allowing States to spend at least a portion of their Federal highway and transit dollars on inter-city rail projects will signifi-

cantly improve Amtrak's ability to build on its existing long distance routes and begin serving cities and towns that currently have no passenger rail service at all.

In the last Congress, the full committee passed S. 1144, a bipartisan bill that would have allowed the funds TEA–21 granted States for the National Highway System, Surface Transportation and Congestion Mitigation and Air Quality Improvement Programs to be spent on inter-city rail projects. I hope to introduce similar legislation shortly.

As I'm sure you all know, Amtrak President George Warrington announced earlier this month that he would trim nearly 1,000 jobs and $300 million from Amtrak's budget this year. He also announced that Amtrak will have to propose major route reductions if it does not receive the necessary funding from Congress to pay its operating and capital expenses. The most likely candidates for route reductions are those routes outside the Northeast Corridor that are not partially supported by States. In the coming year, I plan to work with my colleagues to see that Amtrak is re-authorized, that its budget requests are met and that a dedicated source of capital funding is created.

My bill will not solve Amtrak's capital funding dilemma. What my bill will do is help States retain critical service by increasing the tools they have available to them to spend their highway and transit dollars more flexibly to retain critical service. Increased flexibility will not cost the Federal Government anything and will not require any State to fund inter-city rail projects if it does not want to do so. It will, however, give States the ability to give our constituents the transportation services they need. It is my hope, then, that, when the committee considers S. 1917, we can also act to give States the kind of flexibility our constituents and their Governors, mayors and county administrators are asking for.

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Thank you Mr. Chairman: I am pleased to join you today in welcoming our witnesses. It is always a pleasure hear from Federal Highway Administrator Mary Peters. We are very fortunate to have an Administrator at Federal Highway that understands the tough choices our States have to make. Mary's background as the director of the Arizona Department of Transportation will be very beneficial to us as we balance the needs of our individual States with need the for a national transportation system because she will be able to tells us what works and what does not work. So I am looking forward to working with you as we begin deliberations on reauthorization.

I have had the pleasure of working with Donna McLean first as a fellow on the Water Resources Subcommittee on the then Public Works and Transportation Committee in the House. We were fortunate that she decided to stay as a permanent staffer on the Aviation Subcommittee. I have always found Donna to be very thorough and accurate in her analysis and I have no doubt that as we work through the varying interpretations of RABA, we will find that she will be most helpful in explaining the position of the Administration.

I am most anxious to hear from Thomas E. Stephens, Director of the Department of Transportation in the chairman's home State of Nevada. Again, I believe we can never hear too often from our State officials on how decisions we make in Washington effect how they to their jobs at home.

It is always good to hear from Bill Fay. His group, the Highway User's Alliance will play an important role in reauthorization.

Finally, I had hoped to be welcoming my friend and fellow Oklahoman Jim Duit to testify on behalf of the American Road and Transportation Builders Association. Unfortunately, Jim's suffered a devastating fire to his business Saturday evening. In talking with him it appears that the cause of the fire may have been arson. Needless to say, he is unable to join us today. However, I have the oral statement that he had planned on making and I would ask that it be submitted for the record. Also, I have a written statement of Kenneth K. Wert who is President has Haskell Lemon Construction Co. in Oklahoma that I would like to submit for the record.

We are fortunate that Mr. Tom Hill, Chief Executive of Oldcastle Materials, Inc. could join us today to present the industry's perspective on the proposed FY03 budget. I appreciate your rearranging your schedule on such short notice and look forward to hearing your testimony.

Thank you Mr. Chairman and welcome to our witnesses.

STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Mr. Chairman, I too would like to offer a warm welcome to our witnesses this afternoon. As I promised at our full committee hearing on TEA–21 reauthorization just a couple weeks ago, I have looked closely at the RABA mechanism and the highway funding level for fiscal year 2003, and I believe we have come up with a responsible solution. In reauthorization of TEA–21 we will need to re-examine the RABA calculation method so that it does not result in these amplified ups and downs in funding. I look forward to working with Administrator Peters and Assistant Secretary McLean on that issue.

More immediately, however, we need to address the drop of almost 30 percent in highway funding for fiscal year 2003. I do not believe that this is what Congress intended when we passed the RABA provision in TEA–21. What was intended was that Highway Trust Fund revenues would equal highway spending. There is no dispute that the country's economic growth produced revenues well above the levels predicted in TEA–21, and so RABA resulted in funding increases. However, now that revenues have dropped off, the RABA calculation would result in a spending level well below actual revenues. In fact, the President's budget proposes a highway spending level of $23 billion when the latest Treasury Department projections put highway trust fund revenues at over $28 billion for 2003. Congress did not intend for this discrepancy, regardless of the results of a complicated and obviously flawed calculation formula.

Our solution was to introduce S. 1917, the "Highway Funding Restoration Act," for which all 19 members of this committee are original cosponsors. I believe this bill clarifies congressional intent by clearly stating that highway funding for fiscal year 2003 will be no less than $27.7 billion, the amount authorized in TEA–21. I will continue to work throughout the budget and appropriations process to make sure this funding is restored and distributed to the State programs, and not diverted to project earmarks.

Finally, I want to commend Administrator Peters for her leadership and commitment to the issue of environmental streamlining. As one of the authors of this provision in TEA–21, I have continued to focus attention on it at every opportunity. I also created a pilot project in New Hampshire to illustrate how State and Federal agencies are supposed to apply streamlining to an environmental impact statement process. These agencies committed to complete an EIS for the I–93 widening project in little more than 2 years, and they remain on schedule. I invite you, Administrator Peters, to come up to New Hampshire to attend this project's celebration of success later this year.

Thank you, Mr. Chairman, for holding this hearing.

STATEMENT BY HON. BEN NIGHTHORSE CAMPBELL, U.S. SENATOR FROM THE STATE OF COLORADO

Mr. Chairman, I would like to thank you for scheduling this important hearing. This is an issue that I know is very important as it is to the rest of the West, including Colorado. I would also like to thank the distinguished panel for taking the time to meet with us today.

Transportation is the grease that makes our economic engine go. Traffic congestion only slows the engine and cost businesses and individuals billions of dollars a year due to extra fuel costs, late deliveries, and lost production. Traffic congestion is also taking a toll on our nation's families. Parents are now getting home to their children later and later.

The passage of the Transportation Equity Act for the 2151 Century (TEA–21) has helped States start to solve many of these problems. The Colorado Department of Transportation (COOT) has been able to increase its budget from $200 million to $300 million a year. This has allowed COOT to undertake projects that help ease the stress on Colorado roads.

However, there are also problems with TEA–21. Current projects show a $4.4 billion shortfall in the fiscal year 2003 budget, a more than $8 billion drop from the total TEA–21 funding from fiscal year 2002 levels. This means that the State would Colorado would lose $59 million a 19 percent decrease from the year before. It is estimated that a budget decrease of this level would result in the loss of over 3,600 jobs in Colorado over the next 7 years and 287,000 nationally during that same length of time.

Now is not the time to decrease funding for our nations highways. This higher level of funding has allowed COOT to move forward with transportation projects

that would not have been able to be completed without TEA–21 and now is not the time to slow the this progress.

In addition, Colorado, along with many other States, is experiencing State budget reductions. This "double whammy" will result in additional project reductions.

Now is not the time to decrease funding for our nation's highways. The higher level of funding has allowed COOT to move forward with transportation projects that would not been able to be completed without TEA–21 and now is not the time to slow this progress.

Last week I signed on as an original cosponsor to the Highway Funding Restoration Act of 2002, which was introduced by leadership in this committee and fully supported in a bipartisan manner. This legislation would bring the FY2003 highway funding up to the level set in TEA–21.

In closing, transportation remains a top priority in Colorado. Having a transportation system that moves people and goods is important to our economic health and quality of life. I remain committed to working with this committee throughout the year and I look forward to these discussions today on this important issue.

Thank you Mr. Chairman.

STATEMENT OF MARY E. PETERS, ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION DONNA MCLEAN, ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS AND CHIEF FINANCIAL OFFICER

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify today in support of the President's Fiscal Year (FY) 2003 Budget proposal for the Department of Transportation and to discuss the status of the Highway Trust Fund. We would also like to thank you for your leadership in scheduling a series of hearings in preparation for the reauthorization of the surface transportation program. We are looking forward to working with this subcommittee and with Congress to achieve the goals outlined in the fiscal year 2003 budget request and to shape reauthorization proposals. Working together, we can meet the transportation challenges facing our Nation and provide the American people with a transportation system that is safe, efficient, and accessible, while remaining respectful stewards of the environment.

OVERVIEW

As a whole, the strong but flexible multi-modal system developed under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA–21) is working well in supporting our Nation's economic growth and improving the quality of life for all our citizens. Our Nation's highways and intermodal connectors are the critical link in the national intermodal transportation system. The challenge is to maintain our high-quality network while achieving our goals to increase safety, ensure national security, improve mobility, and promote environmentally responsible and efficient project delivery. The $24.1 billion funding level, proposed by the President for the Federal Highway Administration (FHWA) for fiscal year 2003, provides funding essential to meet this challenge. This includes a Federal-aid Highway obligation limitation of $23.2 billion. The fiscal year 2003 request reflects the funding levels enacted in TEA–21, as adjusted to reflect the latest Highway Trust Fund revenue figures, and honors the highway category guarantees in that Act.

The key to ensuring that highway-related receipts are spent is that the highway funding level is adjusted each year to reflect the latest information on Highway Trust Fund (HTF) receipts. At the time of the enactment of TEA–21, highway program funding levels were set based on estimates of HTF receipts. Each year, the level is adjusted using a formula specified in TEA–21. This adjustment ensures that highway spending remains aligned with HTF receipts.

In fiscal years 2000, 2001 and 2002, our Nation reaped the benefits of record-level funding for surface transportation as authorized in TEA–21. The guaranteed funding level, tied to HTF receipts, has provided the States with much needed resources to support the Nation's highway infrastructure, as Congress intended. In fiscal year 2003, however, declining HTF receipts will, for the first time, trigger a downward adjustment, in the amount of $4.369 billion, in the highway program level, in order to keep highway spending aligned with the status of the Highway Trust Fund. Even with this negative calculation, over the life of TEA–21, these adjustments will provide a net gain of almost $4.7 billion in highway spending.

The calculation of the adjustment is not a policy call—it is a calculation based in law and reflected in the budget. As we discuss the reauthorization of the surface transportation program, we need to look for ways to smooth out current positive and

negative swings that result from this adjustment. What we should not do is abandon this adjustment concept. Linking highway spending to receipts is a fundamental principle of TEA–21.

The budget proposes to fund most Federal-aid highway programs from within the obligation limitation, including our major programs: the Surface Transportation Program, the National Highway System, Interstate Maintenance, the Highway Bridge Replacement and Rehabilitation Program, and the Congestion Mitigation and Air Quality Improvement Program. Other TEA–21 programs include the National Corridor Planning and Border Infrastructure Improvement programs and the Transportation and Community and System Preservation Pilot Program. The Emergency Relief program and a portion of the Minimum Guarantee program will continue to be exempt from the limitation. The estimated obligation level for exempt programs in fiscal year 2003 is $893 million.

In the face of declining revenues into the Highway Trust Fund, we continue to strongly support creative financing solutions. Consequently, the 2003 budget includes $99 million to leverage our Federal investment in transportation infrastructure under the Transportation Infrastructure Finance and Innovation Act Program (TIFIA). This investment will translate into over $6 billion in nationally significant surface transportation projects.

As the events of September 11 so graphically demonstrated, a safe and secure surface transportation system is vital to all Americans. We must keep our infrastructure secure and we must strengthen our commitment to reducing highway injuries and fatalities, even as we squeeze additional capacity from the system. To meet this challenge, the fiscal year 2003 Budget for FHWA emphasizes four priority areas: safety, mobility, environmental stewardship and streamlining, and oversight.

SAFETY

Safety continues to be the Department of Transportation's most important priority. While the number of highway fatalities in recent years has been held relatively flat, despite significantly rising numbers of vehicles on our roads, more than a quarter of a million people have been killed on America's roadways in the past 6 years, 41,000 deaths each year. There are also more than 3 million police-reported injuries annually. Highway safety improvements are critical to improving these numbers. Success will depend on a balanced approach that addresses the behavioral, vehicular, and roadway infrastructure and operations safety problems. We can, we must, and we will strive to do better.

FHWA works closely with States and other partners to improve our ability to analyze roadway safety challenges and to direct investments to specific projects and programs, which will deliver the most value in terms of lives saved and injuries minimized. For example, construction programs continue to contribute to safety by correcting unsafe roadway design and removing roadway hazards. States mayCand doCuse their Surface Transportation (STP), Interstate Maintenance, and National Highway System (NHS) funds for safety improvements. Safety can be built into every interchange upgrade, intersection redesign and new facility through safety conscious planning and design. Signing and pavement improvements can enhance the safety of existing and new facilities for all users of the highway system.

Within the STP, 10 percent of funds are reserved under TEA–21 for highway-rail crossing improvements and hazard elimination. The Hazard Elimination program supports efforts to resolve safety problems at hazardous highway locations. Since the enactment of TEA–21, States have obligated $489.3 million in Hazard Elimination funds, and another $707.4 million in optional safety funds have been obligated primarily for Hazard Elimination purposes. These Hazard Elimination expenditures are estimated to have saved 7,200 lives since 1998. The Highway-Rail Grade Crossing Safety program is designed to reduce crashes at public grade crossings, and $499 million in Highway-Rail Grade Crossing funds have been obligated. The grade crossing safety program is estimated to have saved 2,000 lives since 1998.

To meet its highway safety goal, FHWA will focus its safety programs on reducing the most frequent types of fatal crashes through technical assistance, research, training, data analysis, and public information.

From the $359.8 million requested for research and technology programs for fiscal year 2003 budget, significant resources will be invested in improving safety. Part of the research funding will support innovations, such as brighter traffic signal lights which are more visible to drivers, to improve safety at or near intersections. Research funding also supports speed management techniques, which are designed to reduce the 30 percent of fatal crashes in which speed is a factor. Rumble strips help prevent run-off-the-road crashes, which account for 38 percent of all fatal

crashes. FHWA provides technical assistance to States like Maryland, whose 1999 data show a $182 safety benefit for every dollar spent on rumble strip installation.

National deployment of wireless enhanced 9–1–1 (E–9–1–1) will be accelerated this year. E–9–1–1 is an emergency cellular telephone service that automatically routes calls to the closest public safety answering point and informs the dispatcher of the caller's location. It will save lives. About 25 percent of 9–1–1 calls come from wireless phones.

Without automatic location, when callers are unable to describe their location, response times dramatically increase. Response time is a critical factor in determining the survivability of a crash. Also, more timely and accurate information will aid police, fire, and other emergency responders in protecting victims and property and in reducing traffic congestion surrounding the scene.

Recent events have focused attention on the need to ensure the security of our Nation's transportation system and ITS technologies offer many opportunities to significantly improve transportation security. The ITS program is developing and deploying technologies to help States and localities improve traffic flow and safety on streets and highways and address the need for emergency notification and response. This budget proposes to focus the fiscal year 2003 ITS Deployment Program resources of $93 million on ITS technologies that enhance the security of our surface transportation systems.

A major emphasis in ITS will continue to be in the area of intermodal freight. The Department is conducting several ITS operational tests that are designed to improve the efficiency and security of the intermodal movement of freight. The Chicago O'Hare cargo project, which is an operational test, uses a "smart card" and biometric identifiers to identify the shipment, vehicle, and driver during transportation from the shipper to and through the air cargo terminal. Another project, Cargo-Mate, has particular applicability to port and container security, in addition to enhancing efficiency of freight movement. The system is designed to perform real-time processing of asset and cargo transactions, provide for the surveillance of cargo movement to and from ports, and provide an integrated incident and emergency response capability.

To improve safety of motor carriers operating on our highways, as well as national security, a total of $47 million is requested for construction of motor carrier safety inspection facilities on the Southern Border within the Coordinated Border Infrastructure Program. This builds on funding provided in fiscal year 2002 and supports infrastructure improvements necessary to accommodate permanent facilities.

MOBILITY

Congestion is one of the most obvious results of the mismatch between the growing demands for transportation and the capacity of our systems, particularly in metropolitan areas. Congestion is a complex problem involving many factors. This budget works to address the causes of frustrating delays that face travelers and shippers and impact the Nation's economic efficiency. Funding will support the identification and implementation of a mix of locally preferred investments, including selective additions of new capacity, to improve traffic flow and system reliability. Our progress toward our goal of supporting mobility is tracked by measures such as improvement in pavement and bridge condition and by reduction in the growth of traffic congestion.

States may direct 2003 Federal-aid highway funds, according to their priority needs and goals, to a variety of system improvement and congestion relief purposes. In recent years, approximately 50 percent of Federal funds were obligated for system upgrading purposes, including reconstruction, widening, restoration and rehabilitation, and resurfacing. Consequently, overall highway system conditions, as measured by pavement condition, ride quality, alignment adequacy, and bridge ratings, have steadily improved. In 2001, 91 percent of travel on the NHS occurred on pavements rated acceptable or better. In fiscal year 2003, the Department's goal is to increase this to 92 percent.

For fiscal year 2002 and beyond, the FHWA has modified its bridge performance measures in order to take into account the actual area and average daily traffic on the bridge. This measure more accurately reflects progress toward meeting our mobility goal. The previous measure of reducing the number of deficient bridges considered all bridges as equal, therefore large bridges with higher average daily traffic were considered the same as smaller bridges with lower average daily traffic. Since the enactment of TEA–21, the condition of NHS and non-NHS bridges has improved significantly. In 1998, the percentage of the Nation's total bridge deck area that was on deficient NHS bridges was 32.6 percent and 32.5 percent on non-NHS bridges. In 2001, the percentage of deck area on deficient NHS bridges was 30.6 percent and

32.3 percent on non-NHS bridges. Our goal for fiscal year 2003 is to improve the condition of bridges so that the percentage of deck area on deficient bridges is reduced to 27.5 percent for the NHS and 29.8 percent for the non-NHS.

The development and deployment of longer lasting materials will mean that facilities will need repair or improvement less often, thereby reducing congestion and safety problems associated with work zones. Research and Technology program funds support multi-year initiatives in pavements, structures, and asset management.

Along with improved condition and strategic expansion of infrastructure, we must address congestion through improved operation of the highway system. In the last year we developed and tested a system reliability index in 10 cities that we call the "buffer index," the amount of time you have to add to your trip because of system unreliability. It will help cities gauge how well they are doing in responding to incidents, managing their work zones, and responding to weather. The measure will be applied in 22 cities this year.

In the area of congestion mitigation, we have a number of other initiatives underway that will continue in 2003, including three that have great potential for long term impact:

We will be piloting a national campaign to rethink the way we look at work zones. The focus will be on managing the work zone from the perspective of the highway user, emphasizing the concept of getting in, getting out, and staying out.

We are sponsoring a national conference on incident and emergency management that brings together transportation and public safety communities to focus on ways to improve traffic incident response time and traffic incident management methods.

We are working with our State partners to help each make use of the roadway operations self assessment diagnostic tool at least once during the year. The purpose of this tool is to help the operating agencies to identify ways that they can improve the operation and management of their roadway networks.

Other strategies to improve operations include the deployment of ITS to provide more information to drivers faster, enabling them to take the most efficient route of travel. Significant progress has been made in ITS deployment since the enactment of TEA–21. We have seen a 37 percent increase in the number of freeway miles with real-time traffic data collection technologies, a 55 percent increase in the coverage of freeways by closed circuit television, a 35 percent increase in the number of buses equipped with automatic vehicle location systems, and an 83 percent increase in traveler information dissemination on our freeways. However, only 22 percent of the freeways in major metropolitan areas are instrumented for real time monitoring. Therefore, ITS deployment must continue to be a high priority for the Department. The search for new technological and innovative solutions to our mobility challenges will be supported by the 2003 budget request for $359.8 million for research and technology.

We are committed, along with our partners at the State and local levels, to maintain, operate, and improve transportation systems to reduce congestion and improve mobility, thus allowing our Nation to compete globally and Americans to enjoy a higher standard of living.

ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Implementation of environmentally responsible transportation improvements, delivered on time and within budget, is an important component of the Department's vision for all its programs. TEA–21 gave States and communities additional tools and opportunities to enhance the environment and quality of life for their residents, while directing us to streamline the environmental review process. Within the Federal-aid highway program, NHS and STP funds support programs that also protect the environment. There is also a mandatory 10 percent set-aside from each State's STP apportionment for Transportation Enhancement projects that support historic preservation, bicycle/pedestrian travel, scenic easements, and other enhancements. The CMAQ program supports projects to reduce emissions, that often reduce traffic congestion. To minimize the impact of transportation on air quality, FHWA will continue to work with the Environmental Protection Agency and other partners to continue to reduce on-road mobile source emissions.

Continued progress in streamlining the delivery of transportation improvements will also improve safety and ease congestion, but must be balanced against the need to protect communities and the environment. Successful environmental streamlining requires fostering good working relationships across a number of organizational lines. These relationships allow for the development and establishment of reasonable and realistic schedules for advancing major projects. It is important for the Department to facilitate agreement by Federal agencies on timeframes for conducting

reviews and granting approvals. Working together in partnerships, combining a full range of Federal, State, and local officials and interest groups, will lead to reasonable ways to meet the Nation's transportation needs, while being good stewards of the environment.

The Department's streamlining approach has resulted in:

Reinvention of the environmental review process, through interagency training, development of national programmatic agreements, and guidance that encourages flexible mitigation practices.

Development of a system for dispute resolution that includes draft national procedures, guidance for managing conflict during the project development process, and assistance by qualified dispute resolution specialists to States and project sponsors.

Research conducted to evaluate project timeframes, identify reasons for project delays, and assess the effectiveness of implementation efforts.

Assistance, support, and encouragement to develop numerous best practices and pilot projects to catalyze change and lead to even better streamlining outcomes.

Since the enactment of TEA–21 in 1998, progress has been made in streamlining the planning and approval process for projects throughout the country: 33 States have interagency agreements for funding additional personnel necessary for faster, concurrent reviews; 23 States have adopted a merged process for wetland permits with the Army Corps of Engineers; 15 States have adopted context sensitive design approaches; and 31 States have some level of delegated authority for historic resources. As a result of these actions, the mean time to process environmental documents for major highway projects has been cut by almost 8 months, the median time has been cut by 1 year, and the Department is well positioned for significant future progress.

We have begun the job, but more can be done. Only a couple of States, most notably New Hampshire, have attempted to define timeframes for concurrent reviews. New Hampshire's model for setting project timeframes for I–93, using a partnering approach, has been publicized as an effective streamlining tool on the FHWA website and at a national streamlining workshop.

FHWA continues to work with other agencies to advance the Environmental Streamlining National Memorandum of Understanding (MOU). Efforts to cooperatively establish realistic project development timeframes among the full range of transportation and environmental agencies will be advanced by this budget. For example, in 2003 we propose to fund $6 million from the FHWA administrative takedown for FHWA support of Federal and State initiatives to identify new, more efficient business processes that will result in more timely project delivery. Working cooperatively to adhere to those timeframes is resource intensive, but it is critical to our success. With the additional proposed funding, we will be able to intensify efforts currently underway within DOT that focus on solidifying the interagency partnerships, such as pilot efforts and process reinvention.

OVERSIGHT

We must continue to improve Federal oversight and accountability for the expenditure of public funds. Increased emphasis on FHWA's oversight responsibilities must accompany the significant increases that have occurred in the Federal-aid Highway program in recent years if our Nation is to make the "best buys" in safety and congestion relief.

FHWA oversight policies were updated and clarified in fiscal year 2001 and their implementation will continue into the requested budget year. Even as legislation has directed FHWA to delegate many project-level authorities to the States, the responsibility for program oversight to ensure the effective delivery of all programs remains with FHWA. Additional resources deployed in this area will enable FHWA to work with the States to improve its management of the Federal-aid highway program, including cost containment, while allowing States maximum delegated authority and flexibility, as appropriate. FHWA will continue to advance asset management and system preservation initiatives to foster more systematic and strategic thinking and investment choices by the State and local governments. Timely investments in the size and makeup of the Federal work force itself are also crucial with the aging of both the Interstate Highway System and the work forces of our partner agencies in States and localities. We are focusing new attention on work force development issues and will keep the subcommittee advised of our efforts. As larger and more complex projects are contemplated, a balance must be achieved between addressing the needs of major projects and the vast majority of the program vested in smaller projects.

In 1998–1999, FHWA undertook a major restructuring in order to move program decision authorities closer to our primary customers, the States, and to focus high-

level technical expertise in our Resource Centers. Through this redeployment of existing resources we have also been able to fulfill FHWA's commitment to add an additional position in respective Division Offices for the oversight of each major project.

The fiscal year 2003 budget requests a funding level of $318 million for the necessary salaries and benefits for our employees and for ongoing administrative expenses in support of our Federal-aid program. The budget request reflects modest adjustments for mandatory salary and benefit increases and other adjustments for current service levels.

STATUS OF THE HIGHWAY TRUST FUND

The cash balance in the Highway Trust Fund (HTF) at the end of fiscal year 2001 was $27.740 billion, of which $20.372 billion was located in the Highway Account and $7.369 billion in the Mass Transit Account. Based on the latest projections of income to the HTF reported by the Department of the Treasury, the Department of Transportation estimates that the Highway Account of the HTF has sufficient revenues to support the levels of authorizations throughout the life of TEA–21.

Balances in the Highway Account of the HTF should not be considered as surplus funds. Current commitments of HTF revenues for prior year obligations, as well as unobligated balances of prior year apportionments, exceed $67 billion. However, as reimbursing cash is made available from the HTF, revenues from excise taxes are coming into the HTF. Any consideration of HTF balances must take into account not only current levels of revenue, but also commitments made against that revenue, and projected levels of future income.

CONCLUSION

The funding requested in 2003 will help improve transportation safety; enhance national security; maintain and expand our transportation infrastructure, and increase its capacity; reduce environmental degradation; and improve the quality of life for all our citizens. We look forward to working with Congress to enact the President's fiscal year 2003 budget in order to provide a viable transportation system to support a strong America.

Once again, thank you for this opportunity to testify today. We will be pleased to address any questions you may have.

RESPONSES OF HON. MARY E. PETERS TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. One of the most important accomplishments of TEA–21 was the creation of the highway and transit budgetary firewalls. These firewalls provide the States with some degree of certainty as to the expected level of highway and transit funding and allow transportation leaders to better plan projects and manage budgets. In addition, without these budgetary protections, we would have never been able to enact the funding increases envisioned in TEA–21.

Unfortunately, the Administration's budget request does not appear to establish any continuing connection between Highway Trust Fund revenues and highway spending. Can we expect the Administration's reauthorization proposal to maintain the existing transportation firewalls?

Response. Yes. The Federal Highway Administration (FHWA) agrees that the budgetary firewalls contained in the TEA–21 legislation not only protect highway and transit budgetary spending amounts from incursions by other discretionary programs, but also provide a direct relationship between revenues accruing to the Highway Account of the Highway Trust Fund and spending allowed in the Federal-aid Highway Program. The budget amounts for fiscal years 2004–2012, the years for which no authorization act is in place, do not reflect the Administration's reauthorization proposal. Rather they assume the continuation of the program level from the last year of TEA–21 with modest growth each year. The fiscal year 2004 President's Budget will reflect the Administration's reauthorization proposal.

The Administration's fiscal year 2003 budget was based on the legislated mechanism known as Revenue Aligned Budget Authority (RABA). Even though the RABA calculation for fiscal year 2003 produced a negative result, over the prior three fiscal years, it provided over $9 billion in additional spending authority. RABA was established with the possibility of being either positive or negative. The negative RABA result of fiscal year 2003 is as much a part of the promise of tying spending to available revenues, as were the positive RABA results of prior fiscal years. However, the FHWA would like to work with Congress during reauthorization of the Federal-aid

Highway Program to consider adjustments to the RABA mechanism that may somewhat reduce the magnitude of swings in its calculations from one fiscal year to another.

Question 2. I have heard concerns raised about both the accuracy of Treasury's fiscal year 2001 Highway Trust Fund revenue figure and the reasonableness of Treasury's future revenue projections. It appears that Treasury has based future year revenue projections on the fiscal year 2001 revenues, which may represent a low point due to the recession. Has the Federal Highway Administration taken a close look at Treasury's numbers and are you comfortable that the 2001 figures are accurate and that future year projections are not underestimated?

Response. Over the years, the Federal Highway Administration (FHWA) has met frequently with Treasury and understands the process used by Treasury to administer the Highway Trust Fund (HTF). We are satisfied that the process is complete, fair, and objective, and results in the HTF being credited with the appropriate taxes. However, FHWA does not have the information to independently assess the absolute accuracy of fiscal year 2001 HTF revenues. Based on the information available to FHWA and on discussions with Treasury, the fiscal year 2001 revenues reported appear to be reasonable.

Future HTF projections are based largely on Administration estimates of the pace at which the economy will recover from the recession. It will take some time before economic conditions return to the levels forecast prior to the recession. The same is true for HTF revenues. Again, based on the information available to FHWA and on our understanding of Treasury procedures, we do not believe that future HTF revenues are underestimated.

Question 3. The 27 percent cut in your budget for fiscal year 2003 will have a substantial effect on State programs. Has the Federal Highway Administration made any effort to assess the impact on State programs in fiscal year 2003?

Response. FHWA has released tables that estimate the State-by-State impact of the fiscal 2003 RABA calculation (See Attachment). States then will have to make programmatic adjustments to reflect the revised funding totals. States need time to analyze and evaluate options before the impact of these adjustments on State programs can be evaluated.

To mitigate the impact of these reductions from anticipated funding, one option available to all States is advance construction. The primary purpose of advance construction is to allow projects to go forward when Federal funds are not available while having those projects retain eligibility for future Federal funds. This strategy requires the availability of non-Federal funds until additional Federal funds are provided.

If State/local funds are not available, a second option is to issue transportation bonds. The bonds could be backed by State and/ or Federal funds.

States may also consider utilizing some of their unobligated minimum guarantee special limitation from prior years, along with the minimum guarantee funds that are exempt from the obligation limitation. In the aggregate, there is currently almost $3 billion in obligation authority available to the States.

Question 4. We have heard several references to the Aperformance@ of our transportation system. While I agree that performance is the critical standard by which we judge our system, I am concerned that we have not developed adequate ways to measure and track performance. The U.S. Department of Transportation puts out a biennial Conditions and Performance report, but focuses almost exclusively on conditions. Do you have any suggestions as to how we might better measure performance?

Response. Yes. The Federal Highway Administration (FHWA) is examining approaches to measuring performance that go beyond the traditional measures of congestion used in the biennial Conditions and Performance report. Since the 1999 Status of the Nation=s Highways, Bridges, and Transit; Conditions and Performance report to Congress was published, the annual FHWA Performance Plans have adopted new procedures developed by the Texas Transportation Institute (TTI) for measuring the operational performance of the Nation's highway system. These measures include the percentage of travel under congested conditions, the percentage of additional travel time caused by congestion, and the annual hours of delay experienced by drivers. These measures are calculated annually, using data collected from 400 urban areas in the United States, according to a fixed set of formulas that facilitate measuring historical congestion trends. The discussion of current highway operational performance in the 2002 C&P report will focus on these measures.

In research on customer needs and better ways to measure highway performance, the FHWA has determined that reliability is the most important aspect of perform-

ance for highway users. Unexpected delay costs significantly more in late arrivals at work or childcare for commuters, late appointments for businesses, and missed deliveries, than predictable delay for which the traveler or trucker can adjust. The FHWA has recently adopted a new measure of reliability, the buffer index, calculated as the percentage increase in the amount of travel time allowed for a trip to ensure on-time arrival on all but one working day per month. The FHWA has calculated the buffer index with data from intelligent transportation systems for 10 cities last year, and will calculate the measure for 22 cities this year. Collection of the measure will expand to other cities as the deployment of intelligent transportation systems allows.

The biennial C&P report has been steadily increasing its focus on the operational performance of the highway system, and on measuring the impacts that the condition and performance of the system has on highway users. The analytical tools used by FHWA to estimate future highway investment requirements have been modified to recognize the costs of incident delay, and the benefits that can be derived from improving system reliability. The 2002 C&P report will incorporate these analytical enhancements, and will include new information on the impacts that alternative investments could be expected to have on the operational performance of the highway system. This change in emphasis has been discussed with a variety of groups with an interest in the C&P report, including majority and minority staff from the Senate Environment and Public Works Committee.

Adequately assessing the overall performance of the Nation's transportation system will require additional measures beyond those outlined above. Aspects such as transit, bicycling, and pedestrian access should also be considered. This is an ongoing research process.

Question 5. I am intrigued by the American Road and Transportation Builders Association's suggestion that we enact a maintenance of effort requirement for the States. Certainly our goal in providing additional transportation funding at the Federal level is to increase the total level of infrastructure investment rather than to have States simply substitute Federal funds for State funds. Have you studied how States have reacted to the Federal funding increases since TEA–21?

Response. Combined State and local governments' highway capital investment actually grew more quickly from 1997 to 2000 than Federal highway capital investment. The Federal share of highway capital funding fell from 41.6 percent in 1997 to 39.9 percent in 2000. The latest available data strongly suggest that States have not been substituting Federal funds for State funds.

RESPONSES OF HON. MARY E. PETERS TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. In your written testimony, you state that "The calculation of the ["negative RABA"] adjustment is not a policy call-it is a calculation based in law . . . ." In addition, Ms. McLean stated in her oral testimony, in response to a question from Senator Inhofe, that in reducing the baseline obligation limitation for 2003 by over $4 billion, the Administration was "just following the legislation". Accordingly, please state, with as much particularity as possible, the analysis of the law that leads the Department of Transportation to that conclusion.

Response. The Transportation Equity Act for the 21st Century (TEA–21) included several provisions intended to tie highway spending to available revenues. Sections 8101 and 8103 of TEA–21 establish funding levels for the highway budget category in terms of outlays and obligations, respectively. Section 1105 of TEA–21 amended title 23, United States Code (U.S.C.), by providing a new section 110 to establish the basic framework for Revenue Aligned Budget Authority (RABA), the related adjustment to contract authority.

As part of the annual budget submission, section 8101(d) of TEA–21, which amends section 251(b)(1) of the Balanced Budget and emergency Deficit Control Act of 1985 (BBEDCA), requires the agency to look at actual receipts from 2 years prior to the budget year, plus revised receipt projections for the budget year. The adjustment is calculated in two parts, one looking ahead to the coming budget year and the other looking back at the prior year.

For the look-ahead adjustment, pursuant to Section 251(b)(1)(B)(ii)(I)(bb) of the BBEDCA, the latest estimate for the budget year is compared with the estimated level (provided in BBEDCA, as amended by section 8101(d) of TEA–21), and the difference is added to the amount of obligations set forth in Section 8103 of TEA–21. For the look-back adjustment, pursuant to Section 251(b)(1)(B)(ii)(I)(aa) of the BBEDCA the estimate for the prior year, adjusted for the look ahead calculation for that year, is compared to the actual receipts to the Highway Account for the prior

year. This difference is also added to the level of obligation limitation for the budget year set forth in section 8103 of TEA–21. The sum of these differences is also converted to the outlay effect and the highway category discretionary outlay caps are adjusted for the budget year and the out years.

Section 110 of title 23, U.S.C., specifies actions that the Secretary shall undertake in the event of positive (subsection (a)(1)) or negative (subsection (a)(2)) RABA adjustments. Specifically, section 110 provides for the distribution of RABA (contract authority) equal to the amount calculated pursuant to Section 251(b)(1)(B)(ii)(I)(cc) of the BBEDCA, as amended by section 8101(d) of TEA–21.

If RABA for a fiscal year is greater than zero, section 110(a)(1) of title 23, U.S.C., requires that the additional contract authority be distributed on October 15 of that fiscal year.

If RABA for a fiscal year is less than zero, 23 U.S.C.' 110(a)(2) requires that, on October 1 of the succeeding year, amounts authorized to be appropriated from the Highway Trust Fund (HTF) to carry out each of the Federal-aid highway programs (other than emergency relief) and the motor carrier safety grant program shall be reduced by an aggregate amount equal to the amount calculated pursuant to Section 251(b)(1)(B)(ii)(I)(cc) of the BBEDCA. Therefore, negative RABA calculated for fiscal year 2003 requires a reduction in contract authority to be made available in fiscal year 2004, i.e., the fiscal year succeeding the year for which negative RABA is determined. Also, when such sum is calculated and the obligation limitation in section 8103 of TEA–21 is adjusted under section 8101 (see section 251(b)(1)(B)(ii)(I)(cc), as amended by section 8101(d) of TEA–21), an equal adjustment is made to the level of obligation limitations under section 1102 of TEA–21 for the fiscal year affected by the adjustment.

Thus, adjustments in the obligation limit will occur in fiscal year 2003 for the negative RABA amount calculated this budget year, and the reduction in contract authority will occur in fiscal year 2004.

Question 2. There was testimony at the hearing that the receipts into the highway trust fund for fiscal year 2003 will, even with the diminished expectations under which you are now operating, exceed the statutory distribution of obligation limit for fiscal year 2003. Do you agree?

Response. Yes, we agree. Revenue aligned budget authority (RABA) is a major reason why fiscal year 2003 obligation limits will be less than estimated fiscal year 2003 revenues to the Highway Account of the Highway Trust Fund. In particular, the "look back" portion of RABA will require significant downward adjustments to obligation authority based on prior year differences between forecast and actual revenues. These adjustments will result in obligation limits being lower than revenues. Having revenues exceed obligation limits is not unusual. From 1998 to 2000 revenues exceeded obligation limits.

Question 3. In your written testimony, you state that "Linking highway spending to receipts is a fundamental principle of TEA–21." Given that, and also given that receipts for 2003 are expected to exceed the TEA–21 baseline, do you agree that S. 1917's restoration of obligation limit for fiscal year 2003 to $27.746 billion is consistent with "linking highway spending to receipt"?

Response. No. Receipts to the Highway Account of the Highway Trust Fund (HTF) often exceed expenditures from the Highway Account in a fiscal year. The opposite is also true. These facts alone, however, do not determine if the legislatively mandated mechanism to tie Federal-aid Highway Program spending to receipts to the Highway Account of the HTF known as Revenue Aligned Budget Authority (RABA) is positive or negative in a given fiscal year.

Instead, the RABA calculation relies upon a look ahead to the coming fiscal year and a look back at the fiscal year just ended. For fiscal year 2003, the look-back calculation compares the actual taxes deposited in the Highway Account of the Highway Trust Fund in fiscal year 2001 to the estimate of fiscal year 2001 tax receipts used to calculate the fiscal year 2001 RABA. The fiscal year 2001 estimate, made in December 1999, was too optimistic. Thus, a downward adjustment to the fiscal year 2003 highway program of $3.468 billion is needed to offset the overly optimistic estimate made earlier.

The look-ahead calculation compares the latest estimate for fiscal year 2003 to the estimate made at the time TEA–21 was enacted. The current economy is less robust than expected in the TEA–21 estimate and, therefore, the latest estimate for fiscal year 2003 Highway Account receipts is lower than the TEA–21 estimate. As a result, a downward adjustment to the fiscal year 2003 highway program of $901 million is required in addition to the look-back adjustment.

Question 4. If you do not support passage of S. 1917, please state your reasons, with as much particularity as possible?

Response. We are working on ways to mitigate the effects of RABA that are consistent with the principles of TEA–21 while still maintaining fiscally responsible solutions. We hope to come to Congress with a proposal in the near future.

We believe that the forthcoming reauthorization of the Federal-aid highway program presents an excellent forum and a unique opportunity to consider possible modification to RABA, and we look forward to working with the Congress during TEA–21 reauthorization to address this issue.

Question 5. As to the issue of reauthorization, what would be the implications, both negative and positive, of restoring the collection of interest on the funds on hand in the Highway Trust Fund?

Response. Resuming the prior practice of crediting interest earned on HTF balances to the HTF could increase HTF revenues substantially, depending on HTF balances and prevailing interest rates. Before being discontinued in TEA–21, total interest payments to the highway and transit accounts of the HTF had been as high as $2 billion. Since interest would be paid from the General Fund, resumption of interest payments to the HTF would mean that like amounts would not be available for expenditure on programs financed from the General Fund.

Question 6. Administrator Peters stated in her oral testimony regarding the environmental streamlining provision of TEA–21 that one of the difficulties with implementation is that the U.S. Department of Transportation, while it was tasked with environmental streamlining, does not have the authority over a number of other environmental regulatory areas. Please describe with specificity the additional authority that is needed for US DOT to more effectively implement these provisions, including any statutory or regulatory changes that would be needed to establish the necessary authority.

Response:

Statutory Authority

FHWA is not advocating any statutory or regulatory changes to environmental laws to achieve more authority. However, there are statutory constraints under Section 1309 of TEA–21 and other laws that restrict the degree of flexibility that FHWA and/or the other agencies can exercise in achieving streamlining. To protect the environment, Congress has enacted over 60 laws, including the Clean Air Act (CAA), Clean Water Act (CWA), Endangered Species Act (ESA), National Historic Preservation Act, Section 4(f) of the DOT Act of 1966 (Section 4(f)), Wild and Scenic Rivers Act, National Environmental Policy Act (NEPA), and the Coastal Zone Management Act. Many of these laws, notably the ESA, Section 4(f), and the CAA, establish stringent environmental protections, including both substantive and procedural requirements. Over 12 different agencies implement these laws through regulations, guidance, and standards developed based on their specific environmental missions. The courts have rigorously upheld the laws and agency regulations, creating an extensive and complex body of case law. Congress did not grant the U.S. Department of Transportation (USDOT) authority to collectively interpret laws administered by other agencies, to override other Federal agencies, or to compel their cooperation in environmental streamlining.

USDOT's statutory authority to administer the Federal-Aid Program stems from title 23 U.S.C. Section 4(f) is the only environmental law under USDOT domain. USDOT ensures that transportation projects, which use Federal funds or require Federal approval, have implemented the Federal requirements associated with the expenditure of those funds. For transportation projects, NEPA is the umbrella under which all environmental laws are coordinated. NEPA requires agencies to prepare a statement on the impact of each proposed "major Federal action significantly affecting the quality of the human environment." NEPA also defines the procedures regarding how USDOT meets its Federal action approval. Some observers believe that if a project does not require an EIS, then the project is exempt from all Federal environmental laws and requirements. This is not correct. Even categorically excluded projects may require coordination or Federal approvals under laws other than NEPA.

Agency Requirements Under NEPA

As Lead Agency under NEPA, the Federal Highway Administration (FHWA) affirms that all of the related environmental requirements have been addressed before granting approval for the expenditure of funds or when a Federal approval is required. FHWA does this by approving one of the following environmental documents: a "Record of Decision" for an Environmental Impact Statement; a "Finding of No Significant Impact" for an Environmental Assessment; or a "Categorical Exclusion." Any number of Federal agencies will be involved. Each Federal agency has a distinct mission and specific role in the NEPA process. The Environmental Protec-

tion Agency (EPA), Army Corps of Engineers (USACE), Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), and Advisory Council on Historic Preservation (ACHP) are the Federal resource agencies most frequently engaged in reviews of transportation projects.

Resource agencies meet their statutory obligations by reviewing project proposals, identifying the potential concerns, and evaluating the impacts proposed projects would have on specific resources. For example, USACE must issue a Section 404 permit for the dredge and fill of waters of the United States, primarily wetlands. USACE bases its decision to grant a permit for a transportation project, in accordance with Section 404(b)(1) of the CWA, on whether the issuance of the permit, not the project itself, is in the best interest of the public. USACE must base its permit decision on the "Least Environmentally Damaging Practicable Alterative." Certain conditions or modifications may have to be made to a project to satisfy the USACE or another permitting agency. In addition to Section 404, Section 7 of the ESA and Section 106 of the NHPA are the most common laws impacting transportation projects. These statutes and others define and impose conditions that drive the environmental review analysis or approval by resource and permitting agencies.

Under the leadership of the Bush Administration and with the full commitment of the Secretary, we will be working with the other agencies at the highest level to make the collaborative process more efficient and effective.

RESPONSE BY HON. MARY E. PETERS TO ADDITIONAL QUESTION FROM SENATOR INHOFE

Question. What effect will the proposed excise tax credit for ETBE-blended gasohol have on revenue into the Highway Trust Fund?

Response. The proposed excise tax credit for ETBE-blended gasohol will have a negligible effect on revenues into the Highway Trust Fund. At this time, because of market economics, very little ethanol is being used to manufacture ETBE.

STATEMENT OF THOMAS E. STEPHENS, P.E., DIRECTOR, NEVADA DEPARTMENT OF TRANSPORTATION ON BEHALF OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS[1]

Mr. Chairman and members of the committee, my name is Tom Stephens. For the past 7 years I have been the Director of the Nevada Department of Transportation, and I am here today to testify on behalf of the American Association of State Highway and Transportation Officials (AASHTO). I also am President of the 18-State Western Association of State Highway and Transportation Officials.

I want to thank you for your leadership in scheduling a series of hearings over the coming year to address key policy, program and funding issues in preparation for the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21). I am also honored that you invited me to testify before your subcommittee. I believe that I can offer some real world experience from the field, especially on the subject of today's hearing—funding the Federal-aid highway program.

Mr. Chairman, I would like to start by giving your colleagues a brief picture of the great Silver State. Nevada is the fastest growing State in the Nation. Since 1970, the State's population has quadrupled from 500,000 to more than 2 million residents. A majority of this growth has taken place in just five urbanized areas—Las Vegas, Reno, Sparks, Carson City and Elko. In Clark County alone, where Las Vegas is located, we estimate that by 2010 we will have 400,000 additional residents. Along with this population growth, we have seen a steady increase in the number of miles of congested highways.

We are also a large State—with roughly the same land area as all the New England States combined. Our State-maintained highways and bridges spread out across many rural miles as well as in the metro areas. Twenty-six percent of all Nevada's improved roads are on the State-maintained system. However, this 26 percent carries 61 percent of the total vehicle miles of travel. The remaining 39 percent is on systems maintained by county, city or other governmental agencies. Vehicle miles of travel on all Nevada roads more than quadrupled from 3.5 billion in 1970 to 17.4 billion in 2000. The State-maintained system also carries 84 percent of all

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[1]Founded in 1914, AASHTO represents the departments concerned with highway and transportation in the 50 States, the District of Columbia and Puerto Rico. Its mission is a transportation system for the Nation that balances mobility, economic prosperity, safety and the environment

truck traffic. With more cars, additional heavy trucks, and more vehicle miles of travel, our biggest challenge is preservation of our highways.

However, as the fastest growing State in the Nation, and with much of that growth concentrated in just two counties—Washoe and Clark, we have an added capacity challenge. In our metropolitan areas, we are working with our local

officials to try to keep pace with our population growth and new demands on the system. In Nevada, we are investing in new multi-modal strategies. These include a privately funded $600 million monorail people mover system and a bus rapid transit system in Las Vegas which will feature low-floor, electric powered buses with an optical guidance system. We will invest in innovative ITS technologies such as dynamic message signs, ramp meters, closed circuit television and traffic detection systems. Other efforts include "low-tech" car-pooling, telecommuting and new bike and pedestrian facilities.

We will still need substantial additional highway capacity.

With the growth in the Federal-aid highway program provided by TEA–21, we have been able to make progress in our preservation and highway capacity needs. At the beginning of fiscal year 2001, there was a $483 million backlog of highway and bridge preservation work. This is significantly lower than the $670 million backlog we had at the beginning of fiscal year 1999. We were able to reduce the backlog by investing significantly greater amounts in pavement preservation. During fiscal years 1999 and 2000, our department spent $329 million on overlay and reconstruction work—our biggest pavement preservation program ever.

TEA–21's highway program increases have also enabled us to undertake an aggressive effort to keep pace with our growing population and make a real difference in addressing congestion. For example, the $99 million "Spaghetti Bowl" I–15/U.S. 95 interchange in Las Vegas opened in March, 2000, 6 months ahead of schedule. The revamped interchange will reduce the congestion caused by the 330,000 vehicles using it each day. It is now capable of accommodating 500,000 vehicles per day.

Mr. Chairman and members of the committee, let me now address how the funding of the Federal aid highway program for fiscal year 2003, and beyond, can be sustained at levels required to meet this nation's needs.

Mr. Chairman, we in the States are stunned by the fiscal year 2003 budget proposal which, in the midst of a recession, would cut the Federal aid highway program by $8.6 billion because apparent reductions in revenues to the Highway Trust Fund have triggered a Revenue Aligned Budgetary Authority (RABA) reduction. To avoid a disastrous cutback in highway improvements, reducing our ability to meet basic highway needs, and to avoid the loss of thousands of jobs, we strongly support the bill you introduced last week to restore highway assistance to no less than the $27.8 billion level for fiscal year 2003 authorized in TEA–21. We commend you for your appreciation of how important sustained highway investment is to the country and thank you for your leadership in putting this legislation forward.

We also want to share with you our emphatic view that it is vital to sustain Federal highway investment in fiscal year 2003, at no less than the $31.8 billion level provided in fiscal year 2002. With 36 State Governors and legislatures already contending with severe budget shortfalls, and the Nation in an economic downturn, cutting the program by $4.3 billion makes no more sense than cutting it by $8.6 billion. This is especially so when there are more than sufficient reserves in the Highway Trust Fund to provide funding for fiscal year 2003. Let me outline what we believe the consequences would be unless current levels of funding are sustained.

As early as next month, State and local officials will begin the task of cutting billions of dollars in highway projects from their fiscal year 2003 Transportation Improvement Programs. Final decisions will be made public in September affecting nearly every community in the Nation.

Construction contractors throughout the country will start making business plans on how to cut back their equipment purchases and lay off tens of thousands of well-paid construction workers. The stock prices of several heavy equipment manufacturers and construction companies have already dropped. Engineering consulting firms, already hard hit by the recession, will almost immediately have to start laying off engineers and technicians as design work for next year's projects is delayed or canceled.

Yet since the tragic events of September 11, traffic is up all over the country. The most recent data shows a dramatic increase in annual traffic growth of nearly 3 percent. For example on I–15 at the California-Nevada border, our vehicle count for the last 3 months is up nearly 10 percent. This highway is really bottlenecked, especially in California where Interstate 15 and 40 converge into a single four-lane Interstate carrying the traffic from Arizona and Nevada to Los Angeles. While this bottleneck is scheduled to be widened, the cut in TEA–21 funding could cause project delays resulting in hundreds of millions of dollars in congestion-related costs.

Numerous other projects will be delayed in every State. This cut is proposed at a time of increasing need for highway preservation projects in every part of the country and capacity projects in rapidly growing States like Nevada.

STATE IMPACTS

AASHTO last week initiated a survey of State departments of transportation to assess the direct and indirect dollar and project impacts across all 50 States. While that survey is still in progress, here is an example of what we found:

• In Ohio, approximately $187 million worth of construction projects would be delayed or canceled. $47 million in preconstruction, right-of-way and/or environmental activities would be impacted.

• In Oklahoma, a total of $120 million in construction and right-of-way projects would be delayed or canceled. This could also impact the State's proposed $1 billion GARVEE Bond Program, with the construction let dates for the proposed projects being delayed.

• In Montana,$66.8 million reduction would result in a loss of 2,805 jobs—roughly equal to 25 percent of the new jobs created in Montana in 2001. This drastic reduction will have significant impact on the many small construction and design firms in Montana.

• In Alaska, even if the program recovers in 2004, the reduction in design efforts in fiscal year 2003 will translate into future delays in construction contracting of nearly $50 million.

• In Florida, a reduction of $324 million is equivalent to approximately 24 percent of the fiscal year 2003 capacity construction program. Implementation of these reductions would negate gains in jobs and transportation improvements achieved from recent transportation initiatives of the Governor and legislature.

One serious concern that must be addressed is the accuracy of the process used by the Department of the Treasury to determine the revenue estimates used in calculating RABA. The correction of a $600 million error by the Department of Treasury has already reduced the proposed highway cutback to $8.6 billion. Recent information on fiscal year 2001 truck sales and fuel tax revenues at the State level call into question the Treasury forecasts, and leads us to believe that other adjustments in RABA could occur.

The public policy questions Congress needs to address are these. First, to assist in the nation's economic recovery does it not make sense to sustain highway funding at $31.8 billion? Second, are there reserves and cash-flow in the Highway Trust Fund to make this possible in fiscal year 2003? The answers are "Yes" and "Yes!"

FUNDS ARE AVAILABLE TO SUSTAIN FISCAL YEAR 2002 LEVELS

Four years ago we agreed to the fundamental principle that all the receipts going into the Highway Account would be fully used for transportation purpose, and not be used to offset other government expenditures. But today there is a $20.3 billion cash balance in the Highway Trust Fund. We seek to provide $8.6 billion in obligations which will restore the highway funding to the fiscal year 2002 level. The budget impact of this increase will only require $2.3 billion in outlays for fiscal year 2003. Because highway funds are spent over a period of about 7 years, $2.3 billion in additional outlays in fiscal year 2003 will allow us to continue the momentum we have achieved in fiscal year 2002.

The table displayed below shows receipts and expenditures for the Highway Account of the Highway Trust Fund for Fiscal Year 1998 thorough Fiscal Year 2003. Even accounting for unpaid obligations, it is clear that there is a substantial balance in the Highway Account with receipts exceeding outlays over the 6-year period. Mr. Chairman, we respectfully urge the Congress and the Administration to honor their commitment to spend all the receipts going into the Trust Fund, unlock the balances that have built up and make a positive contribution to the current economic recession.

Highway Account Receipts and Outlays[1]

Fiscal year	Receipts	Outlays	Difference
1998	24.3	20.3	4.0
1999	33.8	23.1	10.7
2000	30.3	27.0	3.3
2001	26.9	29.1	–2.2
*2002	27.7	30.2	–2.5

Highway Account Receipts and Outlays[1]—Continued

Fiscal year	Receipts	Outlays	Difference
*2003	28.6	30.6	–2.0
Subtotal	171.6	160.3	11.3
Balance from ISTEA D8.0.			
Total	179.6	160.3	19.3

*Estimated
Note: The Highway account balance was $8 billion at the beginning of TEA–21. Therefore, the cash balance at the close of fiscal year 2001 is $20.3 billion.
Source: Federal Highway Administration Long-term Impacts

In addition to the immediate impacts of reducing highway spending by more than a quarter, the RABA downward adjustment has longer-term consequences for the Federal-aid highway program. If the obligation level for Fiscal Year

2003 is adjusted downward from $31.7 to $23.2 billion, then the $23 billion level will become the baseline for reauthorization of TEA–21. That would leave us at a starting point $8.6 billion below where we are today, and considerably lower that the $27.8 billion obligation level for fiscal year 2003 contained in TEA–21. Starting in such a deep hole, would make it much more difficult to maintain the Federal-aid highway program at current levels, and perhaps impossible to expand it.

TEA–21 REAUTHORIZATION

As we look to reauthorization of TEA–21 and the future of the Federal-aid highway program, we believe that, first, it is essential to preserve and reaffirm the principle of a user-based transportation financing system in which all receipts are guaranteed to be used for the purposes for which they were intended.

To accomplish this, TEA–21 set highway obligations at levels based on then-current estimates of gasoline and related tax receipts, and established a new mechanism, Revenue Aligned Budget Authority (RABA), to annually adjust them based on updated revenue estimates.

To ensure that domestic discretionary caps would not prevent the use of all available revenues, a "firewall" provision was included in the Budget Enforcement Act to increase or decrease highway spending each year so that it would align itself with Highway Trust Fund receipts. This provision provides for a "spending guarantee." Congress also guaranteed an annual funding level for transit programs, which are funded with a combination of highway tax receipts accruing to the Mass Transit Account of the Trust Fund and a general fund contribution. I should add that we are pleased that in the just released Fiscal Year 2003 budget, the Administration honors the transit funding guarantee.

Mr. Chairman, this year the spending caps expire. If and when Congress considers new caps, we urge you and the members of the subcommittee to lead the way in ensuring that the "firewall" provision is maintained.

These tools—RABA and the "firewall" provisions—were designed to provide the long-term fiscal stability needed for State and local highway and transit agencies to finance, design and execute multi-year construction programs.

Recent experience has demonstrated, however, that there are unintended flaws in the RABA mechanism. Changes in economic conditions that result in minor adjustments to estimated receipts cause wide swings in highway funding levels. In reauthorizing TEA–21, we must carefully examine and refine the RABA mechanism, including its calculation methods and revenue estimating procedures. We recommend that you consider replacing the current calculation method with one that simply compares actual previous year receipts to the assumptions made at the time the bill passed, with the difference becoming the RABA adjustment.

We also recommend that you consider instituting reforms to the Department of Treasury's process for estimating tax receipts to the Highway Account. This is not the first time that the Department of Treasury has made costly errors. In 1994, a $1.3 billion error eventually cost $3.6 billion to correct. This most recent $600 million error leaves us with absolutely no confidence in their accounting methods. We are not alone in our concerns. In June 2000, the U.S. General Accounting Office released a report[2] in which they indicated that "Treasury's process for allocating tax receipts to the Highway Account of the Highway Trust Fund is complex and error

[2]Highway Funding: Problems with Highway Trust Fund Information Can Affect State Highway Funds(GAO/RCED/AIMD–00–148, June, 2000)

prone." At the request of House Transportation and Infrastructure Chairman Don Young and Ranking Member James Oberstar, GAO is now engaged in a new review of Treasury's methods for estimating receipts to the Highway Account. We urge you carefully consider the results of GAO's review, and consider appropriate reforms during reauthorization.

REVENUES

Near term: Changes regarding gasohol revenues need to be addressed during TEA–21 reauthorization. A significant portion of the unanticipated downturn in fiscal year 2001 revenues was due to increased gasohol sales, which grew by nearly 30 percent. This accounted for a significant portion of the revenue reduction. Now that the use of MTBE is to be discontinued in several States, the only fuel additive approved to address the oxygenate requirements in the Clean Air Act is gasohol. Prior to the change regarding MTBE, the most heavily affected State due to the lower tax rate charged for gasohol was Ohio, which lost over $175 million in fiscal year 2001. A recent study by the State of Wisconsin indicates that the impact may grow significantly worse in the near future, with the impact on California for example increasing to $450 million next year. Areas such as New York and New England are expected to be hard hit as well. This will become a priority issue to be addressed during reauthorization. The Baucus Bill, for example, which would shift revenue from the 2.5 cents on gasohol now going to the General Fund to the Highway Trust Fund beginning in fiscal year 2004, is a step in the right direction. Still more may be required.

Long Term: The second revenue issue is longer term in nature. It is a concern for the future ability of gas tax revenues to sustain highway funding as increases in fuel efficiency reduce revenues relative to travel, and other technological changes occur such as a move to greater reliance on alternative fueled vehicles including fuel cells, compressed natural gas, and electricity. We believe the time has come for Congress to mandate a study of this issue by GAO or the National Academy of Science and the development of alternatives for consideration during reauthorization deliberations in 2009.

CONCLUSIONS

In conclusion, I would like to state that the Federal-aid highway program has been one of the most successful Federal-State partnerships ever created. It has contributed to the nation's mobility and to the unprecedented economic growth that the Nation has experienced since the 1950's.

TEA–21 is a major step forward in providing much-needed funding to the nation's highway and transit program. It is essential that the RABA principle of fully spending Highway Trust Fund receipts and guaranteeing that spending be maintained. However, it is also essential that in a time of recession, the consequences of the RABA mechanism not be permitted to eliminate hundreds of thousands of jobs while setting back much-needed transportation projects nationwide.

We clearly have sufficient receipts in the Highway Trust Fund to sustain a higher program level. Authorizing a higher level is consistent with TEA–21, which provided more contract authority to the States to assure the Congresses could increase the program above the guarantee. We urge the Congress to make this investment in America.

RESPONSES BY THOMAS STEPHENS TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Please walk us through the impact that an In February AASHTO conducted a survey of the State departments of transportation on the impacts to their programs from an $8.6 billion funding cut. The results of the survey are included in the report Shortchanging America: Impacts on States from an $8.6 billion Reduction in Federal Highway Funding. A copy of the report is attached, and we request that it be included as part of the record for the hearing.

Response. In February AASHTO conducted a survey of the State departments of transportation on the impacts to their programs from an $8.6 billion funding cut. The results of the survey are included in the report Shortchanging America: Impacts on States from an $8.6 billion Reduction in Federal Highway Funding. A copy of the report is attached, and we request that it be included as part of the record for the hearing.

Question 2. In your written testimony you express concern about the accuracy of the Treasury revenue estimates. Can you tell the committee what specifically gives rise to your concern?

Response. First, we were disturbed to learn that just before the President's Budget was issued the Treasury advised that they had determined that almost $600 million in revenue had been credited to the Transit Account of the Trust Fund when in fact it was Highway Account revenue. This represents a serious accounting error.

In addition The Treasury in explaining the sharp drop in revenue attributed a substantial amount of the change to truck sales tax declines citing a 55 percent drop in truck sales tax collections. This is in contrast to sales figures from the trucking industry, which reported only a 24.2 percent drop in sales. Even allowing for adjustments the industry sales data doesn't correlate with the Treasury figures.

Also Treasury's data assumes that gasoline tax revenues drop 6 percent from 1 year to the next. However, FHWA's Traffic Volume Trends Report issued monthly shows VMT increasing 2.07 percent for the first 9 months of 2000. In comparing the data to that for fiscal year 2001 the data seem to be flat.

Question 3. We have heard several references to the "performance" of our transportation system. While I agree that performance is the critical standard by which we should judge our system, I am concerned that we have not developed adequate ways to measure and track performance. The U.S. Department of Transportation puts out a biannual Conditions and Performance report, but focuses almost exclusively on conditions. Do you have any suggestions as to how we might better measure performance?

Response. This question recognizes the serious weaknesses we have today in measuring performance. Much of the concern for better measurement is a product of increasing congestion. We have not really developed effective ways of transmitting the scope and character of congestion to the public in terms of its breadth depth and duration in an understandable way. Another reason for our need to better measure performance is the growing value of time to both travelers and of freight. Both will demand more exacting levels of service in the future.

System performance is about:

- Speed
- Cost
- Convenience
- Safety and Security
- Reliability

All of these factors are things that we presently measure badly, or not at all. Most particularly measures of cost and reliability are very weak. We are working with FHWA to construct better ways to introduce the measurement of reliability into the description of the system's functioning and to produce a more comprehensive condition and performance report that truly reports condition and performance.

AASHTO is currently undertaking a major research effort to quantify highway and transit needs, including incorporating a measurement of reliability for the highway component. The results will be presented in the AASHTO Bottom Line Report, which is scheduled to be released in September 2002.

Question 4. I am intrigued by the American Road and Transportation Builders Association's suggestion that we enact a maintenance of effort requirement for the States. Certainly our goal in providing additional transportation funding at the Federal level is to increase the total level of infrastructure investment rather than to have States simply substitute Federal funds for State funds. Have you studied how States have reacted to the Federal funding increases since TEA–21?

Response. While AASHTO has not surveyed the States to get a quantitative assessment of the total Federal, State and local percentages of total highway expenditures, anecdotal information suggests that the States have effectively leveraged TEA–21's Federal contribution to increase the overall State contribution.

For example:

- In Illinois, Governor George Ryan's 5-year "Illinois First" initiative makes available $10.5 billion for highways and $4.1 billion for transit;
- Kansas has enacted a 10-year Comprehensive Transportation Program funded from increases in the State gas and sales taxes and additional bonding authority;
- In California, Governor Gray Davis and the State legislature enacted a $15 billion congestion relief program that combines Federal, State and local funds; and
- Rhode Island voters passed a $62.5 million transportation bond issue for new transit equipment and work on I–95; and,

Another indicator is the number of bids let:

- Colorado let $491 million in bids in 1999, up from $229 million in 1995;
- Tennessee let $694 million in bids in 1999, up from $597 million in 1995;
- Texas let more than $3 billion in bids in 1999, up from $1.7 billion in 1996; and,Wisconsin let $597 million in bids in 1999, up from $414 million in 1995.

In addition, when you examine FHWA's most recent statistics for Federal, State and local percentages of total highway expenditures over the past 5 years, the Federal, State and local percentage shares of expenditures have remained relatively constant. Attached a table based on information from FHWA

RESPONSES BY THOMAS STEPHENS TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. Mr. Stephens testified that States have not experienced a drop in State revenues due to motor fuel taxes that may have served as an indicator for the Federal Highway Trust Fund revenue fluctuations. What has been the trend over the last several years in State motor fuel tax collections?

Response. AASHTO asked States to provide actual State transportation revenues for 1999–2001 from State gasoline, gasohol and diesel taxes. We also asked States to provide forecasted State transportation revenues from 2002 and 2003 from State gasoline, gasohol and diesel taxes. The results from 36 States is included in a table showing actual and projected revenues, along with percentage difference from the prior year. A copy of the table is attached.

State fuel tax revenues increased by 2.7 percent between 1999 and 2000, and increased 1.5 percent between 2000 and 2001.

STATEMENT WILLIAM D. FAY, PRESIDENT AND CEO, AMERICAN HIGHWAY USERS ALLIANCE

Mr. Chairman and members of the subcommittee, I am Bill Fay, president and CEO of the American Highway Users Alliance. Thank you for inviting us to testify at this very important and timely hearing on highway funding for 2003 and future years.

The Highway Users is one of the most broad-based and diverse advocacy groups in the Nation. We are like a consumers' group for motorists and businesses who pay the taxes that support the Federal highway program. Our vast membership includes the most visible user groups—AAA and the nation's truckers, buses, and recreational vehicles—but also those who ensure their safety—3M, insurance companies and the traffic service industry. It includes businesses that rely on efficient roads to ease the flow of raw materials, supplies, and finished products—such as farmers, auto and auto parts makers and dealers. And our members include those who build roads and mine, drill, and refine the products essential to highway travel—petroleum, asphalt, cement, and aggregates producers, and many others. Our 45 million members have a strong interest in how much the government collects from motorists and how that money is invested after it gets to Washington.

The subject of today's hearing includes both short-and longer-term issues: the Administration's fiscal year 2003 budget proposal and the major funding issues pertaining to next year's reauthorization legislation. Putting first things first, I will begin with the 2003 budget and then discuss funding for reauthorization.

Fiscal Year 2003 Highway Funding

Transportation Secretary Mineta foretold the drop in guaranteed highway funding when he testified before this committee nearly 3 weeks ago. Last week, the President's fiscal year 2003 budget confirmed that the guaranteed obligation limitation for next year will be approximately $8.6 billion less than the $31.799 billion provided in 2002. That's more than a quarter of the program (a 27 percent cut) in 1 year.

According to the Administration, the cut is a straight-forward calculation based on a substantial reduction in fiscal year 2001 tax receipts relative to previous estimates combined with revised, lower estimates of fiscal year 2003 tax receipts. Questions, of course, remain regarding the accuracy of the Treasury Department's accounting of those receipts, and I understand the General Accounting Office (GAO) is reviewing Treasury's calculations for a report due in May. Apparently, one error was found after the principal budget documents were sent to the printer but in time for the more accurate figures to be reflected in the Department of Transportation's own budget documents. Correcting that error resulted in a $600 million increase in trust fund tax receipts and a corresponding increase in the fiscal year 2003 guaranteed highway funding.

The possibility of further errors in the calculation of trust fund receipts is important, and we look forward to reading GAO's final report. Assuming, however, that the current figures are generally correct, we have a simple point to make about the fiscal year 2003 budget: a 27 percent cut in 1 year in the nation's largest infrastructure program is too much.

It would have serious economic repercussions just at a time when the country is struggling to get out of a recession, and it would be a devastating blow to our national transportation system.

Mr. Chairman, a week ago, when initial expectations were for a $9.1 billion cut in guaranteed funding for highways (rather than $8.6 billion), we obtained a Federal Highway Administration chart showing the potential impact on each State's obligation limitation. The losses spread across the States are nothing short of calamitous. Nevada, for example, would lose over $53 million of the $200 million it received this year. Similarly, Oklahoma would I lose $118 million out of its $428 million in 2002 receipts. While the $600 million downward revision in lost funding will mitigate those reductions slightly, the cuts, as a percentage of the States' total Federal funds, are still dramatic.

The Cost of Losing One's Job to Families and Society

As you have heard from others, funding cuts of this magnitude will result in lost jobs, perhaps hundreds of thousands of jobs over time. Far too many of those jobs will be lost before the fiscal year even begins as contractors begin laying off workers in anticipation of the project delays that will inevitably follow. These are high-paying jobs that induce many other jobs. Such dramatic changes in employment would increase the call of Federal unemployment compensation funds and other social programs, as well as cut the flow of tax dollars from those affected families and individuals. Attached to my testimony is a 1984 study released by the Joint Economic Committee on the social effects of losing one's job. It paints a dire picture of personal financial hardships, loss of health insurance, and rising mortality, divorce, criminal activity, and suicide. Quoting from that study, "The longer [joblessness] endures, the more likely it becomes that frustrations will be vented on the family—or on the rest of society." While I wish the study were more recent, it is unlikely the torment of losing one's job today is any less consequential than it was in 1984.

The Life-Saving, Time-Saving, Fuel-Saving, Economic and Environmental Benefits of Road Investments

Equally important from the perspective of motorists, a 27 percent reduction in funds will delay the important benefits of roadway improvements—the safety benefits of reducing crashes, injuries, and fatalities; the air quality, time-saving, and fuel-saving benefits of relieving traffic congestion; the economic and productivity benefits of speedier deliveries. These are the primary reasons that fuel taxes are the taxes that Americans pay most willingly. They realize the benefits of a safe, uncongested, and accessible highway system to themselves, their families, and their businesses. But those benefits are only realized if their tax dollars are used as intended.

In 1999, The Highway Users published a study identifying the worst traffic bottlenecks in the country and the benefits that could be realized by improving traffic flow at those sites. Unclogging America's Arteries: Prescriptions for Healthier Highways showed that very modest traffic flow improvements at each of our 167 worst bottlenecks would result in 287,000 fewer crashes over 20 years, including 1,150 fewer fatalities and 141,000 fewer injuries; they would reduce carbon monoxide emissions by 45 percent and volatile organic compound emissions by 44 percent, while carbon dioxide emissions would fall by 71 percent at those sites; they would slash fuel consumption by nearly 20 billion gallons; and of course, they would reduce travel time by an average of 19 minutes per trip. With polls showing that time management is one of the greatest challenges facing American families today—38 minutes less for a commuter driving to and from work represents more time for family, work, errands, and recreation.

That's an example of the "big bang for the buck" that this program has the potential to deliver, but too little funding will delay these large, critically important projects for years. That's why this debate over 2003 funding is so important to us.

We Must Preserve The Fundamental Premise of RABA and TEA–21's Firewalls: Highway Taxes Received Equals Highway Investments Made

Let me be clear about our view of the funding predicament we face in 2003. We do not believe there is anything fundamentally wrong with either the RABA provisions or the budgetary firewall provisions of TEA–21. It is clear that Treasury's models did not foresee the recession (resulting in a large "look back" adjustment) and that those same models will likely understate the economic recovery that most economists predict to begin in upcoming months. As such, some minor adjustments to the method of calculating tax receipts and guaranteed funding levels may help eliminate dramatic changes in funding from 1 year to another, but the link established in TEA–21 between tax receipts and guaranteed funding for the program has been critical. It is, in fact, the reason that TEA–21 was so warmly embraced by

America's highway users—it restored the "trust" in the Highway Trust Fund. The chart appended to my testimony illustrates the impact that RABA and the firewalls have had on funding for highways during the TEA–21 years compared to the previous 6 years.

The fact that revenues have fallen short of previous estimates simply puts all of us back in the annual budget and appropriations game that we used to play every year before TEA–21 tied highway funding to trust fund receipts.

The Highway Users looks forward to being back in the game this year and working with all of you, your House counterparts, and members of the Appropriations committees to see that this vital infrastructure program is not cut by 27 percent in 1 year.

We commend the members of this committee for your recent introduction of "The Highway Funding Restoration Act," legislation to raise the fiscal year 2003 obligation limitation to $27.7 billion, the amount anticipated when TEA–21 was enacted. By adding $4.4 billion to the amount guaranteed for 2003, your legislation will soften the blow of negative RABA in these difficult economic times. The Highway Users strongly supports this legislation, and we are already working hard, through our grassroots contacts, to build political support and enlist additional cosponsors for the bill. We have a similar campaign underway to support the identical legislation introduced by your counterparts on the House Transportation and Infrastructure Committee.

$18 Billion in Motorist Taxes Just Sitting in Washington

Although funding will be tight because of the war on terrorism and renewed deficit spending, I believe America's highway users have a strong case to make for additional highway funding above the guaranteed amount. In addition to describing the very serious impact of this cut on State highway funding, jobs, safety, congestion, and the environment, we can also cite a key distinction between our cause and the argument Members of Congress will hear from other interest groups: the money for highways has been collected in advance.

Before TEA–21, interest was accrued on surpluses in the Highway Trust Fund. This interest was ridiculed by some Members of Congress as "funny money" that wasn't really owed to highway users. As a condition for establishing a link between revenues and investments, TEA–21's framers agreed to eliminate all but $8 billion of the previously existing cash balance in the Highway Account and to stop any further interest payments to the account. As a result, since TEA–21's enactment, not one penny of that $8 billion or subsequent additions to the trust fund surplus is attributable to interest payment transfers from the General Fund.

According to the Administration's budget, the Highway Account of the Highway Trust Fund will have a cash balance of more than $18 billion at the end of this fiscal year. All of today's cash balance—every dime—is money previously paid by motorists and intended for improvements to our nation's roads and bridges.

If Congress were to increase the 2003 obligation limitation by a full $8.6 billion to bring us up to this year's level, the cash balance in the Highway Account would only be reduced by approximately $2.3 billion in fiscal year 2003. That would leave more than $15 billion in the account as you consider funding levels and other issues in the reauthorization legislation.

Funding Issues in Highway Reauthorization

That leads me to the longer-term highway funding issues that you asked us to address in connection with next year's reauthorization legislation. Let me begin again with the basic facts.

Tax receipts to the Highway Account of the Highway Trust Fund will be just over $28 billion next year, according to the President's budget documents. The Administration projects conservatively that those receipts will grow by almost $1 billion a year through 2007. The truth is, we collected more than $30 billion in both 1999 and 2000, so if the economy picks up, we can expect trust fund receipts to rise significantly above the Administration's projections. Still, the need for additional highway investment is substantially greater than those Highway Account tax receipts can support, according to the FHWA biennial report on road and bridge conditions and performance To us, that suggests several clear funding priorities. The first priority, and by far the most important, is to continue the direct link between annual highway funding and the taxes paid by motorists. Whether that link is accomplished through RABA and the budgetary firewalls, a modified version of them, or some other mechanism entirely, the point is to provide as much assurance as possible that highway funding will not be less than the taxes paid by motorists and deposited in the Highway Account.

Second, the reauthorization legislation should ensure that all taxes paid by highway users are used for their intended purpose. Here, there are several opportunities to improve upon current law.

Support S. 1306, Which Will Shift Ethanol Tax Receipts into the Highway Trust Fund

Last year, Senator Baucus introduced S. 1306, a bill to transfer into the Highway Trust Fund that portion of the tax on ethanol-blended fuels that currently is diverted to the General Fund. We strongly support the Baucus legislation, and we appreciate the fact that four other members of this subcommittee, including you, Mr. Chairman, are cosponsors of it. If enacted, the bill would increase annual trust fund deposits by more than $400 million, and it would ensure that the trust fund receives virtually all taxes currently imposed on motor fuels.

End Fuel Tax Evasion

Another step toward ensuring the integrity of highway use taxes would be to close the remaining loopholes in the tax collection system that allow unscrupulous individuals to evade the Federal taxes they should be paying. Former Federal Highway Administrator Ray Barnhart originally brought this issue to Congress' attention years ago. His efforts resulted in a change in the tax collection system for motor fuels, closing the books on tax evasion schemes that robbed the Highway Trust Fund of hundreds of millions of dollars in revenue. Administrator Barnhart believes, however, that other substantial tax evasion schemes still exist, and I urge the subcommittee to review the report on this subject, prepared by kpmg Consulting Inc., which is appended to my testimony.

We understand that efforts are underway to draft legislation closing these loopholes. We expect to support this legislation, and we will report back to the committee once a bill is introduced.

Reduce the Highway Trust Fund Surplus Over Time

Our final recommendation for ensuring the integrity of highway use taxes is to spend down the Highway Account balance over time. As I indicated previously, the cash balance in the account will be $18 billion at the end of fiscal year 2002, slightly less than that by the end of 2003, depending on how much funding is ultimately appropriated for next year.

All of that money has been paid by motorists. All of it was intended to be used for road and bridge improvements. It ought to be used for its intended purpose.

After protecting the integrity of highway use taxes, we ought to guard against proposals that will reduce the revenue available for the highway program.

Don't Triple Ethanol Mandate

For instance, the renewable fuels mandate proposed in S. 1766, the "Energy Policy Act of 2002," would require that large amounts of renewable fuels, primarily ethanol, be sold in the U.S. If enacted, that provision would nearly triple the current demand for ethanol, which, because of the tax subsidy for ethanol-blended fuels, would have a severe impact on revenues to the Highway Trust Fund. The trust fund currently loses more than $1 billion per year because of the tax treatment of gasohol. When fully implemented, the ethanol mandate of S. 1766 would result in an annual revenue loss greater than the obligation limitation distributed this year to the States of Nevada, Oklahoma, Montana, Virginia, Connecticut, Oregon, and Rhode Island combined.

We strongly urge you to oppose the expansion of the ethanol mandate in S. 1766 or, if you support mandated ethanol use, to bring equity to ethanol taxation . . . in other words, levy the same tax on ethanol that you do on gasoline.

Stem Diversions of Highway Funding

We also urge the committee to oppose any new diversions of highway funding away from road and bridge improvements. In particular, I know that you, Mr. Chairman, and other members of the full committee have previously indicated your strong interest in finding additional funds to support passenger rail development in the U.S. While Congress considers whether and to what extent public financial support for passenger rail service makes sense, we urge the subcommittee to resist attempts to divert Highway Trust Fund dollars to rail. The needs are simply too great on our primary transportation system—highways—to justify the expenditure of limited financial resources to build or operate a passenger rail system.

Finally, Mr. Chairman, some have also suggested a fuel tax increase as a means to increase highway funding. Given the current state of the economy and the President's general opposition to tax increases, I suspect there is little possibility that Congress will approve a tax increase as part of the reauthorization bill. In any case,

I expect taxpaying motorists are unlikely to support a rate increase unless it is clear that the funding guarantees of TEA–21 will be continued, that the enormous existing balance in the Highway Account will be spent down, and that highway users are not subsidizing other Federal programs that have little or no direct benefit to motorists.

I also have one final observation about the President's budget. Rather than spending down the balance in the Highway Trust Fund, the Administration projects a dramatically growing balance beginning in fiscal year 2004, the first year of a reauthorized highway program. Over 4 years, the balance is projected to grow by a whopping $17.4 billion despite using very conservative estimates of annual tax receipts.

Urge President Bush to Support Continuation of TEA–21's Funding Guarantees

We are told by Administration sources that those projections are simply based on the extraordinarily low 2003 spending as a baseline adjusted for inflation in future years. Unfortunately, however, it also indicates at the very least that the Administration has not yet made the policy decision to support continued budgetary firewalls and a RABA-like mechanism tying highway funding to tax receipts. There is still time for the President to make that policy decision before submitting his reauthorization proposal to the Congress, but I believe the recent budget documents are an ominous warning that members of this subcommittee, State and local public officials, and we in the private sector need to work very hard to convince top Administration officials that the TEA–21 funding guarantees must be continued in the next bill.

Former Transportation Secretary Rodney Slater used to say that highways are about more than concrete, asphalt, and steel; they're about new opportunities and quality of life. We at The Highway Users understand the value of a good transportation system, centered on our road network. It isn't an end in itself; it's a tool to move us, our families, our customers and employees, and our products where they need to go as safely and with as little delay as possible.

As Federal Highway Administrator Mary Peters is quick to point out, however, it takes a lot of concrete, asphalt, and steel to realize those benefits. That's the central point of this hearing and much of the coming debate on 2003 funding and the reauthorization bill: we need a well-funded Federal highway program to improve safety, reduce congestion, enhance air quality, and keep our manufacturers and producers competitive in the marketplace.

We look forward to working with all of you to see that your colleagues, journalists, and the general public understand the unique and vital role that our highway system plays in our overall economy and our quality of life.

MOTOR FUEL EXCISE TAX REVENUE LEAKAGE ANALYSIS

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Prepared for

Center for Balanced Public Policy

MOTOR FUEL EXCISE TAX REVENUE LEAKAGE ANALYSIS

Executive Summary

Motor fuels excise tax evasion is a continuing problem. Constant monitoring and continued diligence are required in making and enforcing statutory and regulatory changes so that tax administration is more effective, efficient, and fair, while minimizing compliance costs to the greatest extent possible. This discussion document prepared by KPMG Consulting, Inc. for the Center for Balanced Public Policy describes various tax evasion techniques and makes a rough estimate of the potential scope of the problem. Documented evasion techniques include daisy chains, bootlegging, cocktailing/blending, fraudulent exemption claims, failure to file or filing false information returns, and the use of jet fuel in highway vehicles. We particularly focus on jet fuel because it is the only major transportation fuel supply not currently subject to federal excise tax at the terminal rack.

Using several federal data sources and supported by recent Florida experience, we estimate the federal revenue shortfall from jet fuel diversion alone may range between $1.7 billion and $9.2 billion over the next 10 years. State transportation tax collections may be suffering similar losses. As with most estimates of tax evasion, this estimate is necessarily approximate and based on certain assumptions that cannot be fully documented. It does indicate that ongoing revenue losses are a significant problem for tax administrators and honest business taxpayers facing competition from tax evaders.

We describe some of the many tax evasion techniques found in the literature, court cases, and press articles. While there have been significant revenue losses in the court cases we have identified, it is quite likely that much more evasion occurs than the amount caught and documented. We have not been able to develop enough information to prepare independent revenue estimates of losses resulting from these techniques, but the information that is available indicates that substantial losses continue to occur.

Florida began taxing aviation fuels at the rack on July 1, 1996, along with other changes. During the first year under the new system, Florida experienced a 21.4-percent increase in aviation fuels taxes. While it might be necessary to fine-tune Florida's approach if implemented at the national level to avoid any unintended consequences that could harm cash flows and affect compliance costs of commercial airlines and business aircraft users, such a policy has the potential to mitigate revenue losses and simplify fuel tax administration. In addition, while evidence suggests that taxing jet fuel at the rack could eliminate much of the ongoing federal revenue drain, the kinds of policy actions required to reduce or eliminate other forms of evasion are less clear.

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Introduction

Motor fuel excise taxes are an important source of federal and state revenues and finance a large share of improvements in the nation's transportation system. Most federal motor fuel excise taxes are deposited in trust funds for this purpose. Some collections have gone into general revenues and a small portion is deposited in the Leaking Underground Storage Tank (LUST) Trust Fund. Federal and state tax rate increases over the years have correspondingly increased incentives for tax evasion with the 18.4-cents per gallon federal gasoline tax and 24.4-cents per gallon diesel fuel tax greatly exceeding profit margins on fuel sales at any point in the distribution system. While numerous legislative and regulatory steps have been taken by the federal and state governments, evasion remains a problem.

Monitoring federal excise tax collections and evasion is complicated by the variety and lack of coordination between federal data collection systems. The Energy Information Administration (EIA) tracks gallons produced, imported, exported, changes in stocks, and consumption. Using reports from the states, the Federal Highway Administration (FHWA) tracks gallons consumed in taxable and nontaxable use and tax collections. The Federal Aviation Administration (FAA) collects survey data on jet fuel costs and consumption of U.S. carriers, but not foreign carriers going to and from the U.S. The FAA also does not separately report U.S. carrier purchases within the U.S. and purchases overseas. IRS tracks federal excise tax collections, but not gallons consumed. IRS tables reporting excise tax refunds are inadequate for accurately determining the specific excise tax to which refunds are attributable or the quarter to which refunds apply. This difficulty is particularly acute when there is a tax rate change. Table 1 shows selected fuel excise tax collections reported on IRS Form 720 for fiscal years 1999 and 2000.[1]

Table 1

Federal Excise Taxes Reported by the IRS[2]
(Millions of dollars)

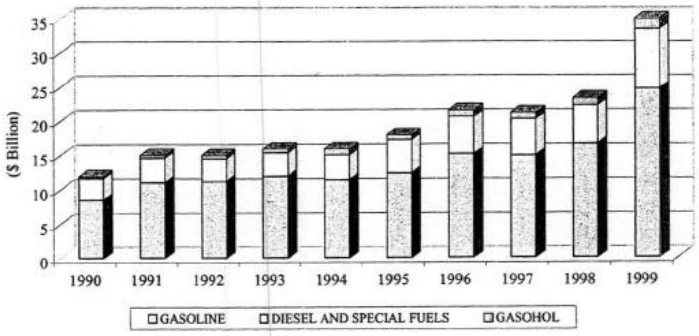
	Fiscal Years 1999	2000
Retail Excise Taxes		
Special Motor Fuels, total	24	20
Manufacturer Excise Taxes		
Aviation gasoline	58	58
Gasoline except for use in gasohol	21,237	21,041
Diesel fuel	7,896	8,230
Gasoline for use in gasohol	244	270
Gasohol	1,799	2,124
Aviation fuel, noncommercial	173	159
Aviation fuel, commercial	650	668
Kerosene (effective July 1m 1998)	78	80
Total	32,158	32,649

[1] The federal fiscal year runs from October 1 to September 30.
[2] *SOI Bulletin*, Spring 2001, Table 21, Internal Revenue Service, (Washington, DC: Department of the Treasury).

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In FY 1999, $35 billion of motor fuel excise taxes was deposited in the Federal Highway Trust Fund.[3] This fund is used for developing and maintaining U.S. highways, mass transit, and other transportation related purposes. In FY 1999, excise taxes on the sale of gasoline, diesel and special fuels, and gasohol were about 90 percent of Federal Highway Trust Fund receipts.[4] Gasoline excise taxes account for about 60 percent of Federal Highway Trust Fund receipts.

Motor Fuel Excise Taxes Deposited in the Federal Highway Trust Fund, FY 1990-1999



Policy makers became aware of widespread motor fuel excise tax evasion schemes soon after the 1983 federal excise tax rate increase from 4 cents to 9 cents per gallon, and a further increase on diesel fuel to 15 cents in 1984. Since the mid-1980s, Congress and the states have enacted numerous statutory changes in attempts to reduce motor fuel tax evasion. Evasion was once estimated to be between 3 and 7 percent of all fuel taxes, and between 15 and 25 percent of diesel taxes alone.[5] Widespread motor fuels excise tax evasion in the early 1980s led to a series of federal statutory changes beginning with the Tax Reform Act of 1986 (see Appendix II). One

[3] FY 1998 trust fund deposits are understated and FY 1999 deposits overstated relative to historical experience because there was a one-time delay in transferring deposits.

[4] Federal Highway Administration, Status of the Federal Highway Trust Fund 1958-1999 (Table FE-210, available from http://www.fhwa.dot.gov/ohim/hs99/fuel.htm). FHWA defines special fuels as "diesel fuel and, to the extent they can be quantified, liquefied petroleum gases such as propane." In addition to motor fuels, certain other excise taxes are also transferred to the Highway Trust Fund, including $3.3 billion in FY 1998 and $4.0 billion in FY 1999.

[5] Federal Highway Administration, Department of Transportation. *Fuel Tax Evasion: The Joint Federal/State Motor Fuel Tax Compliance Project*. Report No. FHWA-PL-92-028. (Washington, DC: The Federal Highway Administration, June 1992), 18.

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key change has been to generally impose federal fuels excise taxes upon removal from the terminal rack, including gasoline, undyed diesel, kerosene, and gasohol.

Motor Fuel Excise Tax Evasion Schemes

Various schemes have been used for evading excise taxes, including "daisy chains," bootlegging, cocktailing/blending, fraudulent exemption claims, failure to file or filing false information returns, and the use of jet fuel in highway vehicles.

Daisy Chains. The "daisy chain" creates a paper trail that makes it difficult for auditors to track the sale and taxation of the fuel. Typically, the paper trail shows that the motor fuel is taxed at some point in the chain and sold to the retailer tax-paid, but the tax is never remitted to the government. The entity in the chain with liability for the tax often disappears. The taxation of diesel fuel at the rack, dyeing, and expanded enforcement have reduced the use of daisy chains[6], but this progress is instructive in demonstrating how evaders have been able to move on to other techniques. Indeed, fuel tax evasion history is characterized by a series of policy changes and enforcement activities resulting in some evasion opportunities being curtailed only to be replaced, at least in part, by others. While evasion may never be eliminated as long as taxes are imposed on fuels, excise tax analysts generally believe evasion can be significantly reduced by taxing as much fuel as possible at the rack.

Bootlegging. Like other smuggling, motor fuels bootlegging occurs when a low tax jurisdiction is near a high tax jurisdiction. Such smuggling frequently occurs between states, costing states tax revenues and their share of the Federal Highway Trust Fund; however, bootlegging may also occur when motor fuels enter the country over the border. Similar problems may occur with fuel sold on Indian reservations.

Fraudulent Exemption Claims. Evaders frequently make fraudulent claims for the nontaxable fuel use, such as for home heating oil or off-road farming, to avoid excise taxes or to resell fuel at a tax inclusive price without remitting tax to the government.

For example, in April 1997, *US Oil Week* reported that prosecutors in Riverside County, California, charged two individuals in the motor fuel distribution business with multiple counts of state excise and sales tax evasion for supposedly forging farm exemption certificates for the purchase of tax-free clear diesel fuel. The defendants allegedly sold the tax-free diesel fuel to customers as tax paid.[7]

Failure to File or Filing False Information. Failure to file an excise tax return or filing a false excise tax return are common techniques used by evaders.

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[6] There have been a number of successful prosecutions of daisy chains since the 1980s. The IRS recently reported successes in prosecuting individuals in relation to operation "Red Daisy." More than two-dozen defendants have been convicted for their roles in a motor fuel distribution evasion scheme operating in the New York metropolitan area in the 1990s. One transaction defrauded the federal government and the State of New Jersey of more than $140 million of tax revenue on the sale of 500 million gallons of gasoline. The courts sentenced the eight defendants named in the report to a variety of terms of imprisonment and to restitution totaling over $2 million. See Criminal Investigation. "Excise Tax." *FY 2000 National Operations Annual Report*. (Internal Revenue Service, Department of the U.S. Treasury).

[7] "In the News." *Fuel Tax Evasion Highlights*. Volume 6, December 1997. Federal Highway Administration, Department of Transportation. (Available from http://www.fhwa.dot.gov/policy/hl97dec.htm.)

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- On March 24, 1999, Delbert Delmar Clark III was indicted on 11 counts of excise tax evasion, totaling $209,764.23, for selling untaxed diesel fuel at a tax inclusive rate, without remitting the tax to the government. Clark pleaded guilty, and was sentenced to 15 months imprisonment and ordered to pay all taxes, penalties, and interest due.[8]
- On June 23, 2000, Keith A. Parry, operating out of Phoenix, Arizona, pled guilty to income tax evasion and was sentenced to 15 months imprisonment and ordered to pay the underreported taxes (over $800,000) relating to the preparation of false federal excise tax returns in an effort to defraud the federal government of taxes on the sale of jet fuel, diesel fuel, and gasoline.[9]

Cocktailing/Blending. This technique increases profits by extending diesel fuel with used motor oil and other distillates including pollutants, cleaning agents, and unfinished refinery products. There are two reasons in particular why this technique is attractive:

> *the substances used to extend the fuel were often not regulated so those quantities were not in any fuel tax reporting system; and ... in some cases the substances were regulated as waste materials so an unscrupulous person could get paid to dispose of the products and then blend them into gasoline and get paid again by the public.*[10]

A 1981 exposé on gasoline bootlegging by the Long Island newspaper, Newsday, recounted an incident where a cab driver pointed "...a gun at a station operator when the mixture caused the cab to stop running while still in the station."[11]

We understand that cocktailing/blending, also referred to as "below the rack blending" continues to the present and not only results in an ongoing revenue loss, but is also dangerous to society at large when hazardous waste is blended with taxable fuels. IRS' ExStars program is studying ways to prevent untaxed below the rack blending.[12] "Fingerprinting" is a method for tracing fuel from the retail outlet, back to the distributor and the terminal system, so that authorities may be able to learn where in the distribution chain the fuel was blended.

The following table originally published in U.S. Oil Week in 1996 illustrates various schemes used to evade taxes that are largely focused on cocktailing/blending.

[8] Criminal Investigation. "Excise Tax." *FY 2000 National Operations Annual Report.* (Internal Revenue Service, Department of the U.S. Treasury).
[9] Criminal Investigation. "Excise Tax." *FY 2000 National Operations Annual Report.* (Internal Revenue Service, Department of the U.S. Treasury).
[10] Ronald E. Raven, Ph.D, *Deliver Us From Evil: Governmental Responses to Reports of Fuel Tax Evasion* (Washington, D.C.: Federation of Tax Administrators, 1999), 21.
[11] Ibid, 24.
[12] "ExStars Briefing, February 24, 1999." (Available from http://www.petrolx.com/ExStars.html.)

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"Fuel Tax Cons Rampant"[13]		
IRS district	**Alleged evasion type**	**Amount allegedly evaded**
Albuquerque	Blended transmix w/diesel, gasoline	$99,145(d); $100,026(g)
Atlanta	Used oil reprocessor indicted (Jerry Radney pled guilty OW 2/12; 6/26/95)	$2,500,000(d)
	63 other used oil cases	$1,000,000 +
	Bought fuel from airport at $0.20/gal., sold to T-stops	NA
Birmingham	Blended crankcase oil w/diesel	$2,000(d)
Brooklyn	Russian Mafia blended kerosene w/diesel	$100,000
	Russian Mafia blended kerosene w/diesel	$173,000
Buffalo	Three entities blended kerosene w/diesel	$48,000; $1,6000; $1,4000(d)
Burlington, Vt.	Blended 50% kerosene w/diesel	$2,000(d)
Chicago	Refiner used motor oil to produce diesel, kerosene	$644,406(d)
Greensboro	Blended crankcase oil w/diesel	$40,000
Houston	Refinery sold middle distillate oil as off-spec fuel	$1,586,140(d)
	Blended gasoline blendstocks w/gasoline	$326,800(g)
	Blended used oil w/off-spec diesel between two tanker trucks	NA
Indianapolis	10 entities blended kerosene w/diesel	
Laguna Niguel, Calif.	Blended light cycle oil, transmix, PO-70 w/diesel	$313,421(d)
	Blended transmix, light cycle oil w/diesel	$198,437
	Blended transmix, light cycle oil w/diesel	$139,806
	Blended waste products w/diesel	$1,000,000+
	Blended fuel oil w/diesel	$48,480(d)
Phoenix	Unregistered refiner fractionated transmix into diesel fuel, naptha; naptha blended w/gasoline	$1,000,000 (g/d)
	71 blending cases	$1,600,000
	Small refiner blended 70% taxable diesel w/30% oil	$500,000(d)
San Jose	Refinery produced middle distillate oil, charged excise tax; didn't remit	$15,000,000
	Blended atmospheric gas oil w/diesel	$350,000(d)
	Blended atmospheric gas oil w/diesel	$350,000(d)
Seattle	Bought diesel from boats under repair, blended w/barge strippings, bunker fuel	$50,000(d)
	Cleaned up oil spills, blended w/diesel, kerosene	$50,000(d)
		(d)=diesel; (g)=gasoline

[13] The above table has been reproduced, in-full, from U.S. Oil Week (Bob Gough, "Fuel tax cons rampant," *U.S. Oil Week*, (June 10, 1996): 18.)

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Jet Fuel Use in Highway Vehicles. Unlike the federal taxation of gasoline and diesel fuel, excise tax is generally imposed on non-gasoline aviation fuel ("jet fuel") when sold by registered producers. Jet fuel is essentially the same as kerosene[14] (which is taxed at the diesel rate), but under current law is taxed at either 4.4 cents a gallon, in the case of commercial use, or 21.9 cents for non-commercial use.[15] Exempt removal of undyed jet fuel from the rack creates tax evasion incentives and opportunities that may result in the loss of not only federal and state aviation taxes, but more importantly diesel fuel excise taxes, because so-described "jet fuel" can readily be used in on-road diesel trucks.

While somewhat dated, a 1983 case illustrates jet fuel tax evasion opportunities. On August 17, 1983, the New York State Tax Commissioner issued Tenneco Oil Company a Notice of Determination of Tax Due Under Motor Fuel Tax Law alleging that Tenneco owed tax on jet fuel it sold untaxed to Doug-Long, Inc. An audit of Doug-Long, a registered distributor of diesel motor fuels, had revealed that from September 1981 to February 1983, of the 317,816 gallons of jet fuel Tenneco sold untaxed to Doug-Long, 116,367 gallons were sold at a truck stop operated by Doug-Long, or sold to heating oil jobbers. However, the Notice of Determination against Tenneco was canceled because the court ruled that Tenneco's sale to Doug-Long was not a retail sale, and therefore not subject to the taxes imposed on motor fuel. The court did conclude that tax was due on the sale of jet fuel as motor fuel from a registered motor fuel distributor. The finding did not directly result in the assessment of Doug-Long, and we have been unable to determine whether the state ultimately collected the tax.[16]

In a similar case, after a year-long investigation ending in August 1995, 23 defendants were charged with participating in an evasion scheme that involved purchase and blending of jet fuel with diesel fuel. This blended mixture was sold at service stations and truck stops in Southern California. As of December 15, 1995, six defendants had pleaded guilty.[17]

Jet fuel may leak into the motor fuel distribution system through a combination of the following events.

1. Jet fuel taxed as jet fuel and used as diesel fuel. When tax is paid on jet fuel but the fuel is used as diesel fuel for an on-road use, the Airport and Airway Trust Fund receives the benefit of the 4.3-cents per gallon tax (for fuel sold for commercial use), or the 21.8-cents per gallon tax (for non-commercial use), while the Federal Highway Trust Fund loses the 24.3-cents per gallon on-road diesel fuel tax. The 0.1-cent per gallon LUST Trust Fund is not affected.
2. Jet fuel not taxed and used as diesel fuel. When tax is never paid on jet fuel but it is used as on-road diesel fuel, the Airport and Airway Trust Fund receives no benefit and the Federal Highway Trust Fund and the LUST Trust Fund lose the 24.4-cents per gallon on-road diesel fuel tax.

[14] Jet fuel must meet certain additional specifications, but these do not affect its suitability for highway use.
[15] Jet fuel can be taxed at the 24.4-cents per gallon kerosene rate when removed at the rack, but is not taxed at the rack if certification is provided that it will be used as fuel in an aircraft. Commercial aviation users may register with the IRS and either pay a 4.4-cents per gallon tax when they purchase jet fuel from a producer (the commercial aviation tax rate) or purchase it tax free and self-assess tax when the fuel is used. Commercial aviation users paying the full tax rate are allowed to claim a refund or credit for tax in excess of 4.4 cents when the jet fuel is used.
[16] New York State Tax Commission. "In the Matter of the Petition of Tenneco Oil Company." *New York State Tax Reporter*, (CCH Incorporated: February 18, 1986.)
[17] "3 Plead Guilty to Bilking Government Out of Fuel Taxes," *The Los Angeles Times*, B4.

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3. Diesel fuel is described and sold as exempt jet fuel, but does not meet jet fuel specifications and is used as highway diesel fuel. Here, the Highway Trust Fund loses the 24.3-cents per gallon diesel tax, and the LUST Trust Fund loses 0.1 cents per gallon.

Taxing aviation fuel at the rack would bring it into conformity with federal gasoline and diesel fuel taxes and would remove major tax evasion opportunities. As described above, the diversion of jet fuel for on-road use is only one of a number of fuel tax evasion schemes, but it is one where it may be possible to develop rough estimates of the current revenue drain and the corresponding revenue increases that could result from taxing it at the rack.

Using data from the Energy Information Administration (EIA), the Federal Aviation Administration (FAA), and IRS' SOI Division, we have estimated the national tax gap potentially attributable to jet fuel diverted for highway use. Because these tax gap estimates are based on differences in the fuel volumes reported in several federal data systems, these estimates may be understated or overstated due to sampling error and other inconsistencies and inaccuracies between data collection systems. These estimates assume jet fuel volumes reported by air carriers to the FAA are consistent with those reported to the IRS. To the extent this is not the case, it would contribute to a further revenue shortfall. In addition, we do not attempt to estimate any shifting of fuel to the 4.4-cent commercial tax from the 21.9-cent noncommercial aviation tax. Such transfers would also increase the revenue loss and these effects could be mitigated by taxing jet fuel at the rack.

The first section of Table 2 begins with EIA data on jet fuel supplied for domestic consumption expressed in thousands of barrels per day and removes tax-free military jet fuel production. These net figures are then converted into annual gallons supplied for commercial jet aircraft use.

The second section shows FAA jet fuel consumption data for domestic and international flights of U.S. carriers, which are reported on a fiscal year basis. These data are adjusted in the third section of Table 2 to approximate calendar years. General aviation data are collected in surveys on a calendar year basis and we had to estimate fiscal year effects.

Jet fuel used in commercial international travel is not taxable and must be removed. Domestic jet fuel purchases by foreign flag carriers are not available, but this is largely offset by foreign fuel purchases of U.S. carriers that are included in the data.[18] The difference between EIA data on net jet fuel gallons supplied and FAA data on jet fuel consumed represents a portion of the potential tax gap.

Because EIA measures product supplied as being equal to domestic production plus net imports (imports less exports), less the net increase in primary stocks, there may be small timing differences between when jet fuel leaves the refinery and when it is reported to the FAA as consumed. We understand a small amount of total jet fuel production is used in electric generation to meet air quality requirements and for fueling certain turbine generators. This will reduce the gap between EIA-reported jet fuel production and FAA-reported jet fuel consumption. Some jet fuel consumption reported by commercial carriers to the FAA is reported by refineries to EIA as kerosene or as No. 1 distillate production. This will increase the gap. It is also likely

[18] U.S. carriers report their total fuel consumption to the FAA, but foreign carriers do not. On net, there are slightly more arrivals on U.S. carriers from foreign destinations (using fuel purchased abroad) than U.S. departures on foreign carriers (using fuel purchased domestically). As a result, by subtracting FAA-reported international fuel consumption of U.S. carriers we may overstate domestic use and understate the estimated tax gap. Statistics collected by the Department of Transportation from domestic and foreign air carriers show that for the 1996-1998 period, 5.9 percent more passengers arrived from foreign destinations on U.S. carriers than departed from the U.S. on foreign carriers. See tables I-37 and I-38 in "National Transportation Statistics 2000," Department of Transportation.

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that some jet fuel is lost between the refinery and aircraft fuel tanks, which could result in an overstatement of the tax gap.[19] On net, we do not know whether the potential tax gap is actually somewhat smaller or somewhat larger due to these reporting inconsistencies; however, we believe that any net adjustment would not affect our conclusion that significant volumes of jet fuel are being diverted for on-road use.[20]

[19] For example, if 0.25 percent of the EIA-reported 23,501 million gallons of jet fuel in 1999 were to have been lost before reaching the aircraft tank, the tax gap would be reduced by 59 million gallons, or 2 percent of the estimated 2,901 million gallon gap. If jet fuel were taxed at the rack, it is likely that these losses would be subject to federal excise tax.

[20] The EIA also collects data on jet fuel delivered to ultimate customers using Form EIA-782C. These data, which are collected from approximately 190 prime suppliers representing producers, importers, and inter-State resellers and retailers, show a gap averaging about 2.8 billion gallons per year over the 1995-2000 period and of about 3.3 billion gallons in 2000. Conversations with EIA staff indicate that they are not certain of the reasons for this reporting difference. They suggest that a portion of the gap could be attributable to direct importation of jet fuel by commercial airlines, which are not included in EIA's sample frame. They also cite a May 1996 Boeing Corporation paper indicating that part of the gap between jet fuel supplied by refineries and through imports and jet fuel consumption implied by annual seat miles (ASM) reported to the FAA exhibits a seasonal pattern. The Boeing paper reports that EIA-based demand is "the highest from the late fall through the middle of the winter, while the ASMs show that it should be the highest during the summer." See "Jet Fuel Data Status & Importance," Momenthy, A.M., Boeing Commercial Airplane Group, IATA Fuel Trade Forum, Johannesburg, May 1996, p. .3. Because much of the data used in the Boeing report reflects years before the dyeing regulations took effect, the extent of any jet fuel diversion into use as heating fuel, as implied by the report, is uncertain. EIA staff have not considered any issues associated with the potential diversion of jet fuel for on-road use.

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Table 2

JET FUEL TAX GAP

	1995	1996	1997	1998	1999	2000
Energy Information Administration						
Jet fuel supplied (mb/d)	1,514	1,578	1,599	1,622	1,673	1,725
Less military jet fuel produced (mb/d)	176	168	144	142	140	151
Net commercial domestic supply (mb/d)	1,338	1,410	1,455	1,480	1,533	1,574
Domestic supply (mil. gal./year) [a]	20,512	21,675	22,305	22,688	23,501	24,196
Federal Aviation Administration (mil. gal./year)[21]						
Fiscal years						
Domestic carriers	12,652	13,022	13,429	13,754	14,243	14,742
International use	4,417	4,557	4,818	5,128	5,186	5,433
Total US carriers	17,069	17,579	18,247	18,882	19,429	20,175
General aviation	538	596	634	772	929	1,035
Total jet fuel	17,607	18,175	18,881	19,654	20,358	21,210
FAA data to reflect CY (using 75/25 allocation)						
Domestic carriers	12,812	13,187	13,660	13,877	14,402	14,824
International use	4,511	4,658	4,964	5,186	5,250	5,463
Adjustment for unreported foreign carrier use	0.8459	0.9100	0.9491	0.9620	0.9411	0.9411
Net international use	3,816	4,239	4,711	4,989	4,941	5,141
Total US carriers	16,628	17,426	18,371	18,866	19,344	19,966
General aviation	560	608	642	815	967	1,035
Total jet fuel	17,188	18,034	19,013	19,681	20,311	21,001
Estimated Tax Gap						
EIA gallons less FAA gallons	3,323	3,640	3,292	3,008	3,190	3,195
Percent gallons missing (gap/EIA)	16.2%	16.8%	14.8%	13.3%	13.6%	13.2%

[a] Thousands of barrels per day are converted to million of gallons per year using 42 gallons per barrel and 365 days per year, except in 1996 and 2000 when then are 366 days per year.

Over the 6-year period from 1995 through 2000, this gap averaged 14.6 percent of domestic supply. By growing the 2000 gap of approximately 3.2 billion gallons with the growth in real GDP as projected by the Congressional Budget Office, and by assuming an October 1, 2001 effective date for shifting the point of taxation to the rack, we can make a projection of the potential shortfall in Federal Highway Trust Fund and LUST Trust Fund deposits. The potential shortfall in Federal Highway Trust Fund deposits for the FY 2002 to FY 2011 period is $9.2 billion and the LUST Trust Fund deposit shortfall is $38 million. It is not necessarily the case that 100 percent of this shortfall could be recovered by taxing jet fuel at the rack.

Table 3 illustrates revenue loss projections assuming that diesel fuel taxes are being evaded at 24.4 cents per gallon. It is possible that only a 4.4-cent commercial aviation tax is being evaded. If that were to be the case, the net 10-year revenue shortfall would be reduced from $9.2 billion to

[21] Table 22. "FAA Aerospace Forecasts Fiscal Years 2001 – 2012," Federal Aviation Administration, FAA Plans and Policy, March 2001. http://api.hq.faa.gov/foreca01/Tabofcont.htm.

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$1.7 billion. Similarly, to the extent the 21.9-cent per gallon noncommercial aviation tax is being evaded, the net revenue shortfall would be $8.3 billion.

Table 3

Potential Revenue Loss Resulting from Jet Fuel Diverted for On-Road Use[22]

(Dollars in millions)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
CBO real GDP growth			1.7%	2.6%	3.3%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	
Jet fuel diverted (mil. gal.)	3,190	3,195	3,249	3,334	3,444	3,554	3,668	3,785	3,906	4,031	4,160	4,293	4,431	
Loss to Highway Trust Fund ($0.243/gal.)	775	776	790	810	837	864	891	920	949	980	1,011	1,043	1,077	
Loss to LUST Trust Fund ($0.001/gal.)	3	3	3	3	3	4	4	4	4	4	4	4	4	
Fiscal year effects														
Highway Trust Fund				641	831	858	886	914	943	973	1,004	1,037	1,070	9,157
LUST Trust Fund				3	3	4	4	4	4	4	4	4	4	38
Total				644	835	862	889	918	947	977	1,009	1,041	1,074	9,195

Florida recently moved the point of taxation for aviation fuel to the terminal rack, along with other changes. In 1997, one year after Florida started taxing gasoline, diesel, and aviation fuel at the rack, the State's Department of Revenue analyzed excise tax collection data and found that the state experienced the largest gain in tax collections for aviation fuel. While no published analysis has directly linked the increase in tax collections with the change in treatment of aviation fuel, over the one-year period beginning July 1, 1996, when aviation fuel was first taxed at the rack, aviation fuel tax collections increased by 21.4 percent.[23]

This dramatic increase could be attributed to a number of factors. There could be a decrease in illegal blending with diesel fuel. It may also be that moving the tax collection point upstream decreases the potential for evasion simply because fewer and larger businesses are responsible for remitting tax to the government. Another portion of the dramatic increase in Florida could be due to kerosene being reported as aviation fuel in Florida. It could also be that previously unreported on-road fuel use is now being reported as taxable at the lesser aviation fuel tax rate, and is still used on the road.

[22] Estimates of diesel tax lost is the amount that would go to the trust funds if the entire gap between EIA reported volumes and FAA reported volumes is currently being diverted for on-road use. This loss could be significantly reduced by moving the collection point to the rack. The calculations assume this change would be effective on October 1, 2001. These estimates are before any offsets for income and payroll taxes used in computing net federal revenue effects. In making these estimates we assume these taxes will be extended at current rates, which is consistent with congressional score-keeping requirements. Under current law, the LUST Trust Fund financing rate goes to zero after March 31, 2005 and the diesel tax rate goes to 4.3 cents after September 30, 2005.

[23] State DOR analysts adjusted the data to remove the effect of tax rate changes and other features of the legislation that were unrelated to shifting the point of taxation. Florida defines aviation fuel as "...fuel used in aircraft, and includes aviation gasoline and aviation turbine fuels and kerosene." (*The 2000 Florida* Statutes, Title XIV, 206.9815.)

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While the 21.4 percent gap experienced by Florida is significantly more than the 14.6 percent gap observed in the national data, other factors may have contributed to Florida's aviation fuel uplift, and not just the capture of aviation fuel previously diverted for on-road use. Nevertheless, the Florida experience indicates that large percentage fuels tax increases are possible.

Jet Fuel Use in Nonhighway Vehicles. Another opportunity for jet fuel-source highway tax evasion is via off-road use refunds.[24] While jet fuel can be taxed at the 24.4 cents a gallon diesel/kerosene highway tax rate when removed at the rack, it will not be taxed at the rack if certification is provided that it will be used as fuel in an aircraft. Clear jet fuel may be removed tax-free from the rack and certified for use in an aircraft, but resold through one or more below the rack brokers in a daisy-chain like scheme to honest ultimate vendors and described on resale documentation as clear, tax-paid diesel fuel. Ultimate vendors or off-road purchasers may subsequently file refund claims resulting in a federal revenue loss of up to 24.4 cents per gallon and comparable state losses without knowing that federal and state highway tax had never been paid thereon in the first place. Because ultimate vendors and off-road users may not be aware that what they believe is clear, tax-paid diesel fuel is actually untaxed jet fuel, and the ultimate vendor and end user invoices will describe the product as tax-paid diesel fuel. It would be very difficult for IRS to identify the abuse. This simple process may also be used simultaneously by unscrupulous intermediary resellers to avoid EPA prohibitions on distribution of high sulfur fuel for highway use. Jet fuel ASTM specifications for jet fuel sulfur content can be as high as 3,000 PPM - six times the sulfur level allowed by EPA for highway use. The use of comparatively lower viscosity jet fuel can result in damage to highway user vehicles' engines if too high a percentage of the jet fuel is used continuously in lieu of #2 diesel in a hot weather environment.

Conclusion

Motor fuels excise tax evasion is an ongoing problem requiring continual monitoring. As each new opportunity for abuse arises, revenue losses will be reduced if evasion is addressed through ongoing legislation, regulation, or increased enforcement activity. Based on our analysis, it appears that the diversion of jet fuel for highway use could be the cause of a significant, ongoing revenue shortfall.

Florida began taxing aviation fuels at the rack on July 1, 1996, along with other changes. During the first year under the new system, Florida experienced a 21.4-percent increase in aviation fuels taxes. While it might be necessary to fine-tune Florida's approach if implemented at the national level to avoid any unintended consequences that could harm cash flows and affect compliance costs of commercial airlines and business aircraft users, such a policy has the potential to mitigate revenue losses and simplify fuel tax administration. In addition, while evidence suggests that taxing jet fuel at the rack could eliminate much of the ongoing federal revenue drain, the kinds of policy actions required to reduce or eliminate other forms of evasion are less clear.

While the experience of Florida may or may not be representative of the revenue increase that would result from moving the point of jet fuel taxation to the rack, national statistics from the EIA and the FAA strongly suggest the existence of a large revenue drain today.

[24] Because we have no data on off-road vehicle use of jet fuel, the resulting revenue shortfall is not separated from the previously discussed evasion figures for on-road vehicle use of jet fuel.

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In addition to reducing tax evasion resulting from jet fuel diversion, opportunities exist to increase tax revenues by addressing other schemes for evading federal and state excise tax collections.

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Appendix I: Review of Evasion Literature

Public and private organizations have attempted to determine the extent of motor fuel excise tax evasion over the years. Indeed, the fuel tax evasion literature is extensive and this overview is not intended to capture all the work that has been done. While most estimates were prepared before federal regulations governing the current tax system were finalized, many of the tax evasion techniques described continue to be used.

National Economic Research Associates, Inc., February 1985

In 1985, the New York State Petroleum Council asked National Economic Research Associates, Inc. (NERA) to estimate the extent of gasoline excise tax evasion in the State of New York. In October 1992, New York moved the point of gasoline excise tax collection from the retailer to the distributor, but this move greatly increased the incentive to evade tax collection. NERA estimated gasoline excise tax evasion by comparing gasoline consumption to reported sales. NERA's first method extrapolated U.S. gasoline sales growth from 1982 to 1984 to New York. Their second method compared New York gasoline consumption with New York Department of Transportation traffic information and gasoline prices. Using the first method, NERA estimated that unreported gasoline sales were equal to 11.7 percent of reported sales in 1984, and 18.0 percent of reported sales in 1985. Using the second method, NERA estimated that unreported gasoline sales were equal to 14.5 percent of reported sales in 1984, and 20.9 percent of reported sales in 1985.[25]

National Economic Research Associates, Inc., January 1987

In 1987, another NERA study reported that federal gasoline tax evasion increased dramatically after 1983, and that evasion from 1984 to 1986 was approximately $500 million per year. NERA arrived at this evasion figure using two separate estimating methodologies. The first compared national consumption estimates to volumes upon which tax was collected to measure the tax gap. Using this method, NERA found little evasion from 1979 to 1982, but that evasion increased dramatically following the 1983 gasoline tax rate increase.[26]

> *The average difference between consumption and volume taxed over 1979-1982 was about 1.8 billion gallons (which could be attributable partly to exemptions), but the average annualized difference over 1984-1986 was in excess of 7.1 billion gallons. Thus the gap between (annual) consumption and taxed gallonage rose by over 5.3 billion gallons after the rate increase, strongly suggesting a sharp rise in evasion.*[27]

NERA'S second methodology regressed figures of taxed gasoline gallons on two consumption series (Energy Information Administration and the Federal Highway Administration) and compared these data to data on taxed gasoline gallons to measure the tax gap. Using both

[25] Dunbar, Frederick C. *Gasoline Tax Evasion in New York: Statewide Estimates*. (Washington, DC: National Economic Research Associates, Inc., February 25, 1985.)
[26] Addanki, Sumanth, Yuval Cohen, and Frederick C. Dunbar. *Gasoline Tax Evasion*. (Washington, DC: National Economic Research Associates, Inc., January 21, 1987), 2.
[27] Ibid, 5.

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methodologies, NERA estimated that approximately $500 million of gasoline tax revenue was evaded annually.

NERA also evaluated previous state gasoline tax law changes to determine whether moving the incidence of taxation affected state revenue collections. NERA reported that when New York State moved the incident of taxation from the wholesaler to the point of importation, taxable gallonage increased 18 percent above the 1.6 percent nationwide average increase for the same period (1995 and 1996.)[28]

The Joint Federal/State Motor Fuel Tax Compliance Project, 1992

This comprehensive 1992 report discussed motor fuel tax evasion problems, and concluded, based upon prior studies, congressional testimony, and investigations, that "…the current level of gasoline tax evasion is between 3 and 7 percent of gallons consumed, and that the level of diesel fuel tax evasion is between 15 and 25 percent of gallons consumed."[29] This study was the first comprehensive discussion of the issues surrounding fuel excise tax evasion.

General Accounting Office, 1996

In *Diesel Fuel Excise Tax Change*, the GAO reported that diesel tax collections increased by $1.2 billion, following the Omnibus Budget Reconciliation Act of 1993 change that moved the diesel tax collection point to the terminal.

> *IRS' preliminary data indicate that diesel excise tax collections increased about $1.2 billion, or 22.5 percent, in calendar year 1994 as compared with 1993. This increase does not include additional revenues due to the OBRA 1993 increase of 4.3 cents per gallon in the tax rate. After adjusting for increased refund and credit amounts, and for a portion of the increase that may be due to economic growth, the Treasury Department estimated that an increase of $600 million to $700 million was solely the result of increased compliance.*[30]

This represented an increase of diesel fuel excise tax collections of 17.5 to 20.4 percent.[31]

[28] Ibid, 15.
[29] Federal Highway Administration, Department of Transportation. *Fuel Tax Evasion: The Joint Federal/State Motor Fuel Tax Compliance Project.* Report No. FHWA-PL-92-028 (Washington, DC: The Federal Highway Administration, June 1992), 18.
[30] General Accounting Office. *Diesel Fuel Excise Tax Change.* GAO/GGD-96-53. (Washington, DC: U.S. General Accounting Office, 1996), 4.
[31] Using FY 1993 and numbers from the Federal Highway Administration, Table FE-210, we calculated the evasion loss range as a percentage of FY 1993 excise tax collections.

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Council on State Governments and the Council of Governors' Policy Advisors, 1996

In addition to reviewing the literature on previous attempts to quantify fuel excise tax evasion, *Road Fund Tax Evasion: A State Perspective* estimated the loss of motor fuels taxes using two methods. First, the authors created three surveys to measure the perception of evasion and the magnitude of the problem, and to collect information on strategies states are discussing and implementing.

> *Principal revenue administrators estimated that the revenue from motor fuels taxes (gasoline and diesel fuels) would be increased by 6.53 percent, on average. The state-by-state percentage revenue gain as provided in the survey was multiplied by the motor fuel taxes currently collected, to derive the $1.2 billion estimate provided...*[32]

Unfortunately, supporting information in the report is limited in that it does not separate the evasion estimate into the gasoline and diesel components or the state-by-state components.

The authors' second method developed a statistical model comparing the estimated demand for motor fuels to excise tax revenue collections. The step-wise regression model estimated demand for each state using three equations with the following inputs: gallons of fuel per resident; gallons of fuel per driver; and gallons of fuel per vehicle. This approach yielded a revenue loss of $952 million.[33] The study did not provide the state-by-state estimates, the gasoline and diesel components of the revenue loss, or the percent of evasion that $952 million represents (on an U.S. aggregate or a state-by-state basis).

To check their two estimates, the authors used estimated fuel evasion percentages from prior studies:

- The Federal/State Motor Fuel Tax Compliance Project – 3 to 7 percent of all fuel taxes; 15 to 25 percent of diesel taxes.
- Congressional Testimony -- $1.1 billion lost to the Federal Highway Trust Fund.
- Virginia Study – New York equals 18 to 40 percent; California equals 1.3 to 2.2 percent; Virginia equals less than 10 percent.

This method resulting in a fuel excise tax evasion loss of approximately 7.8 percent of collections ($1.5 billion).[34,35] However, the authors do not indicate how they derived their $1.5 billion figure or the gasoline and diesel shares.

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[32] Council of State Governments and the Council of Governors' Policy Advisors. *Road Fund Tax Evasion: A State Perspective.* (Lexington, KY : Council of State Governments & Council of Governors' Policy Advisors, 1996), 55.

[33] The report did not state the percent of excise tax collections that $952 million represents, but using the relationship between the revenue loss and percentages of the first method described, this estimate would equal approximately 4.9 percent of excise tax collections.

[34] Council of State Governments and the Council of Governors' Policy Advisors. *Road Fund Tax Evasion: A State Perspective.* (Lexington, KY : Council of State Governments & Council of Governors' Policy Advisors, 1996), 55-56.

[35] The report did not state the percent of excise tax collections that $1.5 billion represents, but using the relationship between the revenue loss and percentages of the first method described, this estimate would equal approximately 7.8 percent of excise tax collections.

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Steve Baluch, Federal Highway Administration, 1996

Stephen Baluch's 1996 study describes how the effectiveness of enforcement activities can be measured. For example, taxes assessed upon audit and the examination of returns, or the losses associated with criminal investigations can provide quantifiable data on evasion activities. For example, after Pennsylvania conducted a series of truck stop raids beginning in 1992, officials observed that taxable gallons increased by 4.2 percent in the first year.[36] In addition, the impacts of legislative changes can be observed, although it is difficult to separate the types of legislative changes.[37] Baluch stated that although federal statutory changes in the last 15 years have decreased the evasion levels, the potential for large revenue losses still exists.

> *Since enactment of the dyed fuel program, at least 60 percent of the estimated evasion losses are now being recovered, an extremely favorable result considering that the FHWA fuel dye and marking report to Congress concluded that recovering 50 percent of the estimated losses would be optimistic. And yet, even if diesel fuel tax evasion has been reduced from a range of 15 to 25 percent of the taxable product to a range of 3 to 7 percent, that still represents several hundred million dollars of revenue yet to be recovered. And with a comparable range for gasoline, where evasion may actually be increasing again because of the greater difficulty of evading diesel fuel taxes, the total federal evasion losses may still amount to nearly $1 billion, which leaves a substantial potential revenue target for future compliance efforts, although the relative cost and effort to recover it would likely increase.*[38]

Raven, Ronald E., Ph.D., Federation of Tax Administrators, 1999

Ronald Raven's work is a comprehensive compilation of the events surrounding the changes in the taxation of motor fuels. He chronicles attempts by state and federal officials to address motor fuel tax evasion, as well as various schemes used by evaders. Raven reviews prior motor fuel evasion literature, and describes a number of court cases and investigations of the more notorious fuel tax evaders. This detail illustrates the magnitude of the evasion problem, as well as the necessity for governments to attack the creativity of the fuel tax evaders. His analysis focuses on the actions of Congress, the states, the Department of Justice, the Internal Revenue Service, and the Federation of Tax Administrators, as well as private parties, to combat the evasion of motor fuel excise taxes. After describing tax systems developed by federal and state governments to date, Raven describes an excise tax collection model that would meet the requirements of the main actors. This model, the *Federal "Sponge" Model*, would establish a uniform tax rate at the federal level that would apply to all states and Native American reservations and would be allocated to states in the same manner as the International Fuel Tax Agreement (IFTA). State governments would collect taxes and conduct audits, while the federal government would gather information and provide refunds.

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[36] Baluch, Stephen J. "Revenue Enhancement Through Increased Motor Fuel Tax Enforcement." Washington, DC: Federal Highway Administration, Department of Transportation, 1996, 71.
[37] Ibid.
[38] Ibid, 72.

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Appendix II: Post-1986 Gasoline and Diesel Excise Tax Legislative Changes[39]

Major Motor Fuels Excise Tax Legislative Changes Since 1986	
Gasoline	
1987	Effective January 1, 1987, the tax rate increased by 0.1 cent per gallon [to 9.1 cents per gallon.] [Enactment of the LUST tax.]
1988	The Tax Reform Act of 1986 moved the taxing point upstream from the wholesale level to the terminal or refinery level. This was intended to reduce the tax administration burdens on fuels outlets and IRS tax collection and enforcement costs. [Effective January 1, 1988]
1989	The Technical and Miscellaneous Revenue Act of 1988 permitted wholesale distributors to sell gasoline on a tax-exempt basis and to claim the refunds for sales for (1) export, (2) use by state and local government, (3) use in [foreign trade in] aircraft or vessels, or (4) certain nonprofit educational organizations. This provision was intended to lessen administrative burdens of excise tax refund procedures for exempt users.
1990	Effective September 1, 1990, the tax rate decreased by 0.1 cent per gallon [to 9.0 cents per gallon.] [Expiration of the LUST tax.]
1990	The Revenue Reconciliation Act of 1990 raised taxes by 5.1 cents per gallon [to 14.1 cents per gallon] to raise revenue for the Highway Trust Fund and for deficit reduction. [Effective December 1, 1990]. [LUST tax was not in effect from September 1, 1990 to December 1, 1990]
1991	The Revenue Reconciliation Act of 1990 imposed tax upon (1) removal from any refinery or terminal, (2) entry into the United States, or (3) sale to any unregistered person (unless there has been a prior taxable removal or entry), whether or not taxes have been previously paid. Removals or entries are not taxed for bulk transfers to terminals. A refund (without interest) may be obtained if a taxpayer establishes that the gasoline was previously taxed. This was intended to discourage selling of tax-paid gasoline within a terminal and to collect excise tax on all fuel when is dispensed over the terminal rack. [Effective July 1, 1991.]
1992	No legislative changes took effect.
1993	Effective October 1, 1993, the tax rate increased by 4.3 cents per gallon [to 18.4 cents per gallon].
1994-5	No legislative changes took effect.
1996	Effective January 1, 1996, the tax rate decreased by 0.1 cents per gallon [to 18.3 cents per gallon]. [Expiration of the LUST tax.]
1997	Effective October 1, 1997, the tax rate increased by 0.1 cents per gallon [to 18.4 cents per gallon]. [Reinstitution of the LUST tax].
1998-2000	No legislative changes took effect.

[39] Legislative changes (except for bracketed text) from 1987 to 1991 are reproduced from "Table IV.1: Major Motor Fuels Excise Tax Legislative Changes Since 1986," General Accounting Office. *Status of Efforts to Curb Motor Fuel Tax Evasion.* GAO/GGD-92-67. (Washington, DC: U.S. General Accounting Office, 1992), 26.

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STATEMENT OF MR. JAMES DUIT, PRESIDENT, DUIT CONSTRUCTION COMPANY

Mr. Chairman and members of the subcommittee, on behalf of the American Road and Transportation Builders Association I would like to thank you for inviting us to be here this afternoon to discuss highway funding issues, particularly the impact of the unprecedented $8.6 billion cut in Federal highway investment that is on the table for fiscal year 2003 and what can be done to prevent a recurrence in the future.

I am James Duit, President of Duit Construction Company, a highway construction firm based in Edmond, Oklahoma. I am here representing ARTBA, which on Wednesday will mark its 100th anniversary representing the transportation construction industry here in Washington. ARTBA's more than5,000members come from all sectors of our industry both public and private. Our industry generated $200 billionannually in U.S. economic activity and sustains the employment of more than 2.2 million Americans.

My company was founded in 1969 and now provides good jobs for 300 permanent employees. Duit Construction specializes in paving, aggregates and quarries. I am a member of the Transportation Research Board's pavement research committee.

It was also my privilege to serve last year as chairman of the American Concrete Pavement Association.

I am accompanied by Dr. William Buechner, ARTBA's Vice President for Economics and Research, who will be available to respond to any technical questions you may have. Dr. Buechner is a Harvard-trained economist who spent more than two decades as an economist for the Joint Economic Committee of the U.S. Congress.

REASON FOR NEGATIVE RABA FOR FISCAL YEAR 2003

The reason for the proposed $8.6 billion cut in the Federal highway program in fiscal year 2003 is well known. Since fiscal year 2000, the "revenue-aligned budget authority" or RABA provision of TEA–21 (Transportation Equity Act for the 21st Century) adjusts the annual firewall guarantee for highways if revenues into the Highway Account of the Highway Trust Fund are above or below the initial TEA–21 baseline revenue estimate. For fiscal year 2003, the RABA adjustment was determined to be negative $4.369 billion-the first negative RABA adjustment ever.

Subtracting the negative $4.4 billion from the original TEA–21 highway guarantee of $27.7 billion gives the $23.2 billion Federal highway investment proposed in the President's budget for fiscal year 2003.

This is $8.6 billion less than the $31.8 billion enacted for Federal highway investment during the current fiscal year.

Senator, we greatly appreciate your leadership in addressing this issue by introducing legislation to provide fiscal year 2003 funding of at least $27.7 billion, the original TEA–21 guarantee. We believe this is an excellent start and look forward to working with you to restore the highway funding this year.

Before I discuss the consequences of an $8.6 billion cut in Federal highway investment, I want to point out that the negative RABA was not the result of a reduction in gas tax revenues into the Highway Trust Fund. It is easy to misunderstand what happened, and the assertion that the proposed cut in highway funding was due to declining gas tax revenues has appeared in a number of newspaper articles. But it is not an accurate statement.

According to data provided to ARTBA by the U.S. Department of the Treasury, motor fuel excise taxes collected by the Treasury during fiscal year 2001-the "look-back" year for the fiscal year 2003 RABA computation-were just about even with the amount collected during fiscal year 2000. There was a small decline in total revenues but virtually all of it was due to a reduction in excise taxes paid by heavy trucks.

The overriding reason for negative RABA is that Treasury made a forecasting error in computing the fiscal year 2001 RABA adjustment and another forecasting error in crediting revenues to the Highway Account in fiscal year 2000. Treasury corrected both of those errors when computing the fiscal year 2003 RABA adjustment. These were technical corrections to past forecasting errors, caused to some extent by the recession, but they account for almost $3 billion of the negative RABA adjustment that concerns us today.

In addition, we believe Treasury has underestimated projected incoming Highway Account revenues for fiscal year 2003. This underestimate, we believe, added another $900 million to the negative RABA. The fiscal year 2003 revenue projection does not appear consistent with the administration's overall economic assumptions and does not appear to take into account historical data showing that highway travel and truck excise tax receipts recover sharply after a recession ends.

The Treasury gas tax data and an explanation of how the fiscal year 2003 RABA adjustment was computed are attached to my prepared statement and I ask that they be included in the record.

CONSEQUENCES OF PROPOSED $8.6 BILLION CUT IN HIGHWAY FUNDING

Now I want to discuss the consequences of a $8.6 billion cut in Federal highway investment.

Job Loss. An $8.6 billion cut in Federal highway investment in fiscal year 2003 would reduce employment in America by more than 360,000 jobs over the next 7 years, with roughly 70 percent of the job loss occurring in 2003 and the election year 2004. This works out to more than 825 jobs per congressional district. A State-by-State breakdown of the job loss is included as an attachment to my testimony. If highway investment in fiscal year 2003 is provided at the TEA–21 baseline level of $27.7 billion (a $5 billion increase from the proposed RABA-adjusted level), the job loss would still be almost 170,000. Neither figure is acceptable at a time when the economy is struggling to emerge from recession. Much of the job loss will affect minorities, especially Hispanic workers who make up almost a third of the transportation construction work force. A legislative solution that would restore only $5 billion would concede that jobs will be lost.

TEA–21 Reauthorization Baseline. The fiscal year 2003 obligation limitation will be the major determinant of the baseline funding levels for the fiscal years covered by TEA–21 reauthorization legislation. As the attached chart shows, the $8.6 billion cut would lower future baseline highway funding by more than $10 billion each year from the levels included in the fiscal year 2002 budget submitted just a year ago.

Starting from this baseline will make it much more difficult for Congress to increase Federal highway investment after TEA–21 expires. Providing $27.7 billion for fiscal year 2003 would eliminate about half the shortfall, but restoring the full $8.6 billion is the only way to provide a realistic baseline for reauthorization.

Cancellation of Highway Improvements. Based on reports from State DOTs, a number of States have already started to terminate or postpone projects on the basis of the expected cut in fiscal year 2003 Federal highway funding. The chaos caused by the proposed cut in Federal highway funding will continue until Federal funding for fiscal year 2003 has been resolved. This needs to be addressed quickly to allow State construction programs to proceed unimpeded for the 2002 construction season.

Cannibalization of State Highway Budgets. The States rely on Federal highway funds to finance, on average, almost half of their highway capital improvement programs. A cut in Federal highway funds in fiscal year 2003 would exacerbate their budget problems and likely force many to cannibalize their own highway improvement programs to complete construction on Federal-aid projects.

HOW THE $8.6 BILLION COULD BE FINANCED

Highway funding for fiscal year 2003 could be maintained at the fiscal year 2002 level of $31.8 billion-and we believe should be-by utilizing the existing balance in the Highway Trust Fund's Highway Account. According to the Treasury Department that balance stands today at about $20.5 billion.

This balance is not needed to reimburse States for already committed projects and programs. Approximately $7 billion of the balance is a cash surplus that occurred because TEA–21 did not require the RABA adjustment until fiscal year 2000. More highway user fee revenues came into the trust fund in fiscal year 1998 and fiscal year 1999 than were spent.

An additional $14 billion or so in the balance is to cover the unobligated contract authority that TEA–21 has provided to the States to date above the guaranteed firewall (You'll recall that TEA–21 authorized $177 billion for highway investment, but only guaranteed $162 billion under the budget firewall).

That contract authority is worthless to the States unless this money is appropriated from the trust fund. Otherwise, they cannot commit it to projects.

It is time to free these surplus funds to save American jobs.

PURPOSE OF THE RABA MECHANISM

I would now like to turn to the second issue being addressed today-how to improve the RABA mechanism.

Let me begin by pointing out that our overriding concern with Federal highway funding is not only that it be adequate to meeting our nation's transportation needs but also that it be predictable and reliable.

Highway and bridge investments often take a long time to plan and construct. To schedule projects efficiently, State Departments of Transportation need stable fund-

ing sources and predictable revenues. That is why the Federal highway program has a 6-year, rather than annual, authorization cycle.

The RABA adjustment process was not expected by the Congress, the States or the industry to inject the kind of instability in Federal highway funding that we are currently facing.

The purpose of RABA was to help implement the TEA–21 goal of using all revenues into the Highway Trust Fund for their intended purpose-investment in transportation improvements-in a timely manner.

To accomplish this, TEA–21 set up a two-part process to determine the annual funding for the Federal highway program.

First are the firewall amounts guaranteed in TEA–21, which from fiscal year 2000 on were directly linked to Highway Account revenues collected during the previous fiscal year. These guaranteed amounts were based on revenue projections made at the time TEA–21 was enacted in June 1998.

The second is the RABA adjustment, which automatically increases or decreases the firewall guarantee whenever actual revenues into the Highway Account exceed or fall short of the TEA–21 baseline estimates.

Attached to my testimony is a detailed explanation of how the fiscal year 2003 RABA adjustment was computed.

The major problem with the computation process appears to be in the "look forward" forecasting provision. Although annual highway funding under TEA–21 is supposed to be tied to previous-year revenues, part of the RABA calculation requires making a forecast of Highway Account revenues during the budget year itself and comparing that forecast to the initial TEA–21 baseline.

This "look forward" forecast has proven to be a major source of instability in the RABA computation because the projections have been off each year, as forecasts always are. For example, Treasury overestimated fiscal year 2001 Highway Account revenues by $1.8 billion when computing the fiscal year 2001 RABA adjustment and corrected its mistake in the fiscal year 2003 RABA adjustment.

This problem must be corrected when TEA–21 is reauthorized.

POSSIBLE RABA IMPROVEMENTS

There are a number of ways this could be done. One is to eliminate the "look forward" forecast part of the RABA formula. Basing RABA solely on the "look back" part of the formula might yield smaller RABA adjustments, but provide more predictability and stability to Federal highway investment.

Another option might be to establish a reserve that would automatically be drawn down whenever RABA is negative. In fact, such a reserve exists today in the Highway Trust Fund as I have previously explained.

I would like to suggest a third, more fundamental, reform that would change the nature of the RABA mechanism in the TEA–21 reauthorization legislation.

Under ISTEA and previous authorizations, the annual level of highway funding was budget-driven. Highway funding was determined by the overall budget cap and the level of the deficit, regardless of the amount of user fees paid into the Highway Trust Fund. As a result, the balance in the Highway Trust Fund kept growing, breaking trust with highway users who thought all their gas taxes were being invested in highway improvements.

TEA–21 addressed this problem by making highway funding revenue-driven, by linking each year's funding to the previous year's revenues. RABA helped accomplish this but, as we have seen, introduced the potential for unanticipated instability into Federal highway investment.

For reauthorization, ARTBA urges that Congress go the next step and make annual highway funding performance-driven. While TEA–21 has succeeded in increasing highway investment, the level at present is barely sufficient to maintain the physical condition of the nation's highways and bridges.

Under current funding, however, system performance-particularly congestion—is getting worse. In our TEA–21 reauthorization report, which has been supplied for the hearing record, ARTBA recommends that Federal highway investment from fiscal year 2004 through fiscal year 2009 be set at a level that maintains not only the physical condition of highways and bridges, but mobility conditions as well.

Based on data from the latest Conditions and Performance report submitted to Congress just over a year ago by the U.S. Department of Transportation, this goal would require an average annual Federal highway investment of $50 billion during the next 6 years, rising from $48 billion in fiscal year 2004 to $54 billion in fiscal year 2009.

Funding this investment could be achieved by modifying the RABA provision. The modification would require setting guaranteed annual funding levels, as rec-

ommended in the ARTBA reauthorization report, computing the resulting outlays from the Highway Trust Fund, which OMB and CBO already do, and automatically setting highway user fees at the beginning for each fiscal year to raise the required revenues.

This is exactly what the U.S. Postal Service does. It determines the cost of delivering the mail and sets postal rates at the level necessary to cover its costs. If the postal service followed the highway model, it would instead set postal rates at some arbitrary level and then deliver whatever mail its budget would cpermit.

BUDGET RELATED REAUTHORIZATION ISSUES

Before ending, I want to briefly mention some additional budget-related issues for TEA–21 reauthorization.

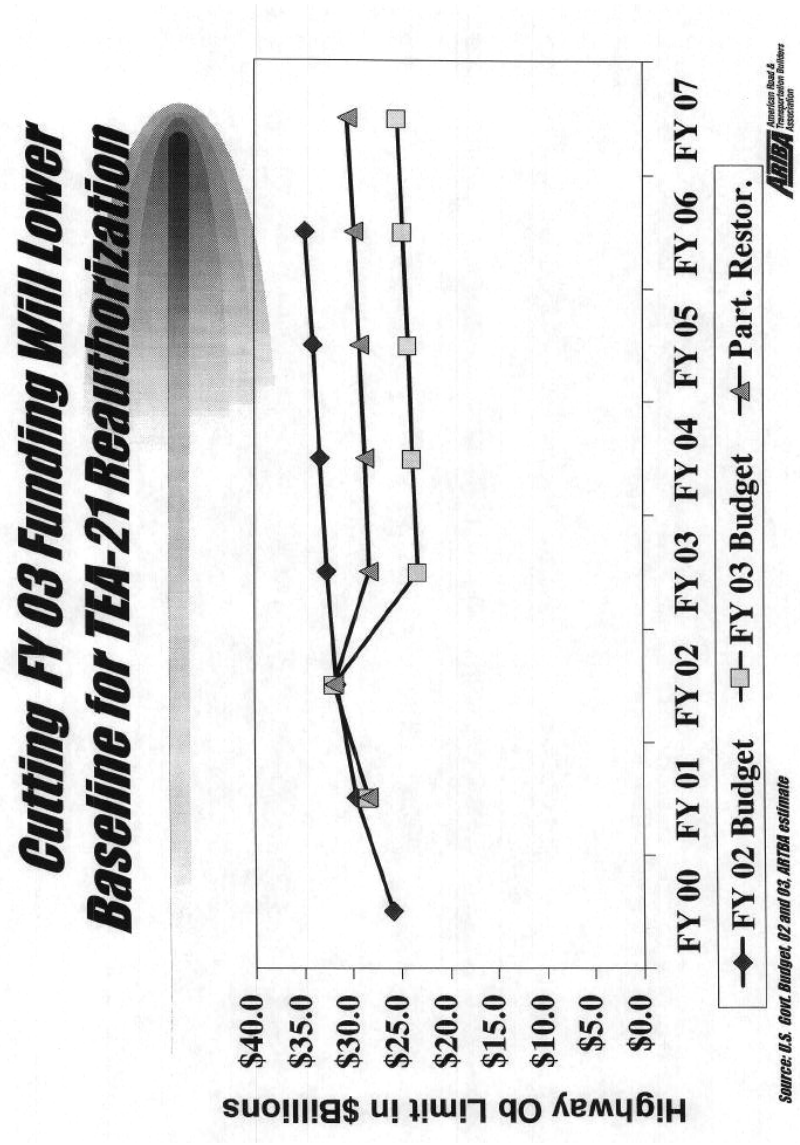
First, and most important, preserve the budget firewalls that apply to the highway and mass transit categories and the guaranteed obligation limitation for highways.

These two TEA–21 innovations have been instrumental in moving toward the goal of using all Highway Trust Fund revenues for surface transportation investment in a timely manner. The budget firewalls have removed the incentive to cut funding for the highway and transit programs, because the "savings" of doing so cannot be diverted to other uses. The guaranteed funding has, at least until fiscal year 2003, provided predictability to Federal funding for State DOT planning.

Second, we suggest enactment of a maintenance-of-effort requirement for the States. An increase in Federal highway funding creates a temptation for State legislatures to divert State-derived highway funds to other uses. A maintenance-of-effort requirement to receive Federal highway funds would eliminate that temptation.

Third, we recommend a significant increase in funding for the mass transit program and, in conjunction with that, elimination or a cap on the ability of State DOTs to transfer highway program funds to transit. Each year, more than $1 billion of Federal highway funds are diverted by the States to transit operating and capital expenses, as permitted under the Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) programs. This is in addition to the funding made available through the Federal mass transit program. Adequate funding for the mass transit program should go hand in hand with dedicating highway program funds solely to highway improvements.

Mr. Chairman, again I want to thank you very much for inviting me to testify on behalf of the American Road and Transportation Builders Association.


Cutting FY 03 Funding Will Lower Baseline for TEA-21 Reauthorization
Highway Ob Limit in $Billions
$40.0
$35.0
$30.0
$25.0
$20.0
$15.0
$10.0
$5.0
$0.0
FY 00 FY 01 FY 02 FY 03 FY 04 FY 05 FY 06 FY 07
FY 02 Budget
FY 03 Budget
Part. Restor.
Source: U.S. Govt. Budget, 02 and 03, ARTBA estimate
ARTBA American Road & Transportation Builders Association

FY2003 Federal Highway Funds & Employment Loss Resulting From $8.6 Billion Highway Investment Cut[1]

State	FY 2002 Highway Program Funds/2	Est. FY 2003 Program Funds/2	FY 2003 Highway Funds Lost/2	Employment Loss/3
Alabama	$561,369,840	$421,025,208	-$140,344,632	-5,894
Alaska	$314,796,052	$246,539,742	-$68,256,310	-2,867
Arizona	$486,224,631	$365,140,719	-$121,083,912	-5,086
Arkansas	$362,652,003	$275,455,607	-$87,196,396	-3,662
California	$2,517,465,102	$1,899,291,678	-$618,173,424	-25,963
Colorado	$353,164,878	$265,780,999	-$87,383,879	-3,670
Connecticut	$408,920,297	$313,495,052	-$95,425,245	-4,008
Delaware	$119,922,416	$91,097,545	-$28,824,871	-1,211
Dist. of Col.	$110,273,846	$81,398,200	-$28,875,646	-1,213
Florida	$1,289,548,451	$974,165,577	-$315,382,874	-13,246
Georgia	$988,693,630	$745,903,153	-$242,790,477	-10,197
Hawaii	$142,271,252	$106,770,543	-$35,500,709	-1,491
Idaho	$211,278,292	$160,135,462	-$51,142,830	-2,148
Illinois	$933,065,783	$697,096,259	-$235,969,524	-9,911
Indiana	$638,900,893	$486,743,971	-$152,156,922	-6,391
Iowa	$329,542,978	$247,574,819	-$81,968,159	-3,443
Kansas	$324,857,477	$241,313,125	-$83,544,352	-3,509
Kentucky	$483,920,664	$362,099,979	-$121,820,685	-5,116
Louisiana	$433,579,090	$330,471,089	-$103,108,001	-4,331
Maine	$147,088,238	$109,890,629	-$37,197,609	-1,562
Maryland	$446,350,792	$339,318,294	-$107,032,498	-4,495
Massachusetts	$514,207,475	$387,835,987	-$126,371,488	-5,308
Michigan	$894,938,840	$673,029,684	-$221,909,156	-9,320
Minnesota	$408,448,438	$309,125,401	-$99,323,037	-4,172
Mississippi	$355,307,069	$268,482,622	-$86,824,447	-3,647
Missouri	$646,930,635	$488,228,184	-$158,702,451	-6,666
Montana	$266,187,164	$204,791,716	-$61,395,448	-2,579
Nebraska	$216,342,091	$159,818,713	-$56,523,378	-2,374
Nevada	$199,134,908	$149,455,313	-$49,679,595	-2,087
New Hampshire	$140,217,067	$107,247,956	-$32,969,111	-1,385
New Jersey	$724,639,854	$541,582,536	-$183,057,318	-7,688
New Mexico	$268,593,028	$203,825,094	-$64,767,934	-2,720
New York	$1,410,507,671	$1,064,982,917	-$345,524,754	-14,512
North Carolina	$776,521,747	$584,307,329	-$192,214,418	-8,073
North Dakota	$179,364,937	$134,932,708	-$44,432,229	-1,866
Ohio	$959,669,321	$725,512,146	-$234,157,175	-9,835
Oklahoma	$428,337,012	$318,248,522	-$110,088,490	-4,624
Oregon	$337,801,111	$255,489,120	-$82,311,991	-3,457
Pennsylvania	$1,391,790,146	$1,045,698,054	-$346,092,092	-14,536
Rhode Island	$164,112,784	$123,469,448	-$40,643,336	-1,707
South Carolina	$461,162,748	$350,138,781	-$111,023,967	-4,663
South Dakota	$198,817,128	$150,819,598	-$47,997,530	-2,016
Tennessee	$624,496,977	$476,815,649	-$147,681,328	-6,203
Texas	$2,146,259,084	$1,614,117,018	-$532,142,066	-22,350
Utah	$216,504,854	$161,358,980	-$55,145,874	-2,316
Vermont	$124,155,175	$94,175,207	-$29,979,968	-1,259
Virginia	$710,248,118	$544,143,511	-$166,104,607	-6,976
Washington	$493,771,495	$368,381,629	-$125,389,866	-5,266
West Virginia	$308,059,534	$234,857,433	-$73,202,101	-3,074
Wisconsin	$545,548,760	$410,919,572	-$134,629,188	-5,654
Wyoming	$188,997,682	$143,820,077	-$45,177,605	-1,897
State Total	$27,904,959,458	$21,056,318,555	-$6,848,640,903	-287,643
Allocated programs	$3,894,144,542	$2,148,468,445	-$1,745,676,097	-73,318
Grand Total	$31,799,104,000	$23,204,787,000	-$8,594,317,000	-360,961

1/ Includes $80 million reduction due to proposed transfer to Federal Motor Carrier Safety Administration

2/ Source: FHWA 2/4/02 Comparison of Estimated FY 2003 Distribution of Obligation Limitation and ... President's Budget

3/ Employment loss is spread over 7 years, with most loss occurring in 2003 and 2004.

ARTBA American Road & Transportation Builders Association

Current Balance in Highway Account of the Highway Trust Fund: $18,855,632,135

There is no reason to cut federal highway investment by $8.6 billion when the Highway Trust Fund's Highway Account balance stands at almost $19 billion!

RESPONSES BY TOM HILL, FROM ARTBA, TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Your organization has done quite a bit of analysis of Treasury's revenue estimates and I would ask you to expand upon your testimony that Treasury has underestimated future Highway Trust Fund revenues.

Response. As part of the annual preparation of the president's proposed Budget of the U.S. Government, the Office of Tax Analysis of the U.S. Treasury prepares a forecast of revenues for the Highway Account of the Highway Trust Fund. A copy of the forecast used for preparation of the fiscal year 2003 budget is provided as Attachment 1.

ARTBA's analysis of these Treasury revenue estimates indicates that Treasury may have underestimated future Highway Account revenues.

Treasury uses a complex model to forecast Highway Account revenues. Each of the six main revenue sources-the Federal gasoline, diesel and gasohol excises plus the taxes on truck sales, tire sales and truck use-is projected separately and the results are added together to provide an overall revenue forecast.

The Treasury revenue forecast raises three concerns:

- The forecast projects that revenues from the retail tax on trucks will not recover to the fiscal year 2000 pre-recession level until fiscal year 2008, 7 years after the trough of the current recession (see the 4th line of Attachment 1). This is completely at odds with every past recession, where truck tax revenues equaled or surpassed the pre-recession peak within 2 years of the recession trough. This includes the 1981–82 recession, which was the worst in the post-war period and far more severe than the current recession. Assuming that it will take 7 years to reach a level attained within 2 years after previous recessions means the Treasury forecast may be significantly understating future Highway Account revenues. For example, if truck excise taxes return to the pre-recession peak in three rather than 7 years, annual Highway Account revenues would be $1.1 billion higher than the Treasury baseline. If it takes 4 years, annual revenues would still be more than $800 million higher than the baseline.
- On February 28, the Bureau of Economic Analysis of the U.S. Department of Commerce reported that real Gross Domestic Product (GDP) rose 1.4 percent during the 4th quarter of 2001 rather than the previous estimate of 0.2 percent. The economy appears to be stronger than originally thought and the GDP estimates used by Treasury to prepare the Highway Account revenue forecast thus may have been too low. Adopting a higher GDP forecast should also raise projections of Highway Account revenues.
- The Treasury Department credited the Highway Account with $26.9 billion of revenues in fiscal year 2001, even though just under $28 billion of revenues were actually collected. The difference was a bookkeeping correction to make up for the fact that $1.089 billion too much was credited to the Highway Account in fiscal year 2000. This is explained in more detail in Attachment 2. For fiscal year 2002, Treasury estimates that Highway Account revenues will be $27.7 billion, which is a reasonable increase over the $26.9 billion credited to the account for fiscal year 2001 given the forecast for economic recovery this year. But it is $300 million less than was actually collected in fiscal year 2001. Treasury says its revenue forecast models are independent of the amount of revenues collected in fiscal year 2001. But if the full $28 billion had been credited to the Highway Account in fiscal year 2001, would Treasury have projected a revenue decline in fiscal year 2002 in contrast to a forecast of economic recovery and growth? It seems more likely that a higher starting point would have resulted in higher revenue forecasts for fiscal year 2002 and all subsequent years.

These concerns suggest Treasury's January revenue estimates may be too pessimistic and will be revised upward when the estimates are recomputed with more recent data for the August budget review and the fiscal year 2004 budget.

Given the strong upward 4th quarter GDP revision and the other issues raised in this response, the committee may wish to ask Treasury for new revenue estimates prior to the August budget review.

A corollary issue has been raised: what level of cash balance should be maintained in the Highway Account? The Federal Highway Administration has said informally that a prudent balance would be $8 billion.

There is no statutory reason for this. The only benefit of a cash balance is that it serves as a back-up source of funds in the event that outlays from the Highway Account exceed revenues into the account. ARTBA has found that, under reasonable assumptions about annual Highway Account revenues and obligation limitations, a positive cash balance will be maintained throughout the forecast period even if Congress provides $31.8 billion for the Federal highway program in fiscal year 2003.

More fundamentally, however, the cash balance is not the appropriate measure of the level of spending supportable by the Highway Account.

A better measure is the statutorily required Byrd test, which asks whether all anticipated revenues into the Highway Account over a 3-year period are sufficient to cover all anticipated bills that must be paid from the account during that time. This

recognizes that the highway funds distributed to the States each fiscal year actually spend out from the Highway Account over a seven to 9 year period, with most of the bills coming due during the first 3 years.

The Byrd test begins by adding together all outstanding obligations that have not yet been paid plus all outstanding balances that have not yet been obligated. This gives the maximum amount that might have to be paid from the Highway Account. The current cash balance is subtracted to determine how much additional cash would be needed to pay all potential bills. This figure is then subtracted from projected Highway Account revenues for the next 2 years. The result is the headroom in the Highway Account. If it is positive-projected revenues exceed anticipated billsthere is room for additional funding. If it is negative, the Byrd amendment requires an across-the-board cut in highway funding sufficient to restore the difference.

Under the CBO baseline, the Byrd test is consistently positive throughout the forecast period and, in fact, grows throughout the period. This holds true whether the highway program is funded at $31.8 billion in fiscal year 2003 or $23.2 billion or anywhere in between.

In summary, whether looking at the cash balance in the Highway Account or the Byrd test, ARTBA believes the Highway Account could support a $31.8 billion highway program in fiscal year 2003.

Question 2. I am intrigued by the American Road and Transportation Builders Association's suggestion that we enact a maintenance-of-effort requirement for the States. Certainly our goal in providing additional transportation funding at the Federal level is to increase the total level of infrastructure investment rather than to have the States simply substitute Federal funds for State funds. Have you studied how States have reacted to the Federal funding increases since TEA–21?

Response. ARTBA's analysis of Federal Highway Administration (FHWA) data for 1998 through 2000 show that 26 States invested less of their own State funds in highway capital improvements during at least one of those years than during 1997, the last year of funding under the Intermodal Surface Transportation Efficiency Act (ISTEA). Four States invested less all 3 years than during 1997. Had a maintenance-of-effort provision been in effect during those years, it would have added approximately $2 billion to highway capital improvements.

ARTBA based its analysis on data from the annual Highway Statistics volumes published by FHWA. We began with total capital outlays for highways by State Departments of Transportation (from Table SF–2) and subtracted the payment of funds by FHWA to each State (from Table SF–3) to arrive at the annual amount of own-State funds invested in highways by each State. We did this for 1997, 1998, 1999 and 2000. The results are shown in the first four columns of Attachment 3.

We then compared the amount of own-State funds invested in highway capital improvements during 1998, 1999 and 2000 to the 1997 baseline. These results are shown in the next three columns. A negative figure means the State invested less in highway capital improvements during that year than in 1997.

The final two columns summarize the results. The first summary column shows the number of years each State's capital investment fell short of the 1997 baseline. The second shows the total shortfall during all negative years.

The table yields two important results.

First, own-State expenditures for highway capital investment fell below the 1997 baseline in 47 instances during the first 3 years of TEA–21, an average of just under one instance per State. Since this was spread over 3 years, it means that one-third of the States spent less on highways during each of the first 3 years under TEA–21 than they did in 1997.

Second, if TEA–21 had included a maintenance-of-effort provision, the result would have been an additional $2 billion of capital investment in highways during those 3 years.

If Congress were to include a maintenance-of-effort provision in TEA–21 reauthorization legislation, two issues need to be addressed:

While ARTBA's analysis used 1997 as the baseline, the baseline for a maintenance-of-effort provision should be multi-year. This would prevent States from manipulating the baseline.

The maintenance-of-effort provision should apply to obligations. ARTBA's analysis was based on actual expenditures from the U.S. and State treasuries, since these were the only consistent data available. But expenditures are the result of obligations in previous years and are thus only a second-best measure of State maintenance of effort.

RESPONSE BY TOM HILL TO ADDITIONAL QUESTION FROM SENATOR SMITH

Question. As to the issue of reauthorization, what would be the implications, both negative and positive, of restoring the collection of interest on the funds on hand in the Highway Trust Fund?

Response. Prior to October 1, 1998, the cash balance in the Highway Trust Fund earned interest from the U.S. Treasury. While interest added resources to the Highway Trust Fund, it did not necessarily increase Federal investment in highways and mass transit because there was no mechanism to assure that all Highway Trust Fund receipts were actually spent on the nation's transportation needs.

TEA–21 took one step forward and one step back. It provided guaranteed funding for highways and mass transit and established the revenue-aligned budget authority (RABA) mechanism to assure that all Highway Account revenues were spent solely on the Federal highway program.

But under TEA–21, the cash balance in the Highway Trust Fund no longer earns interest.

According to the latest data from the U.S. Department of the Treasury, the cash balance in the Highway Trust Fund is just over $22 billion. At current interest rates, the foregone interest on this is slightly less than $1 billion. During the 6-year life of TEA–21, the total foregone interest will total well over $6 billion, since both interest rates and the size of the balance were higher at times earlier in the period.

Restoring the collection of interest on funds in the Highway Trust Fund would increase the resources available for Federal highway and mass transit investment. ARTBA supports this proposal.

It will increase Federal highway investment, however, only if Congress continues to guarantee that all Highway Trust Fund revenues be spent only for highways and mass transit. This means preserving the budgetary firewalls and the annual RABA adjustment mechanism for the highway program. Without these guarantees, restoring interest to the Highway Trust Fund could have no effect on annual investment levels.

The sole "cost" of this proposal is that it would increase Federal outlays for computing the annual budget surplus or deficit. But it would not reduce spending for other domestic discretionary categories. This is because the additional Highway Trust Fund revenues would raise the highway budget category directly and thus would not require any offsets in other domestic discretionary programs.

ARTBA has proposed additional ways of increasing Highway Trust Fund revenues, including indexing the Federal motor fuels excise taxes for inflation, depositing all receipts from the excise on gasohol into the Highway Trust Fund including the 2.5 cents per gallon currently deposited into the general fund, financing the ethanol subsidy from the general fund rather than the Highway Trust Fund, and spending down the cash balance in the Highway Trust Fund.

Ultimately, however, we believe the Federal user fee excise taxes on motor fuels and trucks will have to be increased or a new dedicated revenue source developed in order to provide adequate funding for the Federal highway and mass transit programs.

STATEMENT OF THE JAYETTA Z. HECKER, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES U.S. GENERAL ACCOUNTING OFFICE

Mr. Chairman and members of the subcommittee: We appreciate the opportunity to provide testimony on the Highway Trust Fund. Our statement today is based on our June 2000 report on problems with Highway Trust Fund information,[1] work we performed as the principal auditor of the annual financial statements of the Department of Treasury's Internal Revenue Service (IRS), and other work we do to assist the Department of Transportation Office of Inspector General in its annual audits of the Highway Trust Fund and Department of Transportation financial statements. The Highway Trust Fund is the principle mechanism for funding Federal highway programs authorized by the Transportation Equity Act for the 21st Century (TEA–21). Under TEA–21, the funding levels for Federal highway programs are adjusted annually upward or downward based on actual and projected receipts of the Highway Trust Fund. These adjustments are referred to as the Revenue Aligned Budget Authority (RABA). We are currently reviewing the fiscal year 2003 RABA adjustment. We can provide you the results of that work at a later time.

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[1]U.S. General Accounting Office, Highway Funding: Problems with Highway Trust Fund Information Can Affect State Highway Funds, GAO/RCED/AIMD–00–148 (Washington, DC.: June 2002).

This statement will provide a description of (1) how the Transportation Equity Act for the 21st Century (TEA–21) changed the budgetary treatment of programs financed by the Highway Trust Fund, (2) the Revenue Aligned Budget Authority (RABA) calculation process, and (3) the results of our review of the Department of the Treasury's excise tax distributions to the Highway Trust Fund for fiscal year 2001.

In summary: TEA–21 made significant changes to the budgetary treatment of Federal highway and transit programs financed by the Highway Trust Fund. In particular, TEA–21 guaranteed annual funding levels for most highway and transit programs and more closely linked highway user tax receipts, such as those from motor fuel and truck tire taxes, to the annual guaranteed funding levels for highway programs.

RABA adjustments ensure that highway program funding levels will change as Highway Account receipt levels change. For the first time, the RABA adjustment for fiscal year 2003 is negative-decreasing highway funding by $4.37 billion.

Our work shows that the amounts distributed to the Highway Trust Fund for the first 9 months of fiscal year 2001, as adjusted based on IRS' certifications, were reasonable and adequately supported based on available information.

TEA–21 AND THE HIGHWAY TRUST FUND

TEA–21 authorized $217.9 billion for highway, mass transit, and other surface transportation programs for fiscal years 1998 through 2003. TEA–21 n " the use of the Highway Trust Fund-which is divided into a Highway Account and a Mass Transit Account-as the mechanism to account for Federal highway user tax receipts that fund various surface transportation programs. Prior to TEA–21, these programs competed for budgetary resources through the annual appropriations process with other domestic discretionary programs. In a major change to Federal budget rules, TEA–21 guaranteed a minimum level of spending for these programs. New budget categories were established for highway and transit spending, effectively establishing a budgetary "firewall" between those programs and other domestic discretionary spending programs. Of the $217.9 billion authorized for surface transportation programs over the 6-year life of TEA–21, about $198 billion is protected by the budgetary firewall-about $162 billion for highway programs and $36 billion for transit programs. TEA–21 also enhanced the linkage between highway user tax receipts in the Fund's Highway Account and Federal highway program funding levels in several ways, including (1) guaranteeing specific annual funding levels for most highway programs over a 6-year period on the basis of the projected receipts in the Highway Account, and (2) adjusting the guaranteed spending level for each fiscal year upward or downward if the receipt levels in the Highway Account increased or decreased from those projected in TEA–21.

Federal highway user taxes directed to the Highway Trust Fund include excise taxes on motor fuels (gasoline, gasohol, diesel, and special fuels); and truck-related taxes on truck tires, sales of trucks and trailers, and the use of heavy vehicles (see fig. 1). Someone other than the consumer generally pays the motor fuel taxes into the Highway Trust Fund. Oil companies typically pay a per-gallon tax on the motor fuels at the point where their fuel is loaded into tanker trucks or rail cars at a terminal. Tire manufacturers pay taxes on truck tires, by weight; and retailers pay taxes on the sales price of new trucks and trailers. Owners of heavy highway vehicles pay taxes on the use of these vehicles, making this the only highway tax directly paid by the highway user.

Table 1: Highway User Taxes (Cents per gallon)

Type of tax	Tax rate	Distribution of tax			
		Highway Trust Fund		Leaking underground storage tank trust fund	General fund
		Highway Account	Transit Account		
Motor fuels taxes					
Gasoline	18.40	15.44	2.86	0.10	
Diesel	24.40	21.44	2.86	0.10	
Alternative fuels taxes					
Gasohol (10% ethanol)	13.10	7.64	2.86	0.10	2.5
Liquefied petroleum gas	13.60	11.47	2.13		
Liquefied natural gas	11.90	10.04	1.86		
M85 (from natural gas)	9.25	7.72	1.43	0.10	

Table 1: Highway User Taxes (Cents per gallon)—Continued

Type of tax	Tax rate	Distribution of tax			
		Highway Trust Fund		Leaking underground storage tank trust fund	General fund
		Highway Account	Transit Account		
Compressed natural gas (cents per thousand cu. ft.)	48.54	38.83	9.70		
Truck related taxes					
Tires	0–40 lbs., no tax Over 40 lbs – 70 lbs, 15 cents per pound in excess of 40 Over 70 lbs – 90 lbs, $4.50 plus 30 per pound in excess of 70 Over 90 lbs, $10.50 plus 50 cents per pound in excess of 90				
Truck and trailer sales tax	12 percent of retailer's sales proce for tractors and trucks over 33,000 lbs gross vehicle weight (GVW) and trailers over 26,000 GVW				
Heavy vehicle use tax	Annual tax: Trucks 55,000 lbs and over GVW, $100 plus &22 for each 1,000 lbs (or fraction thereof) in excess of 55,000 lbs (maximum of $550)				

Note: Tax rates as of July 1, 2001.
Source: Federal Highway Administration (FHWA) and the Office of Tax Analysis, Department of the Treasury.

Twice a month, business taxpayers make deposits of excise taxes-including highway user taxes-generally through Treasury's Electronic Federal Tax Payment System. Excise taxes are deposited into Treasury's General Fund as received.

Treasury uses a complex and lengthy process-involving four organizations within the department-for distributing excise tax receipts to the various trust funds, including the Highway Trust Fund. The department uses this process, in part, because it does not obtain data from business taxpayers (when they make semimonthly deposits) on the types of excise taxes that these deposits are intended to cover.

Because businesses, rather than consumers generally pay highway user taxes, most of the Federal motor fuel and truck taxes come from only the handful of States where those businesses have their corporate headquarters and pay their taxes.

As a result, the Treasury Department does not provide the Federal Highway Administration (FHWA) with State-level data on highway tax receipts, and FHWA must therefore estimate these data in order to distribute Highway Account funds to the States under various highway programs. FHWA estimates State-level contributions through what it refers to as its "attribution process." Through this process, it determines each State's share of highway motor fuel usage on the basis of data provided by the States, and it uses that information to estimate the amount of contributions to the Highway Account attributable to each State's highway users. The information developed by Treasury and FHWA is used to determine the amounts of funds distributed to each State under several major highway programs.

The Revenue Aligned Budget Authority Calculation

TEA–21 used projections of Highway Account receipts to develop guaranteed highway funding levels for fiscal years 1999 through 2003. Beginning in fiscal year 2000, these guaranteed levels were to be adjusted upward or downward each year on the basis of actual Highway Account receipts and new projections of these receipts. If this RABA adjustment lowers the guaranteed funding level for a given fiscal year, TEA–21 requires that the Department of Transportation reduce the amount of funding authorized on October 1 of the next fiscal year. RABA adjustments ensure, for the first time, that highway program funding levels will change as Highway Account receipt levels change.

The RABA adjustment to the funding levels authorized in TEA–21 is based on actual receipts from 2 years prior to the fiscal year, as reported by Treasury, plus revised Treasury receipt projections for the fiscal year in question. For example, for fiscal year 2000, TEA–21 requires that this adjustment be calculated by comparing (1) actual Highway Account receipts for fiscal year 1998 with the TEA–21 projection of these receipts (the "look back " portion of the calculation) and (2) revised projections of Highway Account receipts for fiscal year 2000 with the TEA–21 projection of these receipts (the "look forward" portion of the calculation). The sum of these differences becomes the RABA adjustment. To determine the amount of the RABA adjustment, the Office of Management and Budget relies on information on Highway Account receipts supplied by Treasury. Specifically, the Bureau of Public Debt provides the actual Highway Account receipts for the prior fiscal year, and the Office of Tax Analysis (OTA) provides a projection of Highway Account receipts for the next fiscal year.

Figure 2 shows the RABA calculations and resulting adjustments for fiscal years 2000 through 2003. As shown, the RABA adjustments for fiscal years 2000 through fiscal year 2002 were positive-increasing highway funding levels by a total of over $9 billion.[2] However, in fiscal year 2003, actual Highway Account receipts for fiscal year 2001 were less than the TEA–21 estimate for fiscal year 2001, and Treasury's projection of Highway Account receipts for fiscal year 2003 was less than the TEA–21 estimate for that year. As a result, the RABA adjustment for fiscal year 2003 is negative $4.37 billion.

Table 2: RABA Calculation for Fiscal Years 2000 through 2003

(In millions of dollars)

Fiscal Year	Look Back		Look Ahead		RABA
FY 2000	1998 Actual Hwy/Accnt receipts	23,135	2000 Est. Hwy/Accnt Receipts	28,551	
	less 1998 TEA–21 ext. Hwy/ Accnt receipts.	22,164	less 2000 TEA–21 est. Hwy/Acct receipts.	28,066	
	less look ahead result for 1998	0			
	subtotal	971	subtotal	495	1,456
FY 2001	1999 actual Hwy/Accnt receipts	38,815	2001 est. Hwy/Accnt receipts	30,368	
	less 1999 TEA–21 est. Hwy/ Accnt receipts.	32,619	less 2001 TEA–21 est Hwy/Accnt receipts.	28,506	
	less look-ahead result for 1999	0			
	subtotal	1,196	subtotal	1,862	3,058
FY 2002	2000 actual Hwy/Accnt receipts	30,334	2002 est. Hwy/Accnt receipts	31,732	
	less 2000 TEA–21 est. Hwy/ Accnt receipts.	28,066	less 2002 TEA–21 est Hwy/Accnt receipts.	28,972	
	less look-ahead result for 2000	485			
	subtotal	1,738	subtotal	2,760	4,543
FY 2003	2001 actual Hwy/Accnt receipts	26,900	2003 est. Hwy/Accnt receipts	28,570	
	less 2001 TEA–21 est. Hwy/ Accnt receipts.	28,506	less 2003 TEA–21 est Hwy/Accnt receipts.	29,471	
	less look-ahead result for 2001	1,862			
	subtotal	(3,468)	subtotal	(901)	(4,369)

Note: Actual receipts are net tax receipts (excluding fines and penalties) after deduction of transfers and refunds. OTA prepares forecasts of tax receipts to the Highway Account of the Highway Trust Fund for the President's Budget and other analyses. References to TEA–21 estimates are to the estimates of Highway Account receipts in TEA–21. The Congressional Budget Office prepared these estimates.

Source: Department of Transportation

We are currently reviewing the fiscal year 2003 RABA calculation and will report our results at a later date. We have, however, completed our annual review of the Treasury's distribution of excise taxes to the Highway Trust Fund for fiscal year 2001—which accounts for about 80 percent of the total negative RABA of $4.37 billion.

Treasury's Excise Tax Distributions to the Highway Trust Fund for the First Nine Months of Fiscal Year 2001 Are Reasonable

The Federal Government levies excise taxes on entities and individuals to finance general Federal activities and specific government programs. Several different bureaus and offices within Treasury collected about $69 billion of net excise taxes in fiscal year 2000. However, IRS accounted for the majority of excise taxes in fiscal year 2000, with about $54 billion in net excise tax collections on the purchase, use, or inventory of various types of goods or services, such as gasoline and tobacco. The various excise tax receipts accounted for by IRS are initially deposited into the General Fund of the Treasury as they are paid by the business taxpayer; subsequently, a portion of these deposits are distributed to nine excise tax-related trust funds,

[2]FHWA apportions any additional RABA funds to the States on October 15 of each fiscal year-about 2 weeks after apportioning the amount of highway program funds for the fiscal year that was authorized in TEA–21.

which are administered by six Federal agencies. More than 63 percent of these funds are ultimately distributed to the Highway Trust Fund.

Under section 9601 of the Internal Revenue Code, the Secretary of Treasury is required to transfer applicable excise tax receipts from the General Fund to trust funds on a monthly basis. These transfers are based on estimates because data is not available to attribute excise taxes to the appropriate trust funds when the deposits are initially made. Treasury's OTA prepares these semi-monthly estimates based on historical IRS certification data and actual current excise tax revenue collections. The estimates are used to prepare accounting entries for the initial distributions to the trust funds.

Subsequently, IRS certifies the actual excise tax revenue collections that should have been distributed to the trust funds based on the payments and tax returns IRS receives from taxpayers.[3] Using the IRS certifications, Treasury then adjusts the initial trust fund distributions. For example, in March 2001, Treasury made an adjustment to decrease the Highway Trust Fund's fiscal year 2001 excise tax distributions by about $1.2 billion. This adjustment was to correct for actual collections for the fourth quarter of fiscal year 2000 being less than what was initially distributed based on OTA's estimates for the quarter ended September 30, 2000. According to an official from OTA, the original estimated transfer amounts for the quarter had been calculated using an economic model that assumed a higher rate of economic growth through calendar year 2000 than was actually the case.[4] As a result, the downward adjustment was made, effectively reducing fiscal year 2001 distributions to the Highway Trust Fund by the $1.2 billion.

We are issuing today results of a report on the procedures we performed related to the distributions of excise taxes to the Highway Trust Fund in fiscal year 2001.[5] Based on this work, we believe the amounts distributed to the Highway Trust Fund for the first 9 months of fiscal year 2001, which were subject to the IRS' quarterly excise tax certification process and which were adjusted based on this process, were reasonable and were adequately supported based on available information. Additionally, we believe the March 2001 adjustment made by Treasury to reduce fiscal year 2001 Highway Trust Fund excise tax distributions by $1.26 billion was reasonable and appropriately supported. The certifications for distributions of excise tax revenue collected during the period July 1, 2001, through September 30, 2001, will not be completed by IRS until March 2002. Consequently, the distributions of fourth quarter fiscal year 2001 excise tax revenue were based solely on estimates prepared by OTA. While we reviewed certain procedures associated with OTA's estimates, we did not audit the estimation process nor did we audit the estimates themselves. Therefore, we cannot conclude on the reasonableness of the distributions made to the Highway Trust Fund for the fourth quarter of fiscal year 2001.

Contact and Acknowledgement

For further contacts regarding this testimony please contact JayEtta Z. Hecker at (202) 512–2834 or on heckerj@gao.gov. Individuals making key contributions to this testimony included Nikki Clowers, Ted Hu, Steven Sebastian, Ronald Stouffer.

STATEMENT OF ANDREW LYON, DEPUTY ASSISTANT SECRETARY FOR TAX ANALYSIS, U.S. DEPARTMENT OF THE TREASURY

Mr. Chairman and members of the subcommittee, I appreciate the opportunity to describe recent trends in actual highway-related excise taxes and discuss the Administration's fiscal year 2003 Budget forecast of excise taxes dedicated to the Highway Account of the Highway Trust Fund.

The Office of Tax Analysis in the Department of the Treasury forecasts most future tax receipts for the President's Budget. These forecasts are made using economic models that are constantly updated to incorporate the most current information on tax collections and reported tax liabilities. The forecast for Fiscal Years 2002 through 2012 incorporates the Administration's economic assumptions formulated for the Budget by the Troika, which consists of the Council of Economic Advisors,

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[3]Typically IRS certifies quarterly excise tax distributions 6 months after the end of the quarter. This is to allow sufficient time for receipt and processing of the tax returns, including returns filed late. Even though IRS certifies collections 6 months after the end of a quarter, certifications for any given quarter routinely contain some amounts related to prior quarters.

[4]Prior to December of 2000, this process used economic models and was linked to OTA's receipt estimates for inclusion in the President's Budget.

[5]Report on Appling Agreed-Upon Procedures: Highway Trust Fund Excise Taxes (GAO–02–379R).

the Office of Management and Budget, and the Department of the Treasury.[1] Each of the six dedicated Highway Account excise tax sources are separately forecast: (i) Gasoline, (ii) Gasohol fuels, (iii) Diesel and other fuels, (iv) Retail tax on trucks, (v) Highway-type tires, and (vi) Heavy vehicle use tax. In Table 1, fiscal year receipts for 2000 through 2012 are reported for these six excise tax sources. The 2000 and 2001 figures are actual receipts drawn from the Highway Account Income Statement, while the 2002 through 2012 figures are projections from the President's fiscal year 2003 Budget.[2]

RECENT EXCISE TAX RECEIPTS

There has been a rapid downturn in highway-related excise taxes as the economy weakened over the past year and a half. Actual tax receipts dedicated to the Highway Account fell $3.4 billion from Fiscal Year 2000 to Fiscal Year

2001, dropping from $30.3 billion to $26.9 billion, an 11.3 percent decline. As shown in Table 1, five of the six receipt sources were lower in 2001 than in 2000. Only taxes on gasohol fuels show an increase.

Although the growth in the tax on gasohol fuels might initially appear to be a bright spot in an otherwise disappointing year, the growth is actually a significant factor in the overall reduction in dedicated Highway Account tax receipts. The increase in taxes on gasohol fuels is evidence of an ongoing substitution of gasohol fuels for gasoline, which may be used interchangeably in cars and light trucks. We anticipate that there will be an increasing use of gasohol fuels, and corresponding reductions in gasoline consumption as States ban the use of MTBE (methyl tertiary-butyl ether) as a fuel additive. Since the Highway Account receives 15.44 cents per gallon of gasoline but only about 8 cents per gallon of gasohol, increases in gasohol use at the expense of gasoline consumption will result in a net reduction in Highway Account receipts. On net, for every billion gallons of gasohol sold in place of gasoline, Highway Account receipts are approximately $78 million lower. Approximately two-thirds of this negative effect on Highway Account receipts from the substitution of gasohol for gasoline is due to the ethanol tax incentive (currently 53 cents per gallon of ethanol, which at a 10 percent blend is 5.3 cents per gallon of gasohol). The remainder is attributable to the fact that the law dedicates a portion of gasohol tax receipts (typically 2.5 cents per gallon) to the General Fund.

The most dramatic declines between fiscal year 2000 and fiscal year 2001, both in percentage terms and in dollars, occurred in excise taxes related to the sales and operations of trucks. The retail tax on trucks, a 12 percent tax on the first retail sale of heavy trucks, buses, truck tractors, and trailers, was down 55.2 percent, a decline of more than $1.8 billion. Tax receipts from the tax on truck tires fell 22.5 percent, and truck use tax receipts fell 33.8 percent. The reductions in retail truck taxes were particularly large because this tax is levied as an ad valorem tax on the first retail sale. During the investment boom of 1998 and 1999, a large volume of new trucks was purchased at premium prices. As the economy weakened, large numbers of these slightly used trucks were placed on the market. This greatly depressed prices and sales in the new heavy truck market, and tax revenues from retail truck taxes declined accordingly.

The first quarterly report to show weakness in total collections was for July through September of 2000. This Highway Trust Fund certification of excise tax receipts was issued in March of 2001.[3] This certification shows a 4.8 percent drop compared with the same quarter in the prior year. The subsequent quarterly certification for October through December 2000, issued in late June, showed a 5.6 percent reduction in receipts compared to the prior year. Based on this weakness, the Mid-Session Review of the fiscal year 2002 Budget reported that Highway Trust Fund revenues would be lower than previously forecast.

New data for the first two quarters of calendar year 2001 have shown further weakness in tax receipts. The certification for January through March of 2001 showed receipts declining 3.5 percent compared with the prior year, and the certifi-

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[1]The economic assumptions are described in Chapter 2 of the Analytical Perspectives volume of the fiscal year 2003 Budget.

[2]The Income Statement for 2001 includes three quarters of actual tax receipts certified by the IRS. Receipts for the last quarter of the year are based on an estimated allocation of total excise tax receipts. Any differences between estimated and actual receipts for the last quarter is adjusted in March and reflected in the Income Statement of the subsequent year.

[3]The Highway Account Certification is issued by the IRS as the final statement of excise tax collections dedicated to the account. The

Certification for a given quarter is issued approximately five and half months after the end of the quarter due to the time required to process the excise tax returns. This report, based on filed excise tax returns, provides the first detail of tax receipts by specific tax item.

cation for April through June of 2001 was 5.5 percent lower than the prior year. These two quarterly certifications also reflected accelerating increases in gasohol use as gasohol taxes grew by 25.8 percent and 23.7 percent compared with the same quarters in 2000. This series of weak Highway Account receipt certifications explains why fiscal year 2001 total tax revenues fell to $26.9 billion.[4]

FORECAST OF FUTURE EXCISE TAX RECEIPTS

Looking forward, the Administration projects steady growth in highway-related excise tax receipts. Net receipts in fiscal year 2003 are projected to be 6.2 percent higher than fiscal year 2001 and 2.9 percent higher than fiscal year 2002. Average annual growth is forecast to be more than 3 percent per year over the remainder of the budget period. The fiscal year 2003 Budget forecasts a faster long-run growth in receipts than last year's Budget; however, this faster rate of growth is relative to a smaller base, so the fiscal year 2003 levels are lower than previously projected. In the current budget, the Administration forecasts net Highway Account excise tax receipts to be $28.57 billion in fiscal year 2003.

During the first 5 years of the forecast period, gallons of gasoline and gasohol fuels are projected to grow at an average of 2.3 percent per year. Gasohol fuels grow faster than gasoline due to the increasing reliance on ethanol as an oxygenate to meet clean air requirements. Because of the difference in the amount per gallon dedicated to the Highway Account, total gasoline and gasohol receipts grow at about 2 percent per year during the first 5 years of the forecast.

The truck related excise tax receipts are projected to grow quickly as the economy recovers. For fiscal year 2003 compared to fiscal year 2001, retail tax on trucks receipts are projected to grow 22.1 percent and tire tax receipts are projected to grow by 10.6 percent. Between fiscal year 2003 and fiscal year 2002 retail tax on truck receipts are projected to grow 15.6 percent and tire tax receipts are projected to grow 6.5 percent. This growth reflects the recovery of the heavy truck market and more generally increased investment in equipment. Diesel fuel receipts are forecast to decline slightly between fiscal year 2001 and fiscal year 2002 before resuming growth averaging more than 3.5 percent per year.

In summary, the Administration's forecast of highway-related excise taxes reflects the most recent tax collection and liability data available, and the Administration's economic forecast. The data reflect the weakness in the economy during 2000 and 2001. The forecast for future years is based on the expectation that the recession will end in early 2002 and a strong recovery will be underway later in the year.

CONCLUSION

I appreciate this opportunity to describe recent trends and present our current forecast to you.

STATEMENT OF KENENTH K. WERT, ASSOCIATED GENERAL CONTRACTORS OF AMERICA

On behalf of the Associated General Contractors of America (AGC), I am pleased to submit testimony on the critical issue of how the recommended dramatic reduction in Federal-aid highway funding for fiscal year 2003 will hurt the nation's economy, the construction industry and my company. My name is Kenneth Wert, President of Haskell Lemon Construction Co. in Oklahoma City, Oklahoma.

AGC is extremely concerned with the recommended cut in highway funding in the President's fiscal year 2003 budget proposal. Toward that end, AGC strongly supports S. 1917, the Highway Restoration Act and the companion legislation, H.R. 3694. These bills call for increasing obligations for the Federal-aid highway program by $4.4 billion over the President's budget request. If included in this year's Transportation Appropriation's (FY 2003), it would fund the highway program at $27.75 billion in obligation authority, which is the minimum funding level included in the Transportation Equity Act for the 21st Century (TEA–21). While supportive of this legislation, AGC supports increasing funding to the level in this year's fiscal year 2002 appropriation's bill, an obligation limitation of at least $31.8 billion.

AGC is urging Congress to raise the funding for highways from the surplus that has accumulated in the Highway Trust Fund since the adoption of TEA–21. The money was collected with the express intent that it be spent on transportation improvements. Our proposal will accomplish this objective, spur the economy and save jobs.

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[4] Total Highway Account receipts including fines and penalties were $29.917 billion in fiscal year 2001.

The recommended cut in funding would be devastating to State Departments of Transportation across the Nation. In Oklahoma, our State Department of Transportation (ODOT) would experience a reduction of approximately $110 million

for fiscal year 2003, if the Federal program is cut by the proposed $8.5 billion. Construction of new vital highway projects will be the first to be cut. The Road Information Program's (TRIP) analysis states that Oklahoma would lose 4,600 jobs just from the Federal cut. Additional jobs will be lost if Oklahoma cuts its State highway funding as well. TRIP's report states that the cut in funding could result in the loss of $627 million in economic benefits in Oklahoma. These lost economic benefits are based on the USDOT's estimate that each $1 invested in transportation funding results in $5.70 in economic benefits that improve safety, reduce traffic congestion and reduce vehicle-operating costs paid by motorists.

Make no mistake about it, Oklahoma cannot afford any cut in funding, certainly not one of this magnitude. In Oklahoma, vehicle miles traveled increased by 31 percent between 1990 and 2000. Traffic fatalities average 737 annually. Many of these fatalities could be avoided with a variety of safety improvements to our State's transportation system. Furthermore, 83 percent of the $58 billion worth of commodities delivered annually from sites in Oklahoma are transported on the State's highways.

Reducing Oklahoma's highway program by $110 million would be devastating for family owned businesses such as mine, Haskell Lemon Construction Co. For our company, the cut in highway funding will reduce bidding opportunities for new construction, which would result in a reduction in personnel, a reduction in plant and equipment, and the need to develop a revised business plan.

Let me be more specific as to the impact on Haskell Lemon Construction Co. We currently have a combined employment of approximately 225 employees. Our company has the present capability to progress multiple large-scale ($10–20 million) projects simultaneously. Typical project duration is 9 to 18 months. Multiple crews within each construction discipline (i.e. grading, drainage, paving, etc.) allows for multiple construction operations to be in process in both urban and rural settings.

The proposed reduction in ODOT's funding will result in the elimination of several construction crews within the company. It is conceivable that an entire construction segment within the company could be laid off—one grading crew (7 employees), one drainage crew (8 employees), one concrete paving/structures crew (10 employees) one asphalt paving crew (6 employees), one plant crew (4 employees), and shop support personnel (3 mechanics). In addition to the construction division employment effected by a reduction in ODOT's program, several peripheral operations would also lose employees. The reduction in construction projects would eliminate demand for hauling construction materials (7 drivers), truck mechanics (2), and demand for aggregate production (3 plant employees). The initial loss in personnel would total over 50 employees—a reduction of 22 percent of total employment representing over $1 million in annual payroll.

It is important to consider that along with the lost jobs documented above, is the loss of benefits for the employees—health and dental insurance. While the insurance is portable for a limited duration at the individual's cost, it is becoming more expensive in an increasingly difficult insurance market. Many laid-off employees are forced to tap their profit sharing benefits at a substantial penalty to survive in today's lean job market. These benefits are intended for retirement after years of service.

Finally, Haskel Lemon Construction Co. would be forced to evaluate its current plant and equipment operations. Our company operates four asphalt plants, one concrete plant, and two sand and gravel operations. Rolling stock and construction equipment are in the hundreds with a replacement cost in excess of $20 million. A reduction in Oklahoma's construction program would require the company to evaluate its plant and equipment and liquidate those assets that would not have the opportunity to produce as a result of a reduced construction market.

This is the dramatic impact a highway funding cut of this magnitude would have on our company. There are hundreds of other family owned construction companies that would react the same way and be forced to lay off tens or hundreds of valued employees.

Mr. Chairman, on behalf of AGC, I thank you and every member of this committee for introducing and cosponsoring S. 1917 and attempting to mitigate some of the impact of this proposed highway funding cut. AGC and I stand ready to assist you. Thank you for the opportunity to submit testimony.

TEA–21 REAUTHORIZATION

TUESDAY, MARCH 19, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

TRANSPORTATION MOBILITY, CONGESTION AND INTERMODALISM

The committee met, pursuant to recess, at 2:30 p.m. in room 406, Senate Dirksen Building, Hon. James M. Jeffords [chairman of the committee] presiding.

Present: Senators Jeffords, Graham, and Chafee.

Also present: Senator Murray.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. Good afternoon, everyone. Thank you all for joining us for third in our series of hearings on reauthorization of the Nation's Surface Transportation Program.

I also want to extend a warm welcome to our witnesses who have traveled from near and far to be with us today. I look forward to hearing your testimony.

The subject of today's hearing is congestion, a nuisance that every person in this room has experienced at one time or another. Congestion is one of the Nation's most vexing problems, particularly in our metropolitan areas and on the highway system in those areas. Beyond the general frustration that congestion imposes on commerce every day, it has significant negative impacts on our economy, delaying freight delivery and creating inefficiencies. Congestion also harms the environment and as such presents a threat to human health as well.

In today's hearing, we hope to uncover some of the fresh ideas on transportation demand, access, mobility and program flexibility. These new ideas may become part of our contribution to the 10-year legacy of the Intermodal Surface Transportation Efficiency Act, ISTEA, and the Transportation Equity Act for the Twenty-First Century, TEA–21. With the passage of ISTEA and TEA–21, our transportation program shifted its emphasis from building the interstate highway system to a new focus, the movement of people and goods. In metropolitan areas where congestion is of the greatest concern, this new, post-interstate program empowered citizens and local officials to develop transportation improvement strategy tailored to the unique needs of the metro region.

The law also provides spending flexibility so that funds could be targeted in ways that will carry out local strategies. Gone for the most part are the rigid funding categories. Funds can now be moved among programs to meet local needs.

In today's hearing, we will explore lessons learned about our transportation program over the last 10 years. We will look at trends in travel and congestion. Our witnesses will forecast future conditions to give us the context for reauthorization and based on those lessons learned and changing conditions, our experts will share their ideas for improving our transportation program.

Now to our witnesses. Tim Lomax is a Research Engineer for the Texas Transportation Institute at Texas A&M University. Dr. Lomax's most recent study, the "2001 Urban Mobility Study," uses a variety of measures to illustrate the Nation's growing traffic problems. Our second panel will present ideas to address access and mobility. The Honorable Ron Sims was elected King County Executive in 1997, home to the city of Seattle, King County, Washington State's largest county. Mr. Sims is founder and organizer of the Metropolitan Congestion Coalition, bringing together metropolitan elected officials and business leaders nationally. Anthony Downs is a Senior Fellow at the Brookings Institute in Washington, DC. His 1992 book, "Stuck in Traffic," is among the most widely read on the subject of metro congestion. C. Kenneth Orski is the Director of MIT's International Mobility Observatory and Editor and Publisher of "Innovation Briefs," a newsletter on transportation. He also heads the Urban Mobility Corporation, a Washington, DC.-based consulting firm. We will have Frederick P. Salvucci also from MIT, a civil engineer and senior lecturer specializing in transportation. Mr. Salvucci is the former Secretary of Transportation of the Commonwealth of Massachusetts and presently serves as senior advisor to a number of urban transportation programs. Alan Pisarski is chairman of the Transportation Research Board Committee on National Transportation Data requirements and the Committee on Transportation History. He has worked in transportation policy for over 30 years.

Now we are ready to proceed. Mr. Pisarski, I will ask you to start.

STATEMENT OF ALAN PISARSKI, CHAIRMAN, TRANSPORTATION RESEARCH BOARD COMMITTEE ON NATIONAL TRANSPORTATION DATA

Mr. PISARSKI. Thank you, Mr. Chairman.

My name is Alan Pisarski and I am honored to be invited to speak before you once again to address the outlook for American travel. I recall with pleasure that I participated in these hearings in 1997 in the advent of TEA–21 and also in the first hearing for ISTEA. It is a responsibility that I take very seriously.

We need to look at the next reauthorization period through the lens of the changes likely to occur between now and the end of the coming cycle. We will have seen dramatic changes since the first decade of this new century. We will have crossed 300 million in population at some point during this reauthorization period. Our rural population will have reached 60 million people, as large as many countries. We will have added more than 25 million people

during this period, perhaps as many cars as people, another ten million households, perhaps 10 million immigrants.

As the reauthorization comes to a close, the first of the babyboomers will be reaching 65. We will have added probably $4 trillion to our economy. The point is I think we will be a very different country at the close of the next reauthorization than we are today and we must consider both the passenger and the freight travel activities in both our metropolitan and non-metropolitan forms. Many of our issues of the future will be centered in freight passenger conflicts and the intercity and local interactions.

My focus today will be on taking the long view on the Nation's travel behavior and its demographic future. I am going to be talking quite a bit about our demography and where it is taking us in the future. There is a document called, "Notes to the Testimony," that has some notes that you might choose to refer to.

One of the key points I wanted to make is the current data coming out of the Census Bureau now shows the nature of the trends that are happening with American commuting. I will skip over the major points other than to say that when I testified last, I thought the single occupancy vehicle had about stopped its growth. I was wrong, it continues to grow from 73 to 76 percent. Car pooling continues to decline. The good news is transit is holding its share at 5 percent of total commuting.

With respect to travel times and congestion in the country, I think there is something very positive we can say about our system. Over 20 years we have added over 35 million new riders in our road system and we have only grown 2 minutes in average travel time. That is a period that is getting worse but still I think it is very positive.

One of the phenomena that is happening which needs to be addressed is the fact that many more rural States, States without large metro areas where you would expect congestion, are now seeing the largest increases in commuting problems. West Virginia was the largest increase, and Vermont and New Hampshire for example.

The major forces that were acting in the past, I think, for the most part, are behind us. I won't pursue those. I do want to identify new forces of change that I think will be acting over the next years during the reauthorization period. The first is the evident one, the aging population. I think it is going to be a key factor. A stagnating labor force is going to be a key question, just the numbers of people available. If we worried about too many commuters in the past, we may be worrying about too few in the future.

Continuing immigration waves will change the nature of our commuting patterns. An important influence will be what I call the democratization of mobility. Many of our minority populations, which are very close to being back in the 1960's and the 1970's in regard to current mobility levels, as they achieve the mainstream, mobility will be an important influence on travel growth.

Finally, the increasing affluent nature of our society I think will have an immense influence on most of our forces. High income people will typically make twice as many trips as low income people in a metro area. In long distance, they will make four times as many auto trips, seven times as many air trips. So as the society

is more affluent and as people's value of time increases, both the activity and the pressures for the quality of the system will increase.

I would ask you to look for the following prospects. For commuting, who and where the immigrants are will be central. Expect appeals to older workers and women to join the labor force even more actively than they have simply to meet the dearth of skilled workers. For local travel, a generally more affluent society, new minorities being able to travel more, expect very active daytime and weekend travel. For long distance, expect a new era of tourism in America, both foreign visitors and domestic tourism, minorities being able to travel extensively. In geography, the conflicting between intercity and local travel forces will be significant. The pressures of time for both goods and for people and the high value that each has in terms of time are going to put tremendous pressures on the system. Transportation is always about overcoming the tyranny of distance and today I think although we have achieved great successes in that, the pressures of time are going to be the dominant force in the future and that we will have to respond to in this legislation.

I think I should stop. I would be happy to answer questions.

Thank you, Mr. Chairman.

Senator JEFFORDS. Dr. Lomax?

STATEMENT OF TIM LOMAX, RESEARCH ENGINEER, TEXAS TRANSPORTATION INSTITUTE, TEXAS A&M UNIVERSITY

Dr. LOMAX. I really want to thank you for the opportunity to testify today. I have not had an opportunity to testify, so maybe you can't blame all of this on me like you can on Alan. The current situation is Alan's fault. I am going to help you understand some of the future.

I have been asked to summarize a few trends that we have identified in a report we prepare each year on urban traffic and congestion. I will also offer a few observations about congestion in U.S. cities over the next few years. I would like to build on the excellent information that Mr. Pisarski has prepared. Please keep in mind that summary of how travel has grown and how it is going to grow in the future.

Over the last 20 years, our cities have not been able to keep pace with demand increases brought on by population and job growth. Congestion has increased as a result of that imbalance. Our data shows that during the peak travel periods in the 76 urban areas that we studied, the travel time penalty, the amount of extra time it takes to travel during rush hour, has increased 185 percent since 1982. The penalty in areas of population between 500,000 and 3 million has increased over 300 percent over this time. This indicates that while most of the problem is in the large metropolitan areas, the congestion problem is growing in areas of all sizes. The total hours that travelers in these 76 areas were delayed increased from 750 million in 1982 to 3.6 billion in 2000. I have a couple of charts on a handout that I will be referring to over the next couple of minutes.

The congestion growth was the result of the trends Alan referenced. In our 76 areas the travel demand increased 86 percent

but the road capacity, the amount of road added was only 37 percent. Real capacity increases were probably less than that because that includes areas that were previously rural areas that were put into urban boundaries as they grew.

I think the imbalance is a result of several truths and maybe a few myths about what can be accomplished. First, a truth. Road construction can help reduce the growth of traffic congestion. Figure 1 in my handout shows the dramatic difference in travel time, penalty growth between areas that added roads at a rate close to that travel growth, the green line on top, and those areas that added few roads in relation to travel growth, the dark blue line toward the bottom. The cities in that group where traffic volume and road growth grew at about the same rate, the time penalty only increased 57 percent. In areas that lagged behind sort of lesser aggressive road building areas, the time penalties increased 245 percent.

A myth that is related to that is we should invest all our money and effort to adding roadways. My characterization of this as a myth is not based on ideology but on the fact that since 1982 urban areas have only added about half the roads need to stop the growth of traffic delay. Figure 2 shows this percentage is about the same for all areas, about 50 percent no matter what size urban area you are in. This is due to a combination of factors ranging from lack of funding, lack of land, public support, environmentally supportable alternatives. I would suggest that roads can definitely help but realistically they aren't the wonder drug prescription that will solve all the problems because the city has not been able or willing to build them quickly enough.

A similar truth can be stated about transit improvements. They can help but they cannot solve the problem themselves. Figure 3 illustrates the amount of transit system that would have to be added essentially every year to keep pace with travel demands. We would be looking at adding the equivalent of a transit system worth a ridership between every year and every 4 years depending on what population category you are in. I would suggest that is very unlikely.

Let me point out also a somewhat discouraging note that the sort of regular traffic congestion we see is only part of the problem. The variations in travel time caused by crashes, vehicle breakdowns, special events, construction, maintenance, weather and a variety of other factors are a source of frustration and economic loss that you spoke about in your opening remarks. Part of the problem is that we don't have long term, systemwide, very detailed data that we need to fully describe these reliability issues but the emphasis on operational improvements over the last several years does allow us to analyze this data for a few cities.

Figure 4 shows the kind of information we can develop and how we can use it to identify some problem areas and the success of improvements. It shows a graph of how congestion varies across the year and how reliability varies across the year in Minneapolis-St. Paul in the year 2000. Congestion is measured by the travel time index, the dark blue line near the middle of the graph; the buffer index is the line toward the bottom. This is the amount of extra

time travelers need to allow because of the unpredictability and system conditions.

We can see the effect of the big snowstorms in January and December, more congestion and very unreliable travel times. We can also see the effect of the summer tourist season, more variation but about the same amount of congestion. We can also see the effect of turning off the traffic signals that control access to the freeway system. This experiment began in October and the freeway effects were dramatic.

The unfortunate part of this story is the monitoring and data collection system does not extend to the entire roadway system, so we don't know what happened on the rest of the system. The limited data we have suggests that operational improvements can play a significant role in providing a more reliable transportation system for people and freight. It appears unless something changes, we will continue to see a growth in congested travel and congested transportation systems in the future. Projected population increases mean more travel. Our cities have not been able to stop congestion growth over the last two decades and travel and population growth will continue to stress our systems.

If we are fortunate enough to have enough funds, select projects wisely and implement them using techniques that do not result in significant delay from construction and maintenance activities, we might be able to slow down the growth of congestion and make the system more reliable than it is now but reliably congested is not a very high standard of achievement in my view.

If cities are going to have a different future than this, we will have to pursue all types of improvements and implement more projects rather than fewer and manage both the demand patterns and the system more efficiently.

Senator JEFFORDS. I would like to turn to my good friend, Senator Murray. Please proceed.

STATEMENT OF HON. PATTY MURRAY, U.S. SENATOR FROM THE STATE OF WASHINGTON

Senator MURRAY. I appreciate your giving me the opportunity to make a quick introduction of someone who is here for the second panel. I appreciate your having this hearing on this critical issue.

Unfortunately, I have to leave to attend a joint hearing but I wanted to come by and let you know that Ron Sims who is here for your second panel really understands the critical transportation problems we are facing in my home State of Washington. Ron Sims serves as the Executive of King County which is the 11th largest county in the Nation. When he talks to you today about traffic congestion, he speaks with authority.

The Seattle-Tacoma corridor has the second worse traffic in the country and he has been working to address that in his role as a board member and now as chairman of Sound Transit which is the major transit authority in central Puget Sound. For the past couple of months he has been working very hard to bring business leaders, local elected officials, and the community together to reduce traffic congestion so that King County can continue to grow economically.

Ron has led the way on smart strategies for moving people and products in our State that is the most trade dependent State in the

entire country. He is a real national leader on metropolitan issues. He is a member of the Advisory Board of the Brookings Center on Urban and Metropolitan Policy.

Ron was born in Spokane, Washington and spent 11 years on the King County Council and for the past 5 years, served as County Executive. He has dealt with every issue from recovering endangered salmon to using technology to bring government closer to his constituents.

He is a proud father of three sons but he is a passionate advocate and a gifted leader. I think we are very fortunate to have him come all the away across the country to give us his expertise on this very important issue.

Thank you for having him and thank you for allowing me to make a quick opening remark.

Senator JEFFORDS. Thank you and we will look forward to his testimony.

This will be addressed to both of you. How will the rate of growth in vehicle miles traveled change over the next 10 years?

Mr. PISARSKI. I should probably leave this to Tim but let me suggest to you that I think the rates of growth we have seen in the past, I don't think we are going to see in the future. We have seen a tapering in the last few years from the ranges of 3–3.5 percent a year down more to 2 percent. I would expect given the kinds of dramatic bubbles that we have lived through in the last 15 years that are now behind us, I would expect those growth rates to be more moderate in the future. I think it will be a more operable future, something we can address rather than the rather dramatic things we have been through in the last 20 years.

Dr. LOMAX. I think I would agree with that. I think the down side of that slower growth is that congestion will continue to grow, VMT will continue to grow, population and putting that on top of many systems that are already very stressed leads to an exponential growth in congestion. Congestion growth is not necessarily linear when you add 1 percent of vehicles. You don't necessarily get just a 1-percent increase in congestion depending on where that 1 percent gets added. That is part of the trend we have seen, that the population has grown at x, vehicle travel has grown at 2x or 3x, we may get that traffic volume growth down but it's still going to continue to grow. We have had a very difficult time adding system, transit, highway, any kind of system at any kind of rate that we need to.

Senator JEFFORDS. Dr. Lomax, in your testimony, you state we don't fully understand many congestion issues because we lack the data to draw correct conclusions. What type of data is needed to better understand the congestion situation and to begin to address the problem in appropriate ways?

Dr. LOMAX. We are beginning to get some of that data. The operations centers that are set up to monitor the activities of the freeway systems, principally, that dispatch vehicles during crashes or severe weather events or create alerts for motorists, those are the kinds of systems that are collecting the sort of minute to minute condition information about the transportation system. Some transit systems have had a very good monitoring system as well.

The issue is if we don't know what's happening out on the roadway system sort of every 5 minutes of the day; it is very difficult to predict what we should be doing in terms of operational improvements. In the past, our technology solutions were do we build a freeway, do we not build a freeway, do we add a lane, do we not add a lane. Those sorts of very large increments of capacity don't need to be informed by very good data, but if we're trying to figure out if we should meter the freeway system with five cars per minute or four cars per minute and need to put out a tow truck to relieve a crash, or if that crash is going to be able to relieve itself, those are the kinds of systems that need a lot more information.

We need better information about what has happened over time, better information about what's happened over space. We don't need to just monitor the freeway system; we need to try to extend that to the arterial streets. That is a trend we have seen over the last five to 10 years. I expect we will continue to see that growth in monitoring, but whether or not we can amass that data into usable formats that people such as yourself or Executive Sims can use is one of the challenges of my profession.

Mr. PISARSKI. Some of the data I was showing you was from the decennial census. We were living with 1990 data until just recently when some of the new data became available. We still don't have the final tabulations and the final work on the year 2000 data. In effect, in many instances we are still operating with 10 year old information. That is from the travel demand side. From the consumer side, we need far superior information.

Senator JEFFORDS. Mr. Pisarski, in your written statement, you indicate "The future demographics of non-immigrant Americans will help to cap the growth in urban congestion." You then state, "The new immigrants to this country are at the 1960's level of transportation use and this group will increase the demand on the system much as non-immigrant Americans did over the past 30 years."

My question is, where will this increased immigrant demand on transportation occur, both in terms of areas of the country and whether it will be urban or rural demand?

Mr. PISARSKI. This is an area where really I think I'm speculating but let me speculate and put some caveats on that. The first point is that when you add one person by child birth, you have a commuter 20 years later. If you add to a population by an immigrant, you have a commuter in 6 weeks. So the whole shift to immigration where we have 40 to 50 percent of our population growth coming from immigrants, these people come at the labor stages, many immediately enter the labor force, so they have an immediate impact on the system. That is point one.

Second is the fact that they very frequently start off as heavy transit users. You can see the impact of immigration on some of our metro areas and how it affects the travel ownership, the auto ownership, et cetera but over time, they transition to a more typical pattern of the mainstream if you will. I think one of the things transit does for us in these areas, it acts as a socialization tool, gets people into the system, gets them into the job markets, gets them participating in the system and maybe over time, transitioning to

an automobile in the more typical patterns, but I think it provides a very valuable function.

There is still an area where the immigrant population and the minority population largely because of income are still lagging behind the rest of the population. Many of the characteristics of the immigrant populations and our ethnic minorities, racial minorities, look exactly like the mainstream population of 1970, 1965, the number of women without driver's licenses, the number of households without vehicles is the same as the population was in 1960. Many of those things I think will change with growing affluence. The minorities in America will be an important part of our growth in travel in the future.

Senator JEFFORDS. Senator Graham is here. Would you have some questions?

OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Senator GRAHAM. I would, Mr. Chairman, and if I could, also make a short statement.

One of the issues I am very interested in because I think it has significant potential for dealing with congestion is the expanded application of intelligent transportation systems. I define intelligent transportation system as being a system of integrated technologies, communications and procedures which is directed toward enhancing the efficiency of our existing investment in highways.

The Federal Government has attempted to play a role in accelerating the process of intelligent transportation systems. As an example, in our last Surface Transportation Act, TEA–21, between the fiscal years 1998–2003, there was $1.28 billion authorized for intelligent transportation systems. The principal objective of that $1.28 billion was to accelerate the pace of development of new technologies, communications and procedures and then to field test them in situations where we would go through an accelerated learning curve of which of these systems individually and in conjunction had the greatest impact on remediating congestion. That is the theory.

The reality is what has happened is this money has largely been earmarked and it has been earmarked in some very, in my opinion, detrimental ways. According to the University of Texas study annually of where the greatest congestion exists in the United States, it's almost an inverse allocation of ITS money. If you are on the list as having a lot of congestion, you could pretty much count on the fact that you wouldn't get any ITS money.

Two, the projects tended to be, although the numbers are not small by most peoples' standards, they are small in terms of what it takes to fund a reasonable ITS. That is, they were in the numbers of $500,000, $1 million, $2 million.

My concern is that we have now been three-and-a-half fiscal years into this program and I am going to ask you the question, and I have asked other knowledgeable people, what did we learn for the first part of the $1.28 billion we have invested? Not much because we haven't used it in a serious, scientific learning process.

I am sorry that Senator Murray had to leave because she is chairman of the Appropriations Committee for Transportation in

the Senate and I know she shares my feelings. She has indicated to me that she hopes to see some reversal of this. I think it is incumbent on our authorizing committee to try to see what steps we might take, and I have some ideas, to assure if we are going to continue to spend $1.2 billion that we get something for it. I think we ought to either recommend to our colleagues that we cancel the ITS Program or make it what it is supposed to be because today it is just another source of transportation funding directed primarily at those congressional districts which have members of the right appropriations subcommittees on them and we're not accomplishing the purpose of advancing the knowledge of intelligent transportation and its application to critically congested areas of the country. That is the end of my editorial.

Let me ask you to give me your assessment of how well the congressional authorization TEA–21 has been used? Have we significantly increased our knowledge of and demonstrated capabilities of ITS as a result of this expenditure?

Dr. LOMAX. Let me take a shot at that. I am from Texas A&M University and while I like my esteemed colleagues at the University of Texas, I do want to make clear that it goes on the record that the study is from Texas A&M University.

Senator GRAHAM. I have been giving Texas A&M the credit. You just assume anything that is as common sense as that comes out of Texas A&M.

Dr. LOMAX. Thank you, Senator. I very much appreciate that being on the record.

I think we have learned an awful lot. I think there have undoubtedly been programs that have spent money and not gotten the kind of impact, the kind of effect that we like. I share your concern about investments in transportation in areas that are important to the economy. As much as I like transportation, I really think transportation is supposed to serve the interests of the people, the freight and things that move on the system. So investing in the big drivers of our economy I think is supporting the improvement of transportation. To help that is something I think our programs ought to be oriented toward.

I think investing in a lot of different ideas, a lot of different places has allowed us to find places that either don't work or a particular technology or procedure didn't work in one place and it did in another. I think it is important that we have failures, otherwise we are not going to learn what doesn't work. Hopefully we cannot do the things that fail again but learn from them. Typically, it is not a fault of technology that doesn't work, it is a fault of planners that don't talk to operations people, or designers that don't talk to operations people, or operations folks that aren't able to communicate their message to the folks who are the appointed and elected officials making the funding decisions to invest in particular elements. Maintenance is always held up as the element that doesn't get any funding because you can't cut a ribbon on a pothole project.

The same kind of approach works with an ITS program. They are depending on data collection technologies that need to be maintained but there is not as much money in maintaining the data collection effort and the information gathering pieces as there is in deploying them initially. I think part of that is just sort of a natural

cycle that you put the equipment out and see what works and what doesn't work and try to fix it as it goes forward.

Mr. PISARSKI. I guess I would only add that there are so many disparate parts to this process, I think what we need to do now is take some of the experience we have gained and do some syntheses and bring these things together in looking at the successes and the failure and tell people more about what has happened and the results. I think the potentials are there. We just haven't examined it enough and described enough what it is we have learned.

Senator GRAHAM. Last year the Congress earmarked something on the order of a couple of hundred projects as ITS. Does anybody do follow-up studies to determine what we learned from those 200 plus or minus projects and the applicability of that learning in future efforts to reduce congestion?

Dr. LOMAX. I would say that record is uneven. I think there are some places doing a better job of monitoring what happens and at least as important, are putting that message out there, getting the information into the hands of people who make decisions. There are some definitely not doing a good job of that.

Senator GRAHAM. I wanted to add one final question.

If you were to direct this committee to what you consider to be the state-of-the-art in the application of intelligent transportation systems in the United States or elsewhere, where would you send us?

Mr. PISARSKI. Which metropolitan area?

Senator GRAHAM. In the United States or elsewhere, the state-of-the-art of intelligent transportation?

Mr. PISARSKI. I guess one of the things I would suggest is you address that question to Ken Orski who is going to be on the second panel. I know he has been looking at that around the world as well as in the U.S.

Dr. LOMAX. I have the opportunity to make one person happy and a whole bunch of people angry. I think that the Japanese and the Germans are doing a very good job on some of the technology stuff. Whether or not their administrative or institutional relationships are anything like ours is something someone else has to figure out. I don't know that.

Within the U.S., I think there are places doing very good jobs of particular elements with which I am familiar. Seattle and Minneapolis-St. Paul with ramp metering, LA with ramp metering, Minneapolis-St. Paul and Chicago with incident management. Chicago actually has tow trucks out on the freeway system and if there is an accident, they go pick up the wrecked vehicle and get it off the road. Houston has a motorist assistance program operated by the State and off-duty sheriffs man the patrol vans. They go out and fix flat tires, get stranded motorists off the road.

The objective of a lot of the ITS Program and the main benefit is to make the system operate reliably bad. So if you can take out the really bad days, we have a chance to make the system more predictable. I think there are different elements depending on which piece of the ITS world you want to talk about. Some places are doing well. I know I have left out a bunch.

Mr. PISARSKI. I can't think of one place that has integrated all those pieces which would be a wonderful thing to see.

Senator JEFFORDS. Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman, for having this hearing as we prepare for the second reauthorization of ISTEA.

Mr. Pisarski, some of the statistics in your testimony are very interesting, particularly car pooling being down and drive alone being up, walking alone being down over the 1990's. I am sure a lot of that has to do with low gas prices. I saw it was down south of here about 91 cents a gallon. I think it is starting to creep up now.

As we prepare for this 5 year reauthorization, how much should we, as best we can, factor in the cost of gas? Obvious that has an enormous impact on transportation behavior, particularly with cars?

Mr. PISARSKI. In the short term, the price fluctuations in gasoline don't have much of an effect. In the longer term, they very well may, but the biggest effect they have is on the kinds of vehicles people own. The tendency is to go down size to a smaller vehicle to a more fuel efficient vehicle. The American public today in almost the majority of households have more vehicles than workers. So people can mix and match. What happens is if you double the price of gasoline tomorrow, everybody parks the SUV and takes the Saturn to work. The fuel efficiency of the country would jump 40 percent overnight. That is what happened in 1974, exactly the same thing.

One of the immense factors that needs to be recognized in all this is probably the biggest change in our Nation's transportation system in the last 20 years is the continued reliability and longevity of the automobile. The average age of our fleet is now 8 years old and rising. That has made an immense number of vehicles available, very serviceable vehicles available to low income people to gain access to the automobile fleet. Out into the future, I think that is going to permeate everybody's approach to the opportunities. With high prices, people will simply shift to more efficient vehicles. The hybrids are coming.

Senator CHAFEE. My wife drives one. I don't know in particular if I agree with you that the price of gas, by itself, would change just the type of vehicle people drive. I would tend to think they might double up in cars, perhaps take mass transit. It's just a budget issue at home. You stick by what you said earlier though?

Mr. PISARSKI. I think there is also a tradeoff. Clearly what has been going on between both car pooling and transit, transit and car pool riders look a lot alike demographically but there is also sliding back and forth between the single occupant vehicle and the carpoolers. Car pooling today has almost evaporated. It is basically family pooling as if a husband and wife work and go in the same direction. But the traditional let's save money and car pool together just doesn't happen. People do it because of saving time in an HOV lane. They will do it because they are traveling very long distances but for the most part, car pools are a much narrower concept than they were 10 or 15 years ago.

Senator CHAFEE. Dr. Lomax, any comment?

Dr. LOMAX. No.

Senator CHAFEE. Thank you.

Senator JEFFORDS. Thank you for your helpful testimony. We appreciate your participation.

Senator JEFFORDS. Our next panel is Ron Sims, Anthony Downs, C. Kenneth Orski, and Frederick P. Salvucci. We appreciate you all being with us. We will start with you, Mr. Sims and work on down the line. Please proceed.

STATEMENT OF HON. RON SIMS, KING COUNTY EXECUTIVE, SEATTLE, WASHINGTON

Mr. SIMS. Good afternoon. I am glad to be here today.

I submitted remarks and go on to the general things in the remarks I submitted to the committee.

I am the elected head of King County Government which is the 11th largest county in the United States. We operate every mode of transportation, buses, van pools, car pools, airport. What I have seen and want to discuss a little is what my peers talk about when we are in a room together, normally the large cities, large metropolitan areas, we talk about our frustrations at the smokestacks, the pipes, the categories or the straight jackets that were inserted in dealing with transportation issues within our regions.

We cannot unfortunately develop a coherent transportation system in major metropolitan areas because we chase the categories of funding that is available to us. Because we chase, it is the funding available that moves us so if we have roads money available, we chase roads money; if it is rail money, we chase rail money. We chase the funds. I have a number of staff whose job it is to chase the funds in order to build our transit system. I chair another transit agency called Sound Transit and we chase the funds.

The frustration is if we were allowed to design a system to have it integrated, we wouldn't spend as much money chasing the funds. We would have a ration approach to building a transportation system. We would integrate all of the modes, rail, commuter rail or light rail, highway expansion, bus, use of new technologies, but because of the method by which we receive it at the local level, because it is in so many defined statutory categories, we simply are unable to build the systems we would like. There isn't a policy that requires the major metropolitan areas to build a system of transportation. We can plan for it, but it is one thing to plan and another thing to implement, so we don't see that.

I would hope that in this round of authorization, we can begin to move to two things. One, we can require major metropolitan areas to come back with definitive plans that are transportation systems and there can be a category of funding to fund those systems. If you look at the top 21 areas in the United States, you find several things in common. One, they are all congested, every one of them. The top 21 areas of the United States that are congested account for 37 percent of this Nation's payroll, 50 percent of this Nation's GNP, 50 percent of this Nation's population and they are all congested.

I don't know how we compete in the 21st Century with other countries and other cities if we have goods and people tied up in congestion, where it adds an additional expense. We have Boeing in our community and we found Boeing is moving the same tonnage north to south in my county as they were moving 5 years ago. The difference is it costs them 22,000 more payroll hours to move it. It is a hidden tax.

If you use Dr. Lomax's data, we have a hidden tax of about $78 million in this country and in my community it is $2 billion of hidden tax. We are hoping we can get away from the categories that in dealing with our areas we can create a transit system that is integrated, that responds to the interests of business, and to our citizens, and that we can get a grant to fund them, that we don't always have to have 90 people writing 90 different grants trying to find out the rules for all 90 different grants.

When I spoke to the Washington State Legislature, I told them we were concerned about arterials. They said, we give money for arterials. I said, yes, you give money to each city but we have found people have left the interstate systems and were using arterials as an alternative to the interstate and that they needed to look at those arterials as corridors. After a great deal of discussion they decided to create corridor projects, minor systems that we would have synchronized traffic signals in that entire corridor, similar designs where we would focus on how we built that out, whether we can meet bus needs and trucks needs, whether we could get over and under rail tracks. We looked at a corridor. It has worked effectively for us in my county.

The important thing now is to expand that to a regional level, to have all of the funds the Federal Government makes available in transportation given to us as a grant so we can develop a coherent and rational transportation system so that we can integrate these pieces into a single system of movement. We don't do that now. It doesn't happen now. We simply chase the money, chase the funds that are available.

I love my job. Dr. Lomax makes my job difficult every year. He announces congestion in our region and we always rank second or third and the newspapers say, Mr. Sims, what are you going to do about it and I say, we can hire more staff, we can write more grants but what we really miss is the ability sit down with cities, counties, businesses, environmentalists, and labor unions to prioritize what we are going to fund as a system. So it isn't just roads and a roads discussion, not just transit and a transit discussion, not just ferries and a ferry discussion, not just new technology and a new technology discussion but we are able to weave these into a single, coherent, rational system in order to move forward.

Thank you, Mr. Chairman.

Senator JEFFORDS. Thank you.

Mr. Downs?

STATEMENT OF ANTHONY DOWNS, SENIOR FELLOW, BROOKINGS INSTITUTION

Mr. DOWNS. My name is Anthony Downs, and I am a Senior Fellow at the Brookings Institution. I am the author of the 1992 book "Stuck in Traffic" which deals with the causes and possible remedies for peak hour congestion for which I am now preparing a second edition. I am required to say by the Brookings Institution that the views I state here solely are my own and not those of the Brookings Institution, its trustees or other staff members.

I will confine my oral testimony to making seven main points and I will use proof by assertion, a well known Washington tech-

nique. It means my points are conclusions presented without benefit of any evidence or data whatsoever.

Senator JEFFORDS. It just confuses you when you put stuff in like that. So go right ahead.

Mr. DOWNS. I assure you that these conclusions are absolutely correct.

My first point is that peak hour traffic congestion is erroneously considered to be a wholly negative and undesirable condition when in fact it produces huge benefits for the country and even for the people stuck in it. Congestion is the primary balancing mechanism we use to ration scarce highway space during peak hours so we can pursue certain other major goals we desire. Those goals include having a wide variety of choices about where to live and where to work, working during similar hours so we can interact with each other efficiently, living in low density settlements and enjoying highly flexible means of movement, that is private vehicles.

There are only two other possible means of rationing the highway space when too many people want to use it. One is charging high tolls to keep many people off the road, but we reject that method politically because it would unduly favor the wealthy. Second, we could spend enormously more money to build enough roads to handle peak hour traffic without any delays at all, but no society can afford to do that.

Since we wisely reject these means of rationing road space, we must use delays from overcrowding in order to pursue those other goals we want to achieve. In other words, congestion is bad but it is better than the alternatives.

The first conclusion implies the second one. Peak hour traffic congestion is an inescapable result of living in any large modern or modernizing metropolitan area anywhere in the world. Moreover, it is bound to become worse in the future in all of those metropolitan areas as long as their populations keep rising. There is no such thing as a remedy to peak hour congestion in a large and growing metropolitan area once such congestion has appeared on its major roads. There are many tactics that might slow down the worsening of future congestion, but none will eliminate it or even stop it from intensifying.

The biggest challenge to future ground transportation in America will be dealing with the many added vehicles generated by future population growth. Since 1980, the United States has added 1.2 cars, trucks or buses to our vehicle population for every one person added to our human population. Since our human population rose by 32 million in the 1990's, if it rises by similar totals in each of the next two decades, we will have to cope with as many as 64 million more vehicles capable of being on our roads by the year 2020.

As the Texas Transportation Institute has already said, "We cannot build our way out of peak-hour congestion." It appears on our major roads by adding more lanes to those roads. After a road's capacity rises, traffic initially speeds up, and more vehicles will converge on that road during peak hours from other routes, other times and even other modes until it is just as crowded during the peak hour as before the road was expanded, although the peak hour might be shorter.

That does not mean, however, that there is no point in building more roads. In fact, we will need enormous future spending on roads and bridges for two reasons. The most important is to repair and maintain the road network we already have, much of which is in bad shape. Also important will be creating new roads to serve population growth areas. They will continue to be mainly low density settlements at the edge of existing metropolitan areas.

We also need to spend a lot of money on public transit in the future, even though there is no chance whatsoever that we can shift any very large share of future ground movement from private vehicles to mass transit. In 1995, public transit accounted for about 3.7 percent of all daily commuting but only 2.2 percent outside of New York City.

The vast majority of Americans prefer moving in private vehicles because doing so is faster, more comfortable, more convenient in timing, more flexible in choice of routes and use of multiple destinations, more private and often cheaper than public transit. If we spend more on public transit, it should be mainly on more flexible, smaller scale, and less regulated forms that can provide convenient service to people living in low density settlements, which will remain the predominant form of our future growth. Also, a higher fraction of our elderly population will be unable to drive and that population is growing rapidly.

My written testimony presents a more complete version of these points, plus a number of other aspects of these subjects, including suggestions for possible improvements in slowing down the rate of congestion.

I thank you for inviting me and I will be happy to answer any questions.

Senator JEFFORDS. Thank you for an excellent statement.

Mr. Orski?

STATEMENT OF C. KENNETH ORSKI, URBAN MOBILITY CORPORATION

Mr. ORSKI. Thank you, Mr. Chairman.

I am Editor and Publisher of Innovation Briefs, a bi-monthly publication which has been reporting and interpreting developments in the transportation sector for the past 13 years. My testimony today is based on observations acquired in the course of gathering and analyzing information for our publication. These observations draw on recent briefings and conference presentations and on interviews and personal communications with members of the transportation community in Washington, in State governments and local officials across the country.

I shall confine my remarks to a very brief summary of my prepared testimony, copies of which I believe have been made available to committee members

My overall conclusion is that we enter this reauthorization cycle with fewer issues than might divide the transportation community and with a larger measure of a consensus among major stakeholders than at any other time in recent history. Unlike the last reauthorization cycle when interest groups jockeyed for position and floated a number of competing proposals, this time around I find near universal agreement that we ought to buildupon the com-

bined legacy of ISTEA and TEA–21 rather than engage in a bruising fight to reinvent the Federal Surface Transportation Program. To be sure, there will be some proposals for changes, but these I think are likely to be refinements to program delivery rather than radical changes in the structure of the program itself.

Turning to specifics, I discern a large degree of consensus within the transportation industry and among major stakeholders on several policy directions and new initiatives.

They are, first, the need to protect the Highway Trust Fund by preserving the budgetary firewall protections and the principle of guaranteed minimum levels of annual spending. Second, the need for increased program flexibility, something Mr. Sims spoke very eloquently about. Third is the need to mitigate traffic congestion. This is regarded by all I think as a serious national problem requiring a national response.

There appears to be a large measure of consensus within the transportation community that this response should include both capacity expansion and improvements in the operation of existing facilities, although I might add opinions do differ among stakeholders as to the proper balance to be accorded to these two major traffic mitigation strategies. A comprehensive Federal attack on the problem of traffic congestion might take the form of a specific bottleneck elimination program, something along the line suggested by the American Highway Users Alliance. This would be supplemented by a program of operational improvements designed to squeeze more capacity out of existing facilities.

The fourth point is the need for environmental streamlining. This is considered a critical priority by large segments of the transportation community. Indeed, there is almost a unanimous agreement that something has to be done about streamlining of our decision process. While the current efforts of the Federal Highway Administration to streamline procedures through administrative action are commendable, the transportation community, I believe, is looking to Congress to provide more explicit legislative direction to reduce the delays that have plagued the project implementation process.

Fifth is the need to advance the intelligent transportation system program, something Senator Graham was talking about. The continued Federal support of this program remains a high priority for large segments of the transportation community. A frequently mentioned idea is the creation of a national "infostructure" which I put in quotation marks because it is not yet an accepted term but one that I think you are going to hear more about in the future.

This network would be capable of collecting and sharing transportation system conditions and performance information covering the entire national highway system. Such a national communication network, I believe, could become an integral part of a homeland security infrastructure, available in times of national emergency for evacuation and mobilization purposes.

My sixth point is the need for increased transit funding, especially for new starts. Funding is likely to dominate the transit industry's reauthorization agenda. According to the latest annual report on new starts, there are some 50 rail projects in preliminary engineering or final design which represent a potential demand of

$30 to $35 billion. Carving out a bigger role for "bus rapid transit," which is now undergoing a series of demonstrations, could significantly reduce the need for transit capital funding. Indeed, many transit experts, including myself, believe that bus rapid transit could lead to a new generation of more flexible, less expensive new starts.

This leads me to the next subject, a related initiative, which is to convert and expand the existing stretches of HOV lanes, high occupancy vehicle lanes, into seamless networks of high occupancy/toll lanes in major metropolitan areas. These networks would be dedicated to express bus service and car pools but would also be open to individual drivers for a fee. By varying the fee according to demand, the number of single occupant cars seeking entry to those hot lanes could be restrained to maintain free-flowing traffic conditions at all times.

In my judgment, a congressionally authorized program of HOT lane networks, built as enabling infrastructure for bus rapid transit, but also available as a paying option to individual users, would be an eloquent expression of the increasingly intermodal nature of our Federal Surface Transportation Program.

Finally, I sense a growing concern within the transportation community, as well as among stakeholders, about the long-term capacity of the Highway Trust Fund to finance the Nation's future transportation needs. The majority view, I believe, is that the growth in gasoline tax revenue will not keep pace with the rising demand and cost of highway reconstruction and rehabilitation. Looking beyond the next reauthorization cycle, we may need to consider entirely new approaches to financing the Federal Transportation Program. Hence, I join other transportation leaders in urging a congressionally mandated study to explore alternative financing mechanisms that would offer a stable and adequate source of transportation financing beyond the next reauthorization cycle.

This concludes my testimony. Thank you very much for the opportunity to present my views.

Senator JEFFORDS. Thank you.

Mr. Salvucci?

STATEMENT OF FREDERICK SALVUCCI, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Mr. SALVUCCI. Thank you very much. It is really an honor to be able to share some views with this committee.

I am at MIT and have been in an academic environment on and off for 15 years but my primary experience in this area is as a State transportation official when I was Secretary of Transportation for Massachusetts, so my views reflect that background as well as the more recent academic experience. I would like to speak to the three points you gave as a title for this conference and add a fourth which is money. You have my written comments, so I will try to make this brief.

On mobility for the poor, the automobile and access to the automobile I think is increasingly solving the problem of access to jobs for poor people. If you have a job, you can afford at least a cheap car. For urban jobs, bus fares I believe are too high and continue to be an obstacle for poor people, is taking too big a piece of their

private household, in particular, the lack of free transfers in many systems is a serious problem for the urban poor seeking urban jobs. I think as a mobility issue, mobility for poor people is getting better and I expect will continue to do so, I think we all hope.

I don't think the same is true for disabled and elderly. The disabled and elderly access has improved because of the paratransit systems which have been required of public transit systems and I think it was an important strategic step to move in that direction but that really limits improvements in mobility for the disabled and elderly people to those areas that have transit systems. It is sort of an unfunded mandate on the transit systems to provide the paratransit service. As the systems become fully accessible, which is the hook that got public transit into this, there is some argument they can lessen the quality of the paratransit service that is out there. I think that would substantially disadvantage the elderly and disabled populations who are not well served, better the paratransit that is out there than nothing which is what was there before but I think there is a lot of need for improvement.

I think we need to change our view of disabled and elderly access as a responsibility of the transit system to a responsibility of the transportation system which includes everyone, including people outside those areas served by fixed route transit systems. I think the Federal Government needs to step up to the plate and partially fund it, possibly at low funding ratios, one-third Federal I think would leverage a lot of State participation. You could require a maintenance of effort so you didn't get hit with a big jump. I think this is a big problem about to erupt. The aging population is growing, as mentioned, and I think that is a big one.

There is also a teen mobility problem, particularly in the suburbs. Soccer moms are basically chauffeurs and if we were creative about the way we dealt with paratransit, we might find better ways of dealing with both elderly, disabled and teen populations rather than having mom drive. I also think there is a cultural advantage in shifting in this manner. I am not denigrating public employees or civil engineers, I am a civil engineer. Civil engineers love to build things. I am a civil engineer and I love to build things. If we want to see mobility being the focus of these institutions, we need to focus on that. So I think Federal funding specifically for mobility for important constituencies, disabled and elderly, would be a big step in the right direction.

Second, congestion, it is politically attractive to say we are going to fix it but I would agree that it is not going to go away, in many cases it is not even desirable to go away, and that to do something effective about congestion requires some peculiar situations. I had a lot to do with the Central Artery Tunnel Project in Boston and I think it will improve congestion at enormous cost. I think it is worth it but it is important to remember there is a huge investment in public transportation and a limit on the number of parking spaces in downtown Boston which complement that very large endeavor.

I think if you are serious about getting at congestion, you can only manage it in critical points, you can move it around some and that is useful. Better to not have the traffic jam at the entrance to the hospital, better to manage things so that the critical points

work. So I think it makes sense to focus on congestion but I think we shouldn't mislead ourselves and lose our credibility by pretending we are going to make it go away because I don't think that is the case. The methods used in Singapore are very interesting but they don't seem to be applicable anywhere else in the world so far. We have to study them but I think we shouldn't promise any early end to congestion.

I would urge that in this area, we recognize that the metropolitan area process I believe tends to make it difficult to do large projects. It is easier in the metropolitan process to do a whole bunch of little things that are too small to matter. If you are trying to something major, the problem in my view is not the environmental process. The environmental process helps to structure a very complicated conversation about how you are going to restructure old urban infrastructure. I don't think our cities should become petrified wood, doomed to continually repeat their old patterns. I think we ought to rethink urban infrastructure as we face the need to rebuild it but if we are going to expect people to get at that job, I think there should be dedicated funds so I will disagree with this flexibility argument to some degree.

As a State official, in my experience the problem was not the environmental process, the problem was not enough money. There is only a certain amount of money. At the end of the day you are going to spend it all. The real problem is that the more complex projects take longer to process, so in order to satisfy the contractor constituency, you spread more asphalt around the State. If you want to see attention focused where it is most needed, I believe it would be highly desirable to target at relatively high matching ratios, I am usually an advocate for low matching ratios, here I think they should be high, on critical corridors, particularly airport access.

We all talk about trucks but we never give them priority. I think we ought to be looking at airports in particular as a location where the congestion is particularly difficult and worthy of attention but I think we need some categorization in order to enable officials to focus on the most critical issues. You can't expect I believe a local official under the same political pressure to spread things around to be able to focus on the more complicated ones if there is not some higher level of dedication in that area.

Finally, on money, I am suggesting a bunch of places that I think the program should be expanded. We all know the pot is smaller and you have an extremely difficult job just getting reauthorization with the smaller pot. I believe the key to being able to get a bigger tent is not to take on the environmentalists but to embrace them. Two, I believe we should be revisiting the pay as you go philosophy inherent in the 1956 decision to proceed with the interstate and at least for some of these projects, begin to go to a capital budget approach as every State and every city in the country and as Americans use to buy their own homes.

If we use the existing revenue streams but dedicate a portion to debt service, we could get at some of these problems earlier and quicker than otherwise we will be able to do. I think that would be worth doing. Eventually, we will face the issue of if we like it, we have to raise the tax to continue. I don't think that would be

so bad either. Even if we never increase the tax, I would much rather see serious investment done over the next 8 years than spread out over the next 30 so we can get the economic benefit of those critical investments.

I appreciate your attention. I have gone over my time. I would be happy to answer any questions you might have.

Senator JEFFORDS. Thank you.

I will read my question and then I will start at the other end of the table.

One key issue in the debate over congestion is whether we can build our way out of the problem. I wonder whether we can afford to build our way our. In 2000, while new capacity projects represented only 17 percent of the mileage involved in all Federal aid projects, it required 48 percent of the money spent that year. Isn't a build strategy prohibitively expensive? Mr. Sims?

Mr. SIMS. You can manage congestion. We will never build our way out of it. You can manage it. The key is not to let it continue to get worse. That is why I want to go back to the issue of we do not have a coherent, rational policy in metropolitan areas on transportation. We tend to like big projects because we believe they will deliver the capacity we want.

I always smile at what we see in our area, we will build big projects and arterials get crowded. We will not explore van pools because we like more what we call sexy, ribbon-cutting things like BRTs. BRTs work in some corridors, clearly. The key is to have a system in place and to have a discussion of a transportation system in metropolitan areas so you can manage the congestion, so you can find out what tools you can put in place.

I agree with every speaker here, if anybody thinks we are going to end congestion and build our way out of it, that is an absolute impossibility today. It wont happen. In our State, we have discussed saying that highway speed during peak hour are up to 35 miles per hour. People say wow, 35 miles per hour but the posted speed is 60. We say, yeah, but if you are moving at 35 miles per hour you are moving faster than you are moving right now.

What we would like to do is have tools to manage them but you are going to have to have a transportation system that everyone has agreed to fund, big projects, small projects, a variety of different modes of transportation and we can do it. Right now, we don't have it.

My biggest fear is Seattle Times will report that Ron Sims says we do not have a coherent transportation system in the central Puget Sound but people know that already because they are sitting in congestion, so they know it is not coherent. The Federal Government can stimulate that by insisting on it and then providing funds to give us, and fund a system. I keep saying that. I am a person that connects dots. When I was a kid, everyone else got puzzles; I got the thing that said connect the dots. As the County Executive, I can't connect the dots because all the funds coming out of the Federal Government are in these categories. The categories don't talk to each other, so we chase the money and whatever we can get we are satisfied with but it doesn't create a rational, sensible, thoughtful, traffic system in the metropolitan areas and the in-

creased congestion in every one of those areas is an evidence that it is not rational and thoughtful at this time.

Senator JEFFORDS. Mr. Downs?

Mr. DOWNS. I am sorry, but I don't agree with you, Mr. Sims. There is no system on earth that is going to prevent congestion from getting worse. I am not opposed to having a better system; I think that is probably a good idea, but if you think it is going to prevent increasing congestion, you are living in a fantasy world. As everybody here says, if you look at the population increase, rising congestion is likely to occur in the Seattle metropolitan area even if we don't add 1.2 vehicles for every human being. In the 1990's, that ratio dropped to one vehicle added for every additional human being. We are still going to add a lot of vehicles on our roads. Not only that, but because of the other goals we want to pursue that I described—for example, everyone working about the same hours so we can interact with each other—those vehicles always converge on the roads at certain peak hours. No matter what system you have, the roads are going to be overloaded at peak hours unless you turn the whole metropolitan area into one concrete slab, and you are not going to do that. That would be an environmental disaster and we couldn't afford it. So rising congestion is inescapable. It is a part of living in any modern metropolitan area, and it is going to get worse as long as the population of that area keeps going up. Sorry about that.

There are things you can do to slow down congestion's rate of increase. But don't think if you get a great system, the most perfect system you could imagine, that is going to solve the congestion problem because it isn't.

Mr. ORSKI. We may not be able to build our way out of traffic congestion but I don't think that should be used as an argument for not increasing highway capacity because increased highway capacity is needed to accommodate growth in population and economic activity.

Mr. DOWNS. I agree.

Mr. ORSKI. I would like to draw the analogy with schools and hospitals. Schools and hospitals in fast growing areas also eventually fill up with students and patients and yet this has never stopped us from building more schools and more hospitals.

Mr. SALVUCCI. I would agree that congestion is not going to go away. I think we do have some choices in how we spend money that could stretch out capacity a bit, particularly in rural and suburban areas. My experience is that capacity goes backwards as people add curb cuts and new land development sprawled along the side of the road, we lose safety, we lose capacity and when we try to maintain high speeds the whole mix gets fairly lethal.

The same amount of money spent on a small road widening stretched out to acquire development rights and access rights and some environmental betterment easements would maintain the capacity for a longer time on these roadways and then eventually when you do get the money to widen, you have already acquired the property rights.

We do something very foolish, we focus on a very short piece of road, spend a lot of money and create a lot of disruption in widening that piece of road while the Burger Kings open 24 more

joints in the next mile and we say, we'll have to do that one too and then have to pay to relocate the Burger Kings. We would be better off looking at it sequentially and saying if this is a corridor that looks like it is going to change over time, not suggesting the change is always bad, I would get control of the curbs so that we retain the capacity we have and if new economic development happens, and we may want that development to happen, let it happen in an orderly fashion off the roadway. We could achieve a pro-environmental outcome, improve safety and preserve capacity somewhat longer than we would otherwise.

I agree though that as cars go up, congestion will increase but I think there is a more effective way to deal with suburban congestion than trying to build our way out of it. I would make an exception in the case of the critical piece next to the hospital, so to speak. There are critical links where I think we should be managing congestion by letting it take place away from the sensitive location, but I would agree with Mr. Downs that eventually congestion is going to be there. He wrote a great book; I am using it for my students. I look forward to the new version.

Senator JEFFORDS. Mr. Sims, Seattle is a natural bottleneck with the additional problem of crossing Lake Washington, so it would seem the construction of additional roadways is not a practical solution to your congestion problems. If additional funding were provided to the metropolitan areas for congestion relief, how would you utilize that funding?

Mr. SIMS. In my heart of hearts, obviously we are very concerned and want to continue to buildup our light rail system and our commuter rail systems. There is need for road expansion and we can see that on the Interstate 405 corridor which needs to be expanded. We have an incredible bottleneck that ties up everything, including every arterial. So there are road capacity needs that remain in the area.

Our area is a prime example that there is never a silver bullet that fixes anything. We look at a variety of tools that could be made available to us because we believe it is going to require a multi-modal approach. Whether it is van pools, car pools, buses, BRT, light rail, commuter rail, road expansion, the synchronization of traffic signals, all can play at moving people but we are limited.

We are not unique. When I travel to other communities, I see the same kinds of patterns. I don't see any single metropolitan area in the United States that can sit here and tell me that there is one solution that should be available to them to move people and commerce. It is going to have to be multimodal, no matter where we are.

Senator JEFFORDS. For you, Mr. Sims, let me wish you well in your efforts to organize the Metropolitan Congestion Coalition. I hope you will keep us appraised of your progress and pass along the group's thinking on reauthorization. It is a pleasure having you with us.

Mr. SIMS. Thank you very much.

Senator JEFFORDS. Mr. Downs, in your written testimony, you make a brief reference to the cost of parking as a factor in the comparative commute cost of transit to driving. You seem to suggest that free parking can make the difference in a commuter's decision

to drive rather than to ride share or take transit. If so, how should parking factor into our policies? Should we look to parking pricing to reduce congestion; should we tax employers differently if they provide parking rather than transit allowances?

Mr. DOWNS. It depends on how strongly you want to attack the problem. If you are trying to raise the cost of driving, the best way to do it is to raise the gasoline tax. Congress has consistently avoided that. The single most effective thing you could do to reduce driving is to put a $3 a gallon tax on gasoline. Of course none of you would be in office after the next election, so you are not going to do that. That is the most effective way to raise costs.

What you are talking about concerning parking is: could you raise the cost of parking in theory? We could put a tax on parking or else force employers to charge their employees for parking. But I don't think that has anymore popularity politically speaking than a gasoline tax. I think parking is a relatively minor factor in people's decisions on whether to use transit or to drive. As I pointed out, the fraction of people who use transit is so small, even if it doubles or triples, it will not take enough people off the roads to cause much congestion to change at a peak hours. That is one of the weaknesses of the argument that improving transit is going to reduce congestion.

There may be reasons to adopt light rail systems, but one of them is not to reduce congestion. That won't happen.

Senator JEFFORDS. Mr. Orski, your statement that only additional lane miles of roadway can decrease or eliminate bottlenecks and congestion is an interesting one. That may very well be true in the western portions of the country where building additional roads will also improve the redundancy of the highway system. What can be done in densely built up urban areas like New York, Philadelphia, and the District of Columbia? How can we build additional roadways in a socially and fiscally responsible way?

Mr. ORSKI. First, I would probably modify my sweeping statement that only roadway widenings or new road construction can decrease congestion. The kind of congestion caused by accidents and incidents can be effectively mitigated by intelligent transportation systems technology by providing more effective emergency response and clearance of accidents.

Having said this, there are many situations that intelligent transportation systems technology cannot solve because it is simply a matter of too many cars trying to squeeze into too few lanes. What can be done about that? We can use simple engineering improvements, such as eliminating three lanes of traffic squeezing into two lanes of traffic, as is the case with the Wilson Bridge. In other words, we could do a lot to smooth out traffic without spending billions of dollars on brand new highways, through incremental design and engineering improvements to existing roadways.

This is where the bottleneck elimination program comes in, something that I have already referred to in my testimony. It is a recommendation of the Highway Users Federation to identify a finite number of highly congested arteries in densely urbanized areas and try to attack those specific bottlenecks. This does not require building new highways. It simply calls for engineering and design improvements to existing highways.

Senator JEFFORDS. Mr. Salvucci, you emphasized the importance of maintenance, repairing, rebuilding and redeveloping deteriorating transportation infrastructure. Do you feel that proper maintenance and repair can reduce or alleviate the congestion problem?

Mr. SALVUCCI. Yes, but I think given where we are, it has to be approached with a two pronged effort. One, I advocate that the Federal Government should get into the maintenance business with some funding. The management systems of ISTEA, which I was very excited to see in 1991, have not affected behavior at the State or bureaucratic level. I think if the Government wants to see greater emphasis on maintenance, a stitch in time saves nine, it is the prudent thing to do, putting perhaps one-third Federal match on the table with a maintenance of effort so you don't get hit in the head with a big jump, but prospectively getting into the maintenance business and requiring the States to become more professional about the way things are maintained is necessary so we stop sliding backwards.

That being said, there is a huge backlog of infrastructure that is in terrible shape that has to be dealt with at this point. I would fund those reconstructions at very high matching ratios because they are very tough projects to take on. In the local politics, the easiest thing to do is nurse it along to the next administration because rebuilding old infrastructure that is already heavily used is very tough politically because you create traffic disruption while you are doing it. So you have a built in tendency to avoid dealing with some of our worst structural problems at the local level. I have a great respect for the people at the local level. I was one for a long time but I think we should recognize the pressures on them and provide some high matching ratio, categorical funds that must be spent dealing with old infrastructure to give local officials the incentive to take on a very, very difficult political problem which is absolutely necessary. We see over and over again those issues pushed off and dealt with by the next administration maybe and then once in a while, we get a bridge that collapses.

Senator JEFFORDS. Senator Chafee?

Senator CHAFEE. Thank you.

It seems as though Mr. Downs summed it up in his last paragraph when he said "No matter what public policies are adopted in response to future traffic congestion, it is likely to get worse in nearly all parts of the world. My final advice is get accustomed to it. Commute in an air conditioned car with a stereo, tape deck and a CD player and a hands-free telephone and a microwave oven and realize that congestion is providing benefits to you by rationing the roads you use and letting you pursue other goals. So just get used to it."

Mr. Sims said here is no silver bullet. I guess the options are high priced tolls or $3 a gallon gas tax per his testimony, so the solutions to congestion are going to be very difficult is what we hear in the testimony this afternoon. I guess I do agree with that.

Mr. DOWNS. There are no solutions, but there could be improvements. Examples are the hot lanes that Ken Orski suggested; or the systems for picking up accidents and getting them off the road faster; the metering access to expressways as you do in Seattle; or

building some additional capacity at bottlenecks. These are things that can be done to slow the rate of increase in congestion.

Although you might consider me to be a pessimist, I am not a 100 percent pessimist.

Mr. SIMS. If you will indulge me a second, when I was a kid my father was directing a mass choir, I was a member. He stopped the choir and rehearsal and said to me, Bud, lip sync, which is what I did through the concert. The reason I want to use that analogy is that at the regional level or talking about metropolitan areas, there are several things wrong. One is a cacophony, not a symphony because people are not on the same page. Everybody has a different song sheet and until the Federal Government provides the incentives to give us all the same song sheets so that we have an agreed to level of congestion, then we will not have a rational and thoughtful process.

My middle son told me I was irrelevant the other day. He is in college, so I guess there is a time to be irrelevant. I told him when I was in college, I had a 'fro, I had a hair growth period, my beard, my sunglasses, my dashiki and I told my dad that he was irrelevant too. I did it after the tuition check but not before as my son did.

The issues that he cited were very interesting which was all the national and local problems. I was very impressed. We can look at what we have done over the last several decades and say that is acceptable or we can embark on something that is bold, next century and of a new generation. That requires us to get out of our comfort zones. I am telling you, unless you require metropolitan areas to have an agreed to level of congestion and system in place, we will be doing what we have been doing for the last decade, and it simply won't work. It will diminish our quality of life significantly.

Senator CHAFEE. Thank you for coming all this way.

Mr. ORSKI. Tony Downs gave me an opening to say a good word for HOT lanes, the so-called high occupancy toll lanes. While admittedly we will not be able to get rid of traffic congestion for everyone, we can create conditions where people who have reason to be somewhere on time, whose time is valued in terms of money, have an option of faster travel. Those are the so-called high occupancy toll lanes that have been created in several jurisdictions, including in California that allow buses and single occupant vehicles to travel in unobstructed traffic, in free flowing traffic at a fee.

Some people call these lanes "Lexus lanes" implying they used only by highly paid professionals but I can assure you a utility van and a pick-up truck are a far more common sight on those HOT lanes in California than Lexuses or BMWs. There are many people who, from time to time, find the need for a quicker trip and are willing to pay for this. A classic example is the parent who is racing to the day care center to beat the $1 per minute fine that is assessed for parents that are late. For that parent, paying a toll of 55 cents or even $1 may be money well spent in order to avoid the fine. So there should be ways of improving travel conditions for people who are willing to pay for it.

Senator CHAFEE. Thank you.

Senator JEFFORDS. Senator Graham?

Senator GRAHAM. Thank you. I apologize for having to leave for another committee meeting. As I was leaving, Mr. Orski was making his opening statement. He was listing a number of numerical points we needed to pursue. Several of them, including the streamlining of the permitting process, ITS and innovative financing were all provisions included in TEA–21. Some of them were new, such as the streamlining of permitting, some were continuations such as the innovative financing.

This is a question to any panel member. Has there been an analysis of these types of programs which are intended to make our resources and our highway facilities more effective and efficient by managing them in non-traditional ways? Has there been any analysis of the success of these efforts, and from that analysis, recommendations that we might utilize as we reauthorize TEA–21?

Mr. ORSKI. Senator Graham, there have been a number of evaluations of intelligent transportation system projects. I have in mind specifically the model deployments that have been carried out in several urban areas. These provide quite a bit of evidence of effectiveness of ITS.

As far as innovative financing is concerned, I cannot really think of any good examples but State and Federal environmental streamlining and intelligent transportation initiatives provide a number of evaluations that would be very valuable to the committee as you proceed with the reauthorization.

Mr. DOWNS. I am not aware of any systematic evaluation of ITS, but there is one particular project in ITS that I can evaluate on my own as ridiculous: That is the high speed highway on which cars controlled by computer travel at 120 miles per hour 6 feet apart. We are spending a lot of money on this project. I believe there is an test road built outside of San Diego. If we developed this, since the cars are only 6 or so feet apart, there will be 10 times as many cars arriving each hour in the downtown area, what are you going to do with them? The real bottleneck is the downtown street system with its limited capacity.

Even if this project were to work, which I don't think it would, it is extremely expensive. Also the liability cost if there is an accident would be colossal and no one knows who would pay the cost. The whole idea is ludicrous and yet we are spending around $100 million on this idea, so there is an evaluation for you.

Senator GRAHAM. One of the things I hear you saying is maybe in our next reauthorization of the Surface Transportation Act, we need to put in some stronger evaluation components so that we will achieve what we had hoped which is to learn something through this process and be able to have incremental improvements from year to year.

It was mentioned that the attempt to streamline permitting has pretty much failed, that there was a set of regulations developed by the U.S. Department of Transportation which many States felt actually made the system more cumbersome than it had been before. Are there any models within the States where there has been some effective effort at streamlining the permitting process for transportation projects, examples that we might look to for some ideas as to what the Federal Government should be doing?

Mr. ORSKI. Senator, I wish that Brad Mallory, chairman of the AASHTO was here because I think he could speak to this subject with a great deal of authority. I believe there are examples. I cannot cite to you chapter and verse but I believe that Mr. Mallory and the staff of AASHTO would be the best source of information on that question.

Senator JEFFORDS. We have a whole hearing planned on that issue.

Mr. SALVUCCI. Let me give a slightly different point of view on the environmental streamlining. I say this as a former State official who dealt in excruciating detail with some of the environmental requirements.

Basically, at the end of the day at the State level, you are going to spend all the money you have coming. The real damage in delay in environmental process is that it may slow down, and in my judgment it sometimes does slow down, the most important initiatives and some that are too small to matter move quickly because there is no opposition.

I don't believe that is a problem that we will get at by streamlining the environmental process. The tough projects are tough to do because they are complex and other constituencies may not agree. In my view, the environmental process actually gives us a structure with a beginning and an end to sort out the issues that must be sorted out.

I think what would help the process is, one, if there were more money on the table because with an existing amount of money, you are going to do a certain amount and you are just rearranging the order. Two, I know this contrary to the direction people are going but have a category for high priority, large projects which tend to attract more attention, much more opposition and are more difficult to do, so provide an incentive to State officials to take those on because right now the incentive is hope the bridge doesn't fall down on your watch and let the next guy take care of it. I think you put some money on the line, provide the incentive to deal with it, but I would leave the environmental regulation in place.

I have made several recommendations that would add money and you have less money on the table. I think the central issue to make timely reauthorization work is to find some way to get more money on the table, and if I understand the political constraint, without increasing the gasoline tax. I believe the only significant way to do that is to shift a portion of the program to a capital funding approach as every State uses so you use some of the revenue stream for debt service and you can expand the pie. You need something to get through the next authorization in a timely fashion if you want to deal with these issues which every idea presented is going to cost more money someplace or other and you have less to deal with. We are not being very helpful unless we can suggest ways to expand the pie. I think a look at the capital budget is the one idea I can think of that can give you that flexibility.

Senator GRAHAM. I think he had a very intriguing idea. Many States, including my own, have a concept called DRIs, development of regional impact where large scale projects are treated differently in the land use review process than more traditional scale projects. Maybe that is an idea that has some seeds to explore for large

transportation projects where you would recognize their complexity and the need for some special provisions. I would like to discuss that with you further.

I was very interested in this environmental permitting issue primarily as a matter of sequencing. What I found in my experience as Governor was that too often a big project didn't have red flags raised about it until you were many millions of dollars and years into land acquisition, planning, et cetera and then you find there is going to be a problem. One of the goals was to try to move those decisions to the beginning of the process so if you were going to get a no go decision, at least you got it in the year 2002, not 2012. We haven't achieved that yet. I hope we might be able to make some progress the next time we look at environmental streamlining.

Mr. SIMS. In our State, we are the agency that enforces a lot of the regulations. We are fascinated that there has been a lot of discussion over regulatory reform. In our road building, I only ask that we build according to the existing law and not all the layers of discussion we have had. What happens is permit processes and environmental processes are pushed a lot by the prospect of litigation. Doug McDonald, our Secretary of Transportation, and I agreed that how we would pursue our projects is to interpret the law that was written and not all of the processes on top of it that combine community hearings with the permit process, that are designed to lower your risk and go ahead and defend ourselves as necessary as meeting the intent.

As a result, we are building faster now than we have ever before. I don't know what they are doing in other States but we have what we call large project processes as well but in those projects, we say we will abide by the existing law.

On the technology side, I know you like evaluations of whether technologies work. We try to avoid actually going to someone to finance them because it is so difficult to figure out whether or not the source of funding justifies the technology you are buying. In order to have, as we have, a smart card technology that allows you to use a single pass on any public mode of transportation in our county, we basically avoided trying to go to the Federal Government to finance it, whether it is having signal synchronization that can be overriden by the buses to move more quickly. We went to the voters and asked them to tax themselves for it.

Evaluation can be productive but the implementation of it is incredibly cumbersome and there is an avoidance by major jurisdictions like ours at going down that path until it is made more simple.

Senator JEFFORDS. Thank you all for your very helpful testimony. We appreciate your time and effort in preparing for it and preparing for us. Thank you.

[Whereupon, at 3:13 p.m., committee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF ALAN E. PISARSKI, INDEPENDENT CONSULTANT

Mr. Chairman, Distinguished members of the committee, ladies and gentlemen, my name is Alan E. Pisarski, and I am honored to be invited to speak before you once again to address the outlook for American travel. I recall with pleasure that

I participated in your hearings in 1997 in the advent to TEA–21, and also in the first hearing for ISTEA. It is a responsibility that I take very seriously.

I recall in that first hearing that Senator Moynihan spoke of seeing the New York World's Fair in 1937 as a youngster and how it affected his sense of the future of transportation. I related then that I had been there also, my parents had wheeled me thru that fair as a newborn, and I must have acquired some of the same flavor he did.

We need to look at the next reauthorization period through the lens of the changes likely to occur between now and the end of the cycle. As the next reauthorized period concludes, delivering us to the doorstep of the year 2010, we will have seen dramatic changes in the first decade of the new century:

- We will have crossed 300 million in population at some point midway in the period
- Our rural population alone will be over 60 million, more than many nations
- We will have added more than 25 million people
- And perhaps as many cars as people
- Another 10 million households
- More than 10 million more immigrants
- The first of the baby boomers will be at retirement age.
- 13 percent of the population will be over 65 years of age
- We will have added four trillion dollars or so to our economy

In many respects our world and the transportation system that serves it will be a different place.

In reviewing travel trends and their social and economic determinants I like to use the following list of eight elements of transportation. Now more than ever it is critical to keep them in mind.

- Commuting
- Other local travel
- Tourism
- Service vehicles
- Public vehicles
- Urban goods movement
- Thru passenger travel
- Thru freight travel

Too often we say we are going to talk about transportation and then we forget freight and talk only about passenger travel; then we say we will talk about passenger travel and end up talking about metropolitan commuting. Then we get into an argument about highways versus transit and get lost in the thickets of advocacy.

We must consider both freight and passenger travel, in both their metropolitan and non-metropolitan forms as the list indicates. Many of our issues of the future will be centered in freight-passenger conflicts; and intercity-local interactions.

The Metaphor of the Wilson Bridge

One of the difficult problems addressed by the Congress in the recent past has been the Wilson Bridge. It is the perfect symbol of our challenges:

- It is a critical commuter corridor in the morning and evening
- A major all day regional connector for passengers and freight
- A major route for buses and private vehicles from Maine to Florida
- A critical freight link in the I–95 corridor—main street of the Northeast

It is an aging, heavily used facility suffering from both functional and physical deficiencies operating in a complex inter-governmental environment. There are many Wilson bridges in our future.

My focus today will be on taking the long view on the nation's travel activity trends and demographic future and its implications for future travel.

A Report on Recent Trends

First a report on where we are with respect to commuting and other travel trends. I made the mistake of going back and reviewing my testimony 5 years ago and some of the thoughts I expressed then have been borne out, others need some modifying in the light of the new census data.

The changes between 1990 and preliminary 2000 data from the statistics of the Census Bureau are shown in the accompanying table.

Journey to Work Mode Choice Trends

	1990	2000
Drive alone	73 percent	76 percent

Journey to Work Mode Choice Trends—Continued

	1990	2000
Carpool	13 percent	11 percent
Transit	5 percent	5 percent
Taxi	0 percent	0 percent
Motorcycle	0 percent	0 percent
Bicycle	0 percent	0 percent
Other	1 percent	1 percent
Walked only	4 percent	3 percent
Worked at home	3 percent	3 percent

In my testimony 5 years ago I felt that the decline in transit and carpooling had about reached their limits—right on transit—it has just about held share; but carpooling has continued to decline—it is fundamentally now an intra-household activity today—a fampool. Detailed data from the decennial census coming later this year will help establish the why and how of the decline.

I also stated then I expected the single occupant vehicle to have reached a share of commuting about as high as it was going to go—Wrong!—as you can see, by 3 percentage points, rising from 73 percent to 76 percent—most of it coming out of walking and carpooling.

And surprisingly working at home did not grow enough to increase its share. These rates of growth are shown below compared to total workers. Effectively, those modes of travel that grew faster than total workers gained share and those that grew less lost share. In the 1980 to 1990 period the only modes that showed growth greater than worker growth were driving alone and working at home. In these data it appears that in addition bicycling actually grew the fastest, although from a very small base.

The growth in activity for all modes in the nineties appear in the table below:

Net Change

1990–2000	(000's)	percent chg
Total workers	12367	10.7 percent
Drive alone	13032	15.5 percent
Carpool	–1071	–7.0 percent
Transit	492	8.4 percent
Taxi	15	8.3 percent
Motorcycle	–79	–33.3 percent
Bicycle	96	20.7 percent
Other	290	35.9 percent
Walked onlY	–1076	–24.0 percent
Work at home	669	19.6 percent

The extraordinary fact continues to be that in the nineties, as in the eighties, the increase in the number of single occupant vehicle users was greater than the increase in total workers. In effect all new commuters went to the SOV and additional commuters switched from carpooling, walking etc. The significant difference is that transit did actually gain in numbers of commuters in the nineties, though at a rate less than the growth rate for workers overall thus reducing its overall share, but a positive trend nonetheless.

Some may see cause for disappointment in that transit shares have not increased. There are reasons to be somewhat more sanguine. Transit served about 4 percent of the new commuters, less than its traditional overall share of 5 percent, but its gain of about a half million users certainly is a far superior performance than its actual decline of several hundred thousand in the 1980–1990 period. If we can say that the decline of transit has been arrested we will have accomplished a great deal. When the final census data are available it could show gains for transit sufficient to hold share at 5 percent. Transit reports show gains since the census was conducted. The more important share questions for transit are in metropolitan areas rather than national figures.

Congestion and Travel Times

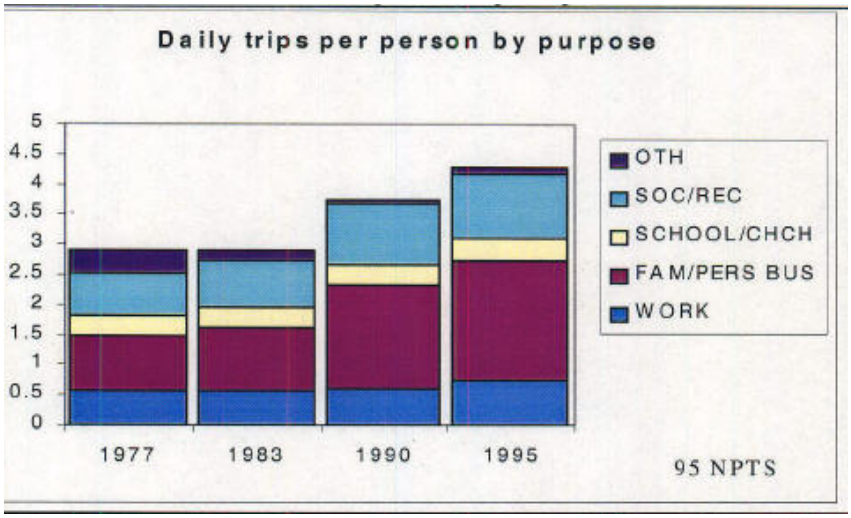
The new census data are preliminary and indicate that average travel times to work increased to about 24.3 minutes, up from 22.4 minutes in 1990 and 21.7 minutes in 1980. When adjusted to correct for definitional changes and given the ex-

traordinary increases in travel activity adding approximately 30 million new commuters and 35 million new vehicles out there a travel time increase of around 2 minutes in 20 years is a really positive point, however the increase of about 1 and a half minutes from 90 to 2000 was more than double the increase in the previous decade. Often in these hearings you only hear problems—in this case there can be some real pride in a system that has absorbed tremendous travel loads and by and large functioned very well.

Travel time is not about averages however. Some States have seen dramatic increases in travel times—especially those with already high densities or absorbing great growth such as Georgia 4 minutes, New York, New Jersey and Massachusetts all around 3+ minutes. But a new phenomenon arose with more rural States showing very high increases as workers commute to large metro areas beyond the State borders. West Virginia led all States with a 4.5 minute increase, Vermont grew 3.1 minutes and New Hampshire also saw large gains at 2.5 minutes. About 9 million commuters nation-wide are now commuting more than 60 minutes.

More detailed data will be arriving from the census and the US DOT later this year that will expand our knowledge appreciably. One of the trends that is clear from other data sources is that commuting is now a relatively small and declining share of total passenger travel—roughly 20–25 percent of local travel. We must remember not to focus on commuting to the exclusion of other important trips.

- While commuting has grown rapidly in the last 20 years, trips for personal business, shopping, etc. have grown even faster.
- Total trip-making per household has grown 66 percent since 1970 despite a 17 percent decline in household size.
- Today the average person makes more than 4 one-way trips per day as the figure below indicates.
- Moreover the average person makes about 4 trips greater than 100 miles from home each year with a round trip distance per trip of over 800 miles.



Challenges and Great Opportunities Lie Ahead

In the past I have called transportation "the collision of demography and geography." The following examines each in turn.

The Challenge of Geography

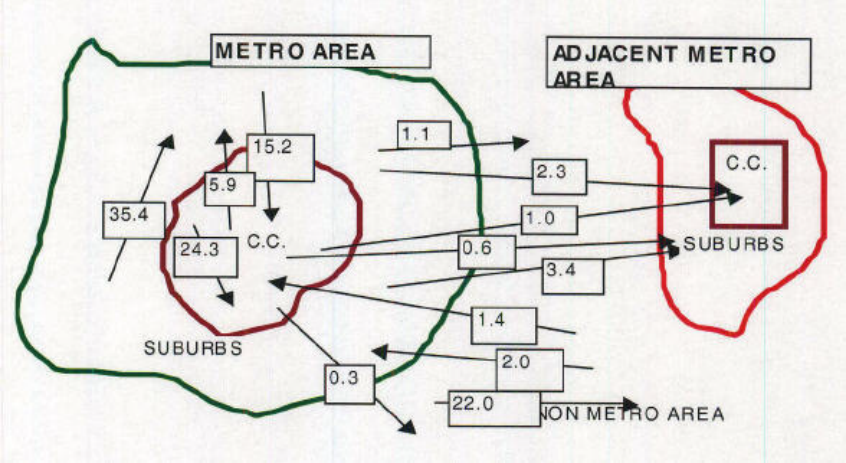
Few nations have been challenged by what Australians have labeled "the tyranny of distance" as greatly as America, and fewer still have reduced its influence on their economic future as we have. We have succeeded through a combination of timely investments in infrastructure and benign public policies that served to permit market forces to work in very positive ways. We have been blessed with great potential endowments and have responded well to those endowments. In the eighteenth century transportation knitted together a nation; in the nineteenth century it welded together great internal mass markets; and the twentieth has seen us inte-

grate our nation into the world economy helping to define and support that world economy.

Transportation is all about reducing the time and cost penalties of distance on economic and social interactions. To the extent that nations succeed in that function they enable tremendous forces of economic opportunity, social cohesion and national unity.

What do geographic trends have in store for us in the coming period.

- We now have 50 metropolitan areas over a million in population accounting for about 60 percent of the US population. This is where most of the congestion and air quality issues will occur.
- The remainder of the population is roughly 20 percent in metropolitan areas below a million and 20 percent in non-metropolitan areas.
- The net flow today is from metro areas to rural areas. We will have close to 60 million people in rural areas interacting more and more with metropolitan areas every day.
- Suburbanization continues to extend the scale and extent of suburbs
- Metropolitan areas are growing together—the fastest growing travel pattern geographically will be inter-metropolitan flows—from the suburbs of one area to the suburbs of another.
- A key question will be the balance within suburbs of jobs and workers so that average trip lengths to job opportunities do not grow inordinately.



COMMUTING TRIPS IN MILLIONS

The Challenges of the New Demography

All of our professional life times have been dominated by the baby boom. That and the dramatic increases in involvement of women in the labor force have defined our age. As we approach 2010 many of the strong forces of the past will be less potent as the list below delineates:

- Lower population growth
- Lower household growth
- Lower labor force growth
- Saturation of driver's licenses
- Saturation of car ownership
- Lower domestic migration rates

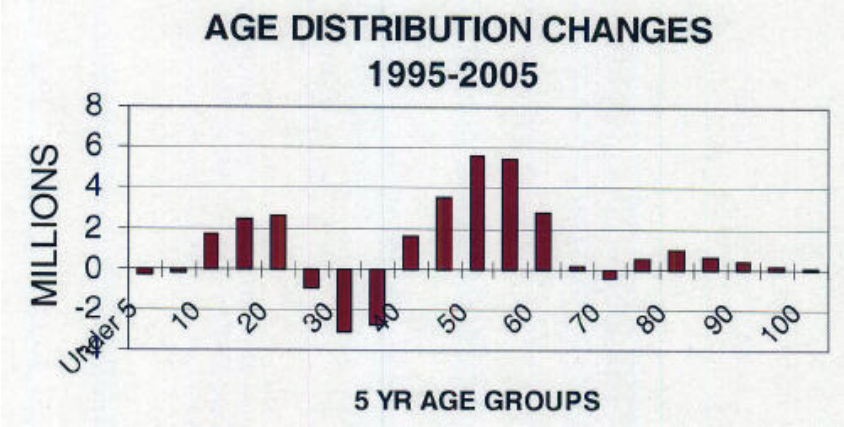
Again, we have absorbed the massive impacts of prodigious growth in these areas over the last 40 years and done it rather well. These elements, which have been the drivers of travel demand since World War II, will not be pursued here other than to say that they will not be as dominant an influence on travel growth and character as they have in the past, although their influence will still be substantial in specific areas of the Nation, especially those still receiving dramatic levels of domestic and foreign migration growth.

We will have new forces of change to address. One sign of the more balanced growth is that the 2000 census recorded growth in every State in the Union.

There are just a few demographic factors that will be the key forces of change in the coming period of reauthorization and beyond. These are:

- An aging population
- A stagnating labor force
- Changing household composition
- A continuing immigrant wave
- Mainstreaming minorities—the Democratization of Mobility
- An increasingly affluent society

Of these one might say that the first three are inexorable—they will happen; and the last three are strong likelihoods but more open to question.



An Aging Population

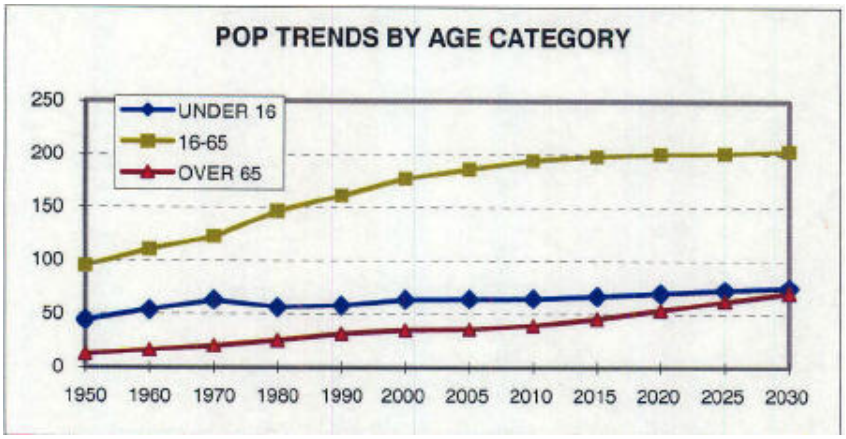
There are many facets to the challenges raised by our aging society. A sharp image is portrayed in the graphic below showing the crucial role played by the aging of the baby boom. The combinations of that boom with greater health among the older population and declining birth rates will sharply shift the relationships between our population groups.

Present estimates place the population over 65 at about 35 million, only slightly increased from 1990. The small increase was a product of limited increase among the depression babies generation, those now between 65 and 75, but we also saw extraordinary growth in those between 75 and 85, rising 23 percent. There are roughly 70 men for each 100 women in the group. Persons over 65 composed 12.4 percent of the population with 29 States with equal or higher percentages.

By the end of the coming cycle of reauthorization those over 65 will rise to 13.2 percent by 2010 and reach 20 percent by 2030 as the last of the baby boomer surge reaches 65. At that point we will have reached a stage where there will be more than 31 older citizens per 100 working age adults contrasted to about 20 today. During this period the working age population is actually projected to decline by 5 percent. At the same time the dependent young will remain about the same level. As a result the number and kinds of trips made by and for the elder population will increase sharply. By 2025 there will be 27 States with 20 percent of their population over 65 or more, higher than Florida today.

A number of factors will have bearing on how that population will meet its travel needs:

1. The coming older population grew to maturity in an auto oriented world—95 percent of those, men and women, who will be reaching 65 after 2010 now have licenses.
2. Disability rates among older persons have been declining in the US, and the developed world, suggesting an active older population in the future.
3. At present older citizens are retiring sooner and are more likely to have the means for an active retirement.
4. Retired citizens make almost as many trips of non-work purposes as the general population.
5. Given that the trips most oriented to transit (work and school) are the trips not taken by elder populations it should not be a surprise that their travel is heavily auto oriented.



Stagnating Labor Force

The chart above that showed the growth in the older population also showed the diminishing growth in worker-age groups. The graphic provides both the history and the future of American age and labor force relationships. From the 70's on we see the sharp rise of the working age population as baby boomers joined the labor force age group, compounded further by women joining the labor force in extraordinary numbers, doubling the labor force by 2010. But as 2010 approaches, the size of the labor force age group stops growing and remains effectively constant out into the future. Some projections have indicated that the group actually slightly declines in numbers. The implications of this for retirement programs have been discussed extensively in the public press around the world. In fact the US is less extreme than many western nations in this regard.

The working age population responding to those job developments will be sharply changed from the past. While the entire working age population is projected to grow by about 12 percent the number of members of the labor force over 55 years of age will grow by almost 47 percent. Workers over 55 will be responsible for half of the growth in labor force from 2000 to 2010. Although these changes need to be of concern we should note that the average age of the labor force in 2010 will be about the same as in the sixties just as the baby-boomers began to join the labor force.

From a transportation view, however, an additional and perhaps more significant factor will be shortages of workers, particularly in skilled jobs, which may lead to important potential changes in travel behavior, such as:

- attempts to keep older workers in the work force longer;
- attempts to recruit even more women into the work force;
- greater use of part-time-like work arrangements;
- greater competition among employers for workers;
- the increased role of immigrant workers.

If the last decade was one of too many commuters the next may be the decade of too few. There will be a severe lack of skilled workers in the future—apparent already. We will have to employ everyone who is employable. Transportation will be central to making that happen. Connecting rural populations and inner city residents to suburban job centers will be one need. The great demand for workers means that workers will be more free to choose where they wish to live and employers will follow. This may mean greater dispersion of jobs and home sites, but it need not; workers may opt for center city living as well as rural life styles. It will mean an amenity-driven development process where areas that can attract and retain workers will be highly advantaged.

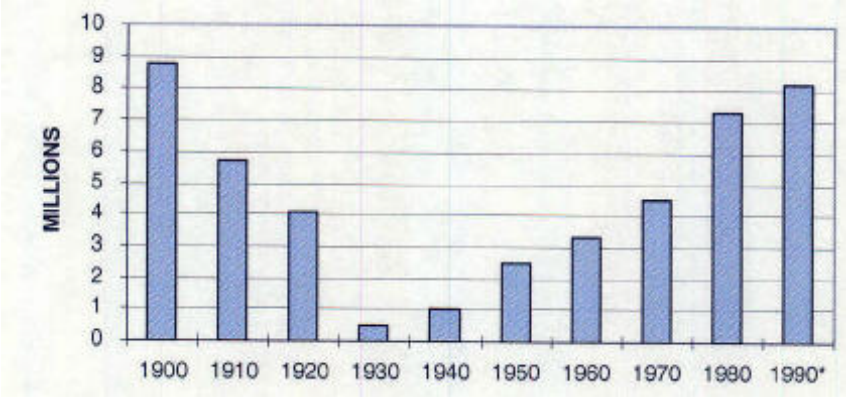
Much of this suggests greater freedom for workers to define the when and where of their work. It will mean more flexible work hours for older workers and parents. Jobs in the future will be flexible in a more humanized work place—women in the work force have seen to that. The jobs of the future will look to us from this vantage point like part-time jobs. The implications for travel are a more dispersed and balanced travel pattern throughout the day.

Changing Household Composition

The number of households increased by almost 14 millions between 1990 and 2000, growing faster than population, yielding smaller average household sizes. Households are key generators of travel—more so often than individuals. Had households remained at their 1960 levels we would have 20 million fewer households today. Households have declined to less than 2.6 persons in size, and family based households are down to 3.14.

Households without children have grown more rapidly than those with children. In 1970 40 percent of all households were those of married couples with children, today they account for less than 25 percent of households. They are now outnumbered by married couples without children.

A notable facet of our future is that we have more than 33 million non-family households, about a third of all households, more than 27 million of which consist of persons living alone. We now have 10 million persons over 65 living alone, most of them women. Their transportation needs are likely to be significantly different than the general population.



The Continuing Immigrant Wave

America is once again a nation of immigrants as it was at the start of the last century, as shown graphically below—however the extent to which that is true is unclear. Census estimates have ranged from 8 to 11 million immigrants arriving in the 1990's with some estimates reaching as high as 14 millions. This would place immigration somewhere around 40 percent of the sources of population growth in the nineties and an even greater share of the labor force age group. Of the roughly 28 million foreign born in the US today 40 percent arrived between 1990 and 2000.

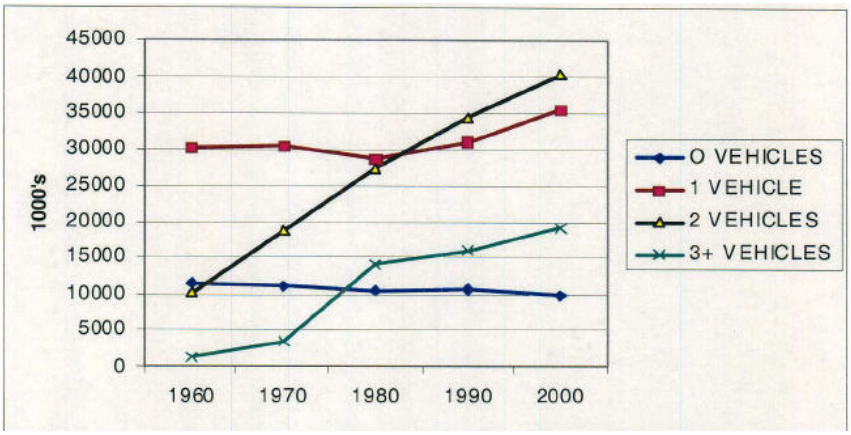
From a transportation view it must be noted that additions to the population by natural increase generate a new worker in 18 or so years; whereas immigrants, heavily distributed in the working age years, are often instantaneous additions to the work force and the traveling population. Of those immigrants arriving between 1990 and 2000 the census estimates that two-thirds are in the age group from 16 to 45, and more than 80 percent of men and 50 percent of women are presently in the labor force.

The flow of immigrants nationally is toward the South and West; tending to locate where other Americans are, in the largest metro areas, where the jobs are. Although they have been a significant factor in replacing residents who have been leaving center cities, the current immigrant wave is far more likely to arrive directly at suburban locations contrasted to center cities as in past migrations.

Mainstreaming Minorities—the Democratization of Mobility

Many of the aspects of the questions regarding immigrant travel behavior are interrelated with a discussion of the travel behavior of racial and ethnic minorities. For example, their arrivals in the many large metro areas of the south and west actually had the effect of reversing declining trends in the number of households without vehicles. Not surprisingly there are indications that new immigrants use transit more than current residents, but that over time their travel choices echo the general population. Immigrants constitute a significant element of transit ridership today in many metropolitan areas. A distinct role for the transit systems of the Nation may well be in the socialization process of immigrant populations.

It is often the case that immigrants and resident minorities constitute that group in our society with limited mobility. Their growing access to vehicles will be one of the major factors in travel growth in the future. The figure below shows the long term trend in vehicle ownership among households. The key observations here are that one vehicle households having been stable for almost 40 years at about 30 million households have jumped by 5 million in the last decade, and a related move of households without vehicles to below 10 million for the first time. Both of these moves are strongly related to immigrant and minority trends. We have moved from more than 25 percent of households without vehicles in 1960 to less than 10 percent today even with the surge in immigrants in the last decade.



The relative saturation in drivers' licenses and vehicles has been noted earlier. These apparent national patterns mask the reality that such saturation has a long way to go before it is a fact among minorities and immigrants. While the White Non-Hispanic population tends to be saturated in ownership of drivers licenses, with both men and women having above 92 percent with licenses, these values are more like 80 percent among Hispanic and African American men and in the range of 70 percent among women of those groups.

Auto ownership has similar patterns with households without vehicles at about 7 percent among White Non-Hispanics and closer to 30 percent for African-American households and half that for Hispanic households. Even rural African-American households have 17 percent of households without vehicles.

An important facet of national mobility regarding minorities is the longevity of the vehicle fleet and the resultant affordability of serviceable vehicles for lower income households. The average age of the vehicle fleet today exceeds 8 years.

In many respects our minority populations are somewhere back in the sixties or seventies in terms of transportation and mobility

- They are at 25 percent of households without vehicles, as the general population was in 1960
- Minority women are at 70 percent with drivers licenses; white women probably were at that level in the 60's.
- Long distance travel rates by minorities are less than the general population rates of the seventies.

Rising Affluence and Aspirations

Many of the aspirations we have for our society are closed connected with rising affluence, either in establishing the means for families to act on their own economic and social goals or to create the resources to assist those that do not have those resources.

Among these goals are:

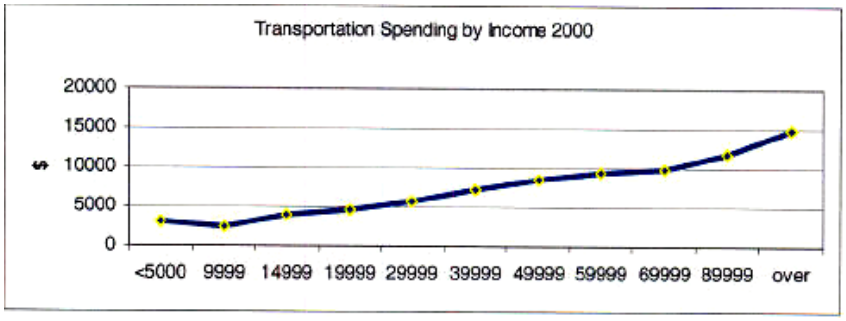
- Home ownership and adequate housing—2/3 of households today own homes
- Greater access to opportunity and social services
- Greater participation in the mainstream of society by minorities
- Increased freedom for all to act on their social and economic goals

All of these very desirable goals are tied to mobility and the interaction between mobility and rising incomes is strong. Some key attributes:

- Minority households are reaching the income levels where vehicle ownership is an increasing probability and near certainty.

- There will continue to be a close linkage between workers and vehicle ownership. Most households without vehicles will also be without workers
- Trip making and trip lengths will increase with increasing incomes
- Long distance travel for business and recreation is strongly correlated with income.

Households spending going to transportation is about $7,400 per year, about 19 percent of all household spending, second only to housing—not surprisingly most of it oriented to the acquisition and use of personal vehicles. Transportation, like other household expenditures, clothing, housing and food for example, is both a necessity and a discretionary good. The amount of spending rises substantially, even in percentage of income terms, with rising household incomes as documented in the figure below.



Note: Those with low incomes may have other assets

Increased spending is closely associated with greater auto ownership, more trip making and with trips of greater length. In part this is attributable to the fact that higher income households often have more household members and more workers, but it is also attributable to the fact that higher income households have more discretionary income for travel including recreation, visiting friends and relatives, eating out, etc. Auto trips over one hundred miles increase 4 fold between low income and high income households and air trips more than 7 fold. In local travel trip-making by high-income households roughly doubles that of low income households. Much of the growth in travel we have seen in recent years is a product of this affluence.

Long distance travel also means important international interactions, as not just we, but also our neighbors, rise in affluence. Despite 9/11 it is expected that foreign visitors to the US will rise to 60 million per year by sometime after 2005, a delayed growth but with no long term effects—a tremendous force for economic health and social understanding—but a challenge for our transportation systems. Foreign visitors, especially our North American neighbors, are heavy users of all aspects of our transportation systems.

Perhaps the most illuminating variation in transportation spending is that between rural populations and their urban counterparts. Rural households have the highest share of income going to transportation expenditures (23.5 percent) contrasted to only 19 percent for urban residents. In fact they spend more in total dollars, about $7460 than their urban counterparts despite earnings about 80 percent of urban households. It is tremendously significant, however, that rural residents have the lowest housing costs share and have the lowest total costs share for the housing-transportation combination. Housing and transportation are tightly linked in cost and character with transportation representing the tradeoff in terms of home cost and size. The fact that two-thirds of American households own their own homes is a crucial factor in our understanding of transportation budgets.

At 2000 with about 1.72 vehicles per household, on average, the majority of American households have two or more private vehicles; vehicles available equal or exceed workers in the majority of households regardless of the number of workers in the household. Perhaps the most significant event in auto ownership, as noted earlier has been that households without vehicles have dropped below 10 percent of all households for the first time.

One of the things that this says is that congestion is one of the prices we pay for a high degree of affluence and vehicle affordability.

In my view congestion is: People with the economic means to act on their social and economic interests—getting in the way of other people with the means to act on theirs!

Another thing the reality of rising national affluence produces is that the value of time will be increasing for most people. As incomes rise the value of time rises accordingly. Particularly, the pressures of time will be acute for working women, seeking to balance multiple goals and tasks.

We must also recognize that rising in parallel with that value of personal time is the rising value of the goods and products we move. These too are a product of our increasingly affluent society. It suggests that many products will be intensely time sensitive with a tolerance for high cost transportation if it provides high speed, reliable transport; this will often mean the air freight-truck combination.

Implications

In summary, America will be:

- A stable "older" population
- Operating in a global economy
- Where "high cost" transport is OK
- Where skilled workers are at a premium
- Where many workers can live and work anywhere
- Who, where are the immigrants will be a key question
- Where mainstreaming minorities will be a key factor of growth

We will be a challenge affluent society where transportation will have immense importance in helping us remain competitive and to realize our economic and social aspirations.

To me transportation is about society building—not just economy building—society building ! It ties people together across distances—especially today when families are dispersed over the entire nation.

The greatest strength of our economy is the nationwide mobility of workers in a highly specialized division of labor. Transportation knits families back together.

Many planners still think in terms of "community" as the people physically next door—our communities today are a product of multiple voluntary links across vast distances supported by two pillars—communications and transportation—virtual communities.

Transportation's goals are all about speed, cost and reliability and those are the three things we are just terrible at measuring in transportation! We must do better.

Summary

In summary the factors that will matter most in the future are these:

For commuting—the lack of workers, skilled workers especially, creating a sellers market in jobs—greater freedom of location through technology and greater flexibility about work schedules (more part-time-like jobs) in the work place. Who and where the immigrants are will be central. Expect appeals to older workers and even more women to join the work force.

For Local travel—an aging population with more freedom and discretionary resources for recreation and other travel. A more mobile minority and immigrant population. A generally more affluent society able to act on its social and economic interests. Expect very active day-time, evening and week-end travel patterns.

For Long Distance Travel—many people in the peak long distance travel age groups; more people able to participate in long distance travel; more foreign visitors. Expect a peak period in American tourism.

For Geography—the flows between local elements of the Nation will expand faster than the internal travel within those elements. Expect interaction conflicts between long distance and local travel.

A higher value of time for people and goods means greater emphasis on time-saving technologies and modes of transportation for both. Expect interaction conflicts between freight and passenger travel.

Transportation will always be about distance and time. I have said in the past that transportation's goal must be to reduce the impact of distance on the ability of society to act on its social and economic interests. Today in many respects America through its transportation system has largely overcome the challenges of distance and reduced its costs to our society. This is a large part of our success as a Nation. We are now at the stage where it is the pressures of time that should be the great driver of transportation goals and issues for the future.

RESPONSES OF ALAN PISARSKI TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. Would you please discuss, in greater detail, your thoughts on hot lanes? What I am most interested in are your thoughts as to how such a concept can be employed on a nation-wide scale in our bill next year re-authorizing the Highway Trust Fund and surface transportation program?

Response. I prefer to think of hot lanes as "premium service lanes"—that captures the essence of the service they provide. My thoughts regarding their development nationally follow:

a. They must be additional lanes not conversions of existing lanes—the public has demonstrated again and again their antagonism for taking existing lanes for any purpose.

b. The public, at all levels of income, will accept the idea of paying for better service, as long as the non-tolled option continues to exist.

c. They should be tied in with bus rapid transit and carpooling preferably in a network of routes. We desperately need to find ways to resuscitate car-pooling and to provide lower cost transit services.

d. The private sector can be a major source of development and funding thru revenue bonding of these facilities.

Question 2. As you know, ISTEA created various programs and policies to increase transportation options, and reduce people's dependence on single occupancy vehicle trips, yet as your testimony showed, driving alone has increased over the last 10 years, and vehicle miles traveled also experienced substantial growth. What are the mobility benefits and constraints associated with such policies, and what segments of the population bear the burden of such policies?

Response. We have seen a tremendous focus on the value of time in our society, particularly among women who are maintaining careers, households, etc. As our population becomes more affluent their value of time increases and the standards by which they judge the transportation system become higher than before. It is my belief that as long as fuel costs remain anywhere near reasonable and vehicles are relatively affordable that the public will react to their time pressures through the use of the single occupant vehicle. The only suitable way to make headway against that trend is to improve the competitiveness in speed and quality of transit and carpooling services. Efforts to push workers out of their cars by making things worse for them—consciously abetting congestion or increasing the costs of travel are antagonistic to society's best interests and to our faith in our citizens' ability to make sound judgments about how to lead their lives. Perhaps more significantly, I would argue that there are critical needs for transportation services regarding getting low income populations to jobs and services, assisting our rural populations and serving the aging population everywhere that should be the focus of our resources, taking precedence over spending money trying to attract high income commuters out of their cars.

Question 3. You define congestion in terms of economic and social interests. How would you define mobility? Is there a way to measure or assign value to increased mobility (due to greater transportation choices and capacity) or decreased mobility (due to increased congestion)?

Response. This is a wonderful question that unfortunately goes to the heart of our ignorance about transportation and its benefits. At least part of it is that we have always taken our mobility for granted and have not needed to rigorously defend or justify its value to ourselves personally or to society in general. Mobility of course is closely linked to my sense of economic and social interests. I think of mobility in terms of choice—expanded opportunity for choices which means selection, service and perhaps most important—price. Recent data show that the ranges of choices of products and services available to the public has exploded. Among the most important of these opportunities are job opportunities whether seen from the workers point of view—jobs within a half hour of home—or from the employer's—potential employees within a half hour of my office.

Perhaps the most telling way to appreciate its value is to consider its absence. Center city populations lacking mobility are often subjected to low quality services and monopoly prices because they do not have the mobility to take advantage of alternatives. Rural isolation has similar attributes.

It is interesting that we measure fuel efficiencies in miles per gallon to two decimal places and air quality in parts per million in legislation but have no metric for the benefits of travel activity—mobility. This has clearly distorted our tradeoffs and the policy decisions that support them. Perhaps we should think of it in terms of "opportunities provided per minute". A major research effort to quantify, understand and relate the value of mobility to us as a society would be very valuable to public policy. The question is important and needs to be pursued. The more we know about mobility and its interactions in a healthy society the better will be our public policies.

RESPONSE OF ALAN PISARSKI TO ADDITIONAL QUESTION FROM SENATOR GRAHAM

Question 1. You mention the growing tension between movement of people and movement of goods. Both are becoming gridlocked. Will this tension escalate in the face of new security measures screening cargo, perhaps several times, along its route? Can you offer advice on ways to ensure movement of goods with minimal impact to passenger travel, and timely screening for national security?

Response. We have used "time-separation" as a way to reduce conflicts between cars and trucks in the past. The Interstate belonged to cars by day and trucks by night—that is now failing us. Trucks used to get off the road in our metro areas during peak hours until traffic subsided—that is now failing us. All of these failures are due to increasing congestion and the need of truckers to get through in something like a timely manner.

Ultimately I believe it will lead us to some form of separation of the vehicle streams—separate truck lanes for large, through vehicles—as both a safety and a driving ease matter. Sections of the New Jersey Turnpike are the example I am thinking of. Such separation would facilitate truck screening and monitoring as well, as in weigh stations. The need for security inspections will only add to our conflicts. The air-truck combination will grow in significance in the future with the increases in value of goods. Inspections at the airport inbound and out may become a critical factor in travel conflicts.

Perhaps we need to consider a wholly separate set of national parkways designed for personal vehicles, accepting the fact that trucks will dominate permanently on certain Interstate routes.

RESPONSES OF ALAN PISARSKI TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. Mr. Pisarski, you mention in your testimony that transit ridership increased slightly in the last 10 years (500,000 net increase) while remaining at 5 percent of the work commute trips. However, I understand from FTA data that transit ridership declined in the first 5 years of that period (1991–1996), and then rose dramatically, by 21 percent, in the last 5 years (1997–2001). If you focus on the most recent 5 years, you get a different picture of where transit is going, don't you?

Response. Yes, I would like to think so. There were some indications from other census surveys that transit may have dropped below its current 5 percent share during the 90's and got back to that figure by decades end at least in part due to new services, new fare policies, and new worker populations, etc. It is important to recognize that these data sets portray very different snapshots of the activity. The census data I base my work on counts workers and the way they travel to work. The FTA data on the other hand are effectively turnstile counts. If a worker passes through a turnstile (or equivalent) four times in a day that would be a big jump in FTA data but still just one worker as counted by census. This would not really change the 5 percent figure share I mentioned in my testimony. There are just a few metro areas at 10 percent shares for transit across the country today New York, Chicago, and Washington for sure; maybe Boston, Philadelphia, and San Francisco—a very worthy goal to examine would be to see how many more areas we could bring up to that level. Shifts in transit use for non-work activities could add to the differences but I do not expect that they have grown enough to change transit's 2 percent share in overall travel. It is important to keep a sense of scale in interpreting these measures.

Question 2. Mr. Pisarski, your testimony touches on the aging population and their transportation needs in terms of the need to continue driving. However, many Americans lose their ability to drive as they age. For example, in 2000, only 68 percent of women over the age of 65 had licenses. How will we meet the needs of older Americans unable or unwilling to drive?

Response. I wish there were easy answers here. In the early stages of the aging scenario we face, roughly the next 15 years, the numbers of elderly drives will increase strongly—for instance with women's licensing rising to over 90 percent for those over 65—as the first real age group that grew up with the car ages. Most of their travel demand will be met by their own driving and then secondarily by family and friends, which is a major factor in the mobility of aging populations typically. For those unable or unwilling to drive and for most of those who reach the higher age groups where infirmity begins to be a critical factor something new in the forms of present community transportation services needs to be developed. While, there are many willing people and organizations trying to serve the aging community well, from what I have seen in my work the present systems of services need careful review and rationalization. They are often times confusing and expensive. In many

cases these older citizens cannot use traditional transit or even curb side delivery but need door to door assistance. We will need a national summit-like discussion of how to respond to these dramatic social challenges. Costs and pricing are critical. A role for the private sector and for community institutions is crucial. It must be an important focus for reauthorization planning.

Question 3. Mr Pisarski, you discuss the mobility needs of immigrants and resident minorities. Do the data sources mentioned have a good rate of return from these communities. What is your confidence level in these data?

Response. In the census I am convinced that they have done a successful job of accessing minorities and obtaining the necessary information. There are certainly response problems with undercount that we all are concerned about but by and large they have been very effective. I am much more concerned about travel surveys by local governments, MPO's etc., and even our national sources, the NPTS now NHTS. While those survey's managers are doing a great job trying to address these challenges, the weaknesses in phone interviewing techniques are critical in causing concern about the representativeness of the returns. I had similar problems 30 years ago in surveying in face to face interviewing, so this is nothing new but the changes in people's life styles and means of communications have not been balanced by new approaches in surveying methods. We might consider matching census data with survey data to evaluate gaps and weaknesses. We need a national commitment to better data to support transportation decisions—this means more money, of course, but also research on innovative methods, employing new technologies to respond to these growing challenges.

Question 4. Mr. Pisarski, you emphasize demographic factors behind travel patterns. However, the data shows that the growth in driving itself is far outstripping the growth in population. In fact, an FHWA analysis found that population growth is responsible for only 13 percent of the increase in driving, and TTI data show that the distance driven rises every year. Can you speak more about how travel demand management can be an effective congestion-fighting strategy.

Response. Senator Moynihan was fond of saying that "demography is destiny"—and so it is—certainly in transportation. But these demographic factors go far beyond population growth. I was responsible for the FHWA study mentioned in your question and concur that population growth itself is typically a relatively minor factor in growth—except in metro areas and States seeing dramatic shifts in population—Nevada, Georgia to name just two. More to the point areas losing population are still seeing growth in travel. Clearly it is the per-capita growth rates that are significant. Growing affluence, changes in family composition and life styles, the availability of relatively low cost transportation automobile services are the really significant drivers of change. A central factor in the changes we have seen has been the same aging factor referred to in an earlier question. We have many more people of working age; many more at the peak travel age group.

Given these factors it is not clear what the role of demand management should be. I would certainly argue that suppressing trips is both undesirable and unwarranted. Trips have economic and social transactions at their end of value to each citizen. This suggests that reducing the time and cost penalties of trip-making is a highly desirable public goal—I see such "induced" travel as a major social benefit—to be applauded not condemned. We may think of others' trips as unnecessary, but which of us examining his or her own travel would judge them to have been meaningless. Almost 30 years a congressional committee asked me what percent of trips were frivolous—a question I could not answer.

There may be opportunities in getting people to combine trips in what we call "trip chains," linking purposes together in a time and energy efficient pattern. People tend to do that under the pressures of time.

Land use solutions, where people might find opportunities at shorter distances travel might have limited potential, but I would not overstate it. Many of the changes we are seeing are the product of shifts in trip purposes and their lengths. Going out to eat for instance instead of preparing meals at home; taking laundry out rather than doing it at home. This is often accompanied by increases in trip length as distant opportunities become accessible. One of the not-so obvious factors is just the growing size of our metro areas. About 60 percent of our population lives in the 50 areas of more than a million—substantially up from the past (there were 39 such areas in 1990). Such areas make possible the prospect of work trips of 20 miles or even trips to a restaurant or to visit friends and relatives of that distance that do not exist in a smaller metro area. The most significant factor there will be travel times and the effects of congestion.

STATEMENT OF TIM LOMAX, RESEARCH ENGINEER, TEXAS TRANSPORTATION INSTITUTE[1]

Mr. Chairman, distinguished members of the committee, thank you for the opportunity to testify before you today. I have been asked to summarize a few trends that we have identified in a report we prepare each year on urban traffic congestion. I will also offer a few observations about congestion in U.S. cities in the next few years. I would like to build on the excellent information that Mr. Pisarski has prepared. Please keep in mind his summary of how travel demand has grown and how it will continue to grow in the future.

Over the last 20 years our cities have not been able to keep pace with the demand increases brought on by population and job growth. Congestion has increased as a result of that imbalance. Our data shows that during peak travel periods in 76 urban areas we studied, the travel time penalty—the extra time it takes to travel during the "rush hours"—has increased 185 percent since 1982. The penalty in areas with populations between 500,000 and 3 million increased by 300 percent over this same time. This indicates that while most of the problem is in the large metropolitan areas, the congestion problem is growing in areas of all sizes. Total hours that travelers in these 76 areas were delayed increased from 750 million in 1982 to 3.6 billion in 2000.

This congestion growth was the result of the trends that Alan referenced. In just our 76 areas, travel demand increased 86 percent, but road capacity only increased 37 percent. The real capacity increases were much less; the 37 percent value includes many roads that were incorporated as a result of growing urban area boundaries, rather than newly constructed roads. The imbalance is the result of several truths and myths about what can be accomplished. I would like to emphasize just a few important elements.

First, a truth. Road construction can help reduce the growth of traffic congestion. Figure 1 shows the dramatic difference in travel time penalty growth between areas that added roads at a rate close to the rate of travel growth-the green line at the top-and those areas that added few roads in relation to their travel growth-the dark blue line at the bottom. The cities in the bottom group added roads at a rate close to travel growth-for example, a 4 percent annual growth in the traffic might be accompanied by a 3.5 percent growth in major roads. The time penalty only increased 57 percent in the areas that were able to add roads. Time penalties increased 245 percent for the "least aggressive" roadway adding areas.

Second, a myth. We should invest all our money and effort in adding roadways. My characterization of this as a myth is not based on ideology. It is based on the fact that since 1982, urban areas have added only about half of the roads needed to stop the growth in travel delay. Figure 2 shows that this percentage is about the same for all four urban population ranges we track in our annual report. This is due to a combination of factors ranging from lack of funding, land, public support, and environmentally supportable alternatives. Roads can definitely help, but realistically they aren't the "wonder drug" prescription because cities have not been able or willing to add them quickly enough.

A similar truth can be stated about transit improvements-they can help, but cannot solve the problem themselves. Figure 3 illustrates the amount of new transit riders and carpoolers that would have to be added each year to keep pace with travel demand growth. We are looking at adding the equivalent ridership of a current transit system between every year and every 4 years. This is very unlikely.

Let me point out a somewhat discouraging note that "regular" traffic congestion is only part of the problem. The variations in travel time caused by crashes, vehicle breakdowns, special events, construction, maintenance, weather and a variety of other factors are a source of frustration and economic loss to person travel and freight movements. Part of our problem is that we don't have the long-term, systemwide, detailed data we need to fully describe the issues. The emphasis on operational improvements over the last several years allows us to analyze a few years in a few cities, but these improvements need to cover more of the nation's transportation system.

Figure 4 shows the kind of information that can be developed and how we can use it to identify problem areas and the success of improvements. This graph is for some of the Minneapolis-St. Paul freeway system in 2000. Congestion is measured by the Travel Time Index-the peak period travel time penalty shown in the dark blue line. Unreliable travel conditions are measured by the Buffer Index-a measure of the amount of extra time travelers need to allow because of the unpredictability

[1]The views in this testimony are those of Tim Lomax and do not necessarily represent those of the Texas Transportation Institute, or The Texas A&M University System

in system conditions. We can see the effect of the big snowstorms in January and December-more congestion and very unreliable travel times. The summer tourist season is also the cause for greater variation in travel time, although not a substantial increase in average travel time penalty. We can also see the effect of turning off the traffic signals that controlled access to the freeway system. This experiment began in October, and the freeway effects were immediate and dramatic. The unfortunate part of this story is that the monitoring and data collection system does not extend to the entire system of freeways and streets so we cannot completely analyze the experiment from this data. But the limited data we have suggests that operational improvements can play a significant role in providing a more reliable transportation system for people and freight.

It appears that unless something changes we will continue to see a growth in congested travel and congested transportation systems. Projected population increases mean more travel; our cities have not been able to stop congestion growth over the last two decades and travel and population growth will continue to stress our transportation systems. If we are fortunate to have enough funds, select projects wisely, and implement them using techniques that do not result in significant delay from construction and maintenance activities, we may be able to slow down the growth of congestion, and make the system more reliable than it is now. But "reliably congested" is not really a high standard of achievement in my view. If our cities are going to have a different future than this, we will have to pursue all types of improvements and implement more projects, rather than fewer and manage both the demand patterns and the system more efficiently.

More information on Texas Transportation Institute's urban mobility studies can be found at: http://mobility.tamu.edu

Figure 1

The Effect of Roadway Increase on Urban Congestion Levels

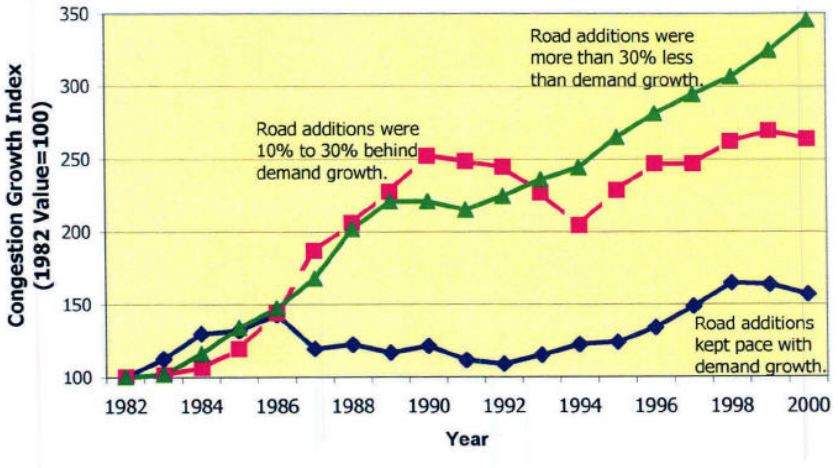


Figure 2

Percent of "Needed" Roadway That Was Added by Urban Areas

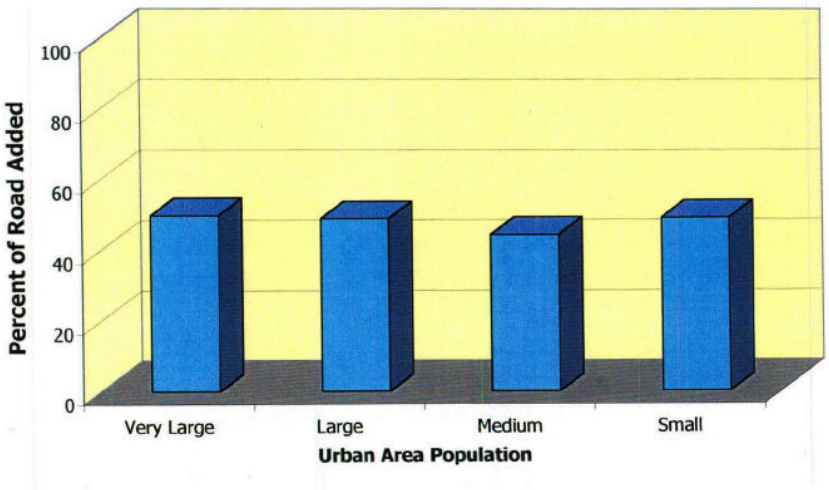


Figure 3

New Transit and Rideshare Riders

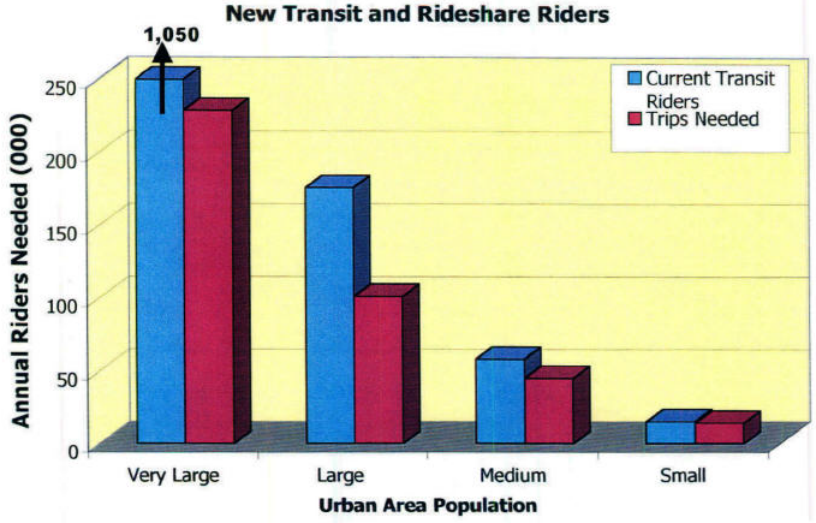
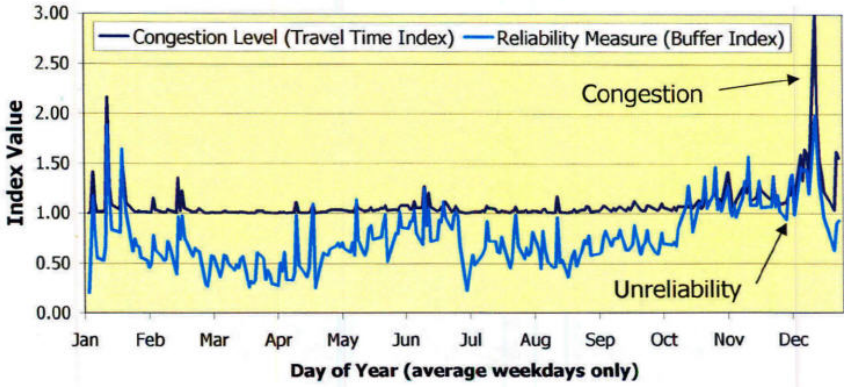


Figure 4

Congestion and Reliability



RESPONSES BY DR. TIM LOMAX TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. In your testimony, you point out that the "congestion penalty" in areas with over 300,000 population has increased over 300 percent since 1982. Your also mention these travelers were delayed a combined 3.6 billion man-hours by congestion. I have two questions about this part of your testimony:

i. Could you please explain, in as much detail as possible the calculations and assumptions you made that brought you to those two conclusions?

ii. Most of the figures I have seen putting a value on the cost of the "congestion penalty" are a bit outdated. For example, in my opening statement at the hearing, I referred to figures dating from 1998. In your opinion, in 2002 dollars, what is the average cost of this penalty to rush-hour commuters in those same metropolitan areas you referred to?

Response. i) I have attached a copy of the analysis methodology used in our study. Some additional notes on our results:

- I think my testimony refers to areas with population between 500,000 and 3 million, rather than 300,000.
- Our study only covers 75 of the approximately 400 urban areas in the United States. The study includes all of the largest 40 urban areas and most of the U.S. urban travel delay.
- The 3.6 billion person-hours are only for the year 2000, not 1982 to 2000.

Response. ii) To estimate congestion in future years, I would use the following trends.

- The Consumer Price Index has increased 6.8 percent since 1999.
- Travel delay, the main component of the congestion cost, has increased 6.2 percent per year over the last 5 years.
- Using these values, I estimate the average congestion cost has risen from $505 per person in 2000 dollars to $590 per person in 2002 dollars.

Question 2. With regard to your answer to the previous question, do you have an opinion as to whether that figure would likely materially vary from one part of the country to another, and if so, can you offer an explanation for such a phenomenon?

Response. The congestion cost generally varies by population of an area-larger cities are more congested, have more people and, thus, have higher congestion costs.

The value of time (measured in dollars per hour) is a constant in our study. That value probably varies from one part of the country to another, but I do not have an estimate of that. I do believe the research on value of time also shows that it varies by trip purpose, activities on each end of the trip, whether the traveler believes they will be on time, as well as the personal value of time.

Question 3. Do you agree with Alan Pisarski and Ken Orski who testified in favor of what they term "hot lanes" as one way to reduce traffic congestion?

Response. I think high-occupancy/toll (HOT) lanes can provide an option that does not currently exist for most trips. The "option" aspect of HOT lanes seems to be the

most important element in my opinion, rather than congestion reduction. There may be some congestion reduction benefit if enough trips use the lanes, and if the "before" congestion level is not too high. Most corridors that I know of where the HOT lane concept is being studied, however, are very congested. The likely effect will be to shorten the period of slow traffic speeds and to provide a high-speed option for some trips, rather than to significantly improve overall average speeds.

RESPONSE OF DR. TIM LOMAX TO ADDITIONAL QUESTION FROM SENATOR GRAHAM

Question. Your testimony discusses the difference between "regular" traffic congestion that occurs in bottlenecks, and congestion caused by accidents, breakdowns, and other non-recurring events. Have you or TTI researched the best approach to dealing with the day to day breakdowns, accidents and other incidents that lengthen commutes?

Response. Incident management programs are the general term for the problem you identify. The elements might be separated into the following categories:

- Detection (finding the problem)-The wire loops in the pavement, radar speed sensors, toll tag reading devices and other automated devices can identify problems using comparisons between nearby sensors and comparisons to historic averages. Motorists using cell phones to report accidents are becoming the quickest way to identify accidents. Cameras can be used to confirm the incident location and proper response vehicles and personnel.
- Clearance (removing the problem)-"Highway helper" programs have been developed in many areas and consist of many different elements. The basics include a roving set of vehicles that assist motorists with disabled vehicles or with minor crashes. More advanced programs might include tow trucks that are assigned to clear crashes and disabled vehicles from important sections of road. Communicating the incident location and expected duration of road blockages—such as the National 511 traveler information telephone number program—is also an important element.
- Prevention (reducing the problem)-Some of the incident delay problems might be addressed most appropriately by driver education or design changes. The delay that occurs when motorists in the opposite direction of an incident slow down (so called "rubbernecking"), for example, does not have an easy solution other than to educate drivers as to the delay and safety problems this causes. Some sort of visual screen mounted on top of the median barrier might also reduce the problem. Teaching motorists to maintain their vehicles and monitor fuel level, tire condition, etc., would also pay significant benefits in reduced vehicle breakdown rates.

RESPONSE OF DR. TIM LOMAX TO ADDITIONAL QUESTION FROM SENATOR JEFFORDS

Question. Mr. Lomax, over the last few years, the Texas Transportation Institute Mobility Study has moved away from calculating the number of lane miles of roadway needed to 'solve' congestion to bring free-flow conditions to highways. In recent years, the report has begun to discuss increasing transit capacity and managing travel demand. Can you talk about your shift in thinking on the approach to solutions?

Response. We have attempted to broaden the set of improvements we refer to, rather than to move away from any solution. We have also chosen to look at achievable or realistic options. The number of lane-miles needed to keep pace with annual traffic growth are still presented along with the transit riders or carpoolers needed.

Building hundreds of lane-miles to solve congestion problems, however, is not a realistic option in almost all urban areas. Slowing the growth of congestion, however, is probably achievable and relevant in many urban areas. Our studies show that this will take a full range of construction, operational improvements, transit and carpool enhancements, and demand management alternatives in larger cities.

Smaller cities, however, have not been any more successful at adding roads in sufficient amounts to keep pace with traffic growth. This suggests that a broader view of the solution set might be appropriate for more than the largest and most congested cities.

STATEMENT OF HON. RON SIMS, EXECUTIVE OF KING COUNTY, WASHINGTON

Mr. Chairman, Ranking Member Smith, and members of the committee, I appreciate the opportunity to testify before you today regarding new ideas for the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21.) Your reauthorization of these vital transportation funds can better help communities ad-

dress the public's need for greater mobility in the face of growing congestion that threatens the quality of life in our metropolitan areas.

I applaud the dramatic changes Congress has instituted in the last two surface transportation reauthorization bills, particularly those that have helped address congestion problems in America's major urban areas. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) strengthened the role of metropolitan planning organizations (MPOs) and encouraged the use of Federal-aid highway moneys for high-occupancy vehicle lanes, transit systems and other projects designed to meet congestion problems. TEA–21 established "firewalls" that ensured that the funds collected from the public for transportation purposes will be spent on transportation, restoring trust to the Highway Trust Fund, and freeing up billions of dollars for congestion relief programs.

I believe that next year's reauthorization bill should take what I view to be an essential next step. By targeting transportation investments into metropolitan areas that are competing in the global economy, we can help these areas and our country retain our competitive edge. If we don't, companies will leave our area, and, in some cases, our country. Infrastructure investment in our metropolitan areas will not only bring much needed congestion relief, it will help secure the stability and health of these metropolitan areas that are the economic engines of this country.

Despite the efforts of programs like TEA–21, we must do more to ensure congestion relief infrastructure investments are targeted to key major metropolitan areas. Clogged roadways delay people, goods and services from moving freely to their destinations. Metropolitan congestion relief will have a tremendous impact on the quality of life for business, industry and the residents. More and more people are living in urban areas. Through very successful Smart Growth strategies aimed at managing growth in urban areas, many cities are seeing a revitalization of their cores as people move back into cities. In King County, we know that over 50 percent of all daily trips are still by single-occupancy vehicles despite great strides being made in increasing transit trips and carpool rides. Our long-term goal is to get people to live, work and shop in the same community—to use public transportation and to cut down on driving alone. But it is imperative we create and invest in the infrastructure to help make this goal a reality.

The viability of urban areas is increasingly dependent on reliable transportation networks of all kinds—from major freeways to regional arterial networks and public transportation, inter-city rail, and all other efforts aimed at congestion relief. And we're moving in the right direction. In 2002, transit ridership in King County grew by almost 4 percent, boarding 100 million riders given on buses, trolleys, and streetcar. We have dozens of programs aimed at getting more people out of their cars, like our Transit Oriented Development projects that combine housing and local retail with a transit station or a park-and-ride lot to locate people and services near transit to discourage auto use. We are creating better pedestrian linkages to bus service. Further, ongoing national health studies show that some urban development, especially sprawl, limits physical activity causing obesity and related illnesses. We have an obligation to give our citizens the transportation choices they need to make their lives easier and more healthful.

Therefore, included in whatever is done with the reauthorization of TEA–21, metropolitan congestion relief is a must. A successful comprehensive plan will include transportation infrastructure that helps our metropolitan areas to thrive as both economic engines and as wonderful places to live.

Economic Importance of the Major Metropolitan Areas

As the United States economy grew and prospered in recent years, we have witnessed significant growth in major metropolitan areas and business centers across our Nation. The major metropolitan areas are significant major contributors to the economic viability of our nation as a whole. The 20 most congested metropolitan areas in the United States together have more than one-third of the entire economy of the Nation. Using 1999 payroll data as an indicator for economic activity (payroll is the largest share of GDP), these top 20 metropolitan areas had a combined payroll total of more than $1.7 trillion—37 percent of the total national payroll of $4.6 trillion. Further, these 20 metropolitan areas contain nearly 50 percent of the population and economic activity of the total metropolitan areas combined.

Let me talk about our economy and its importance to the region, State and Pacific Northwest. Based on 2000 economic data, this metropolitan area ranked as the nation's 13th largest metropolitan economy, generating about $115 billion in economic output. Compared to nations of the world during the same period, the area out-produced Greece or Venezuela and nearly out-produced Finland. Further, King County represents 43 percent of Washington State jobs and 55 percent of the State's dollar payroll.

This region is also a port community, largely dependent on the increasing pace of global trade. International trade supports one of every three jobs in Washington State, and we serve as an important export and import gateway for the northern tier of States. I want to thank this committee for including the National Borders and Trade Corridors program in the last authorization bill. We are using funds from that program in our region to help construct a series of railroad grade separation projects that are increasingly important as mile long container trains move slowly off the docks at the Ports of Seattle and Tacoma.

Costs of Congestion

The total cost of traffic congestion in the metropolitan areas studied by the Texas Transportation Institute amounts to almost $74 billion. TTI has calculated that significant amounts of fuel are wasted as a result of congestion, noting that drivers stuck in traffic used more than six billion gallons of fuel in 1996.

Now, congestion remains the primary threat to the long-term health of the economies of many different regions. Traffic congestion deeply affects our nation's ability to move goods and services. Corporations and businesses in these congested areas have experienced significant financial losses as a result of increased traffic. The Boeing Corporation, the nation's No. 1 exporter, estimates that while they move the same amount of freight up and down the Puget Sound region as they did 5 years ago, it takes them 22,000 more payroll hours to do it. Boeing shocked our region last year when they announced they were moving their corporate headquarters, partly because of our State's failure to keep up on transportation spending. The added costs associated with traffic congestion are causing many businesses to search for other, less congested areas, just to meet their freight mobility needs.

Infrastructure Investment Has Not Kept Pace with Growth

Decaying and outdated roads are having a severe impact on all aspects of residents' daily lives, from how they get to work to when they return home to spend time with family and friends. Road rage and other congestion-related ills are affecting the quality of life for many Americans.

As this committee knows, the overall level of public investment in transportation has declined from a peak in the 1960's to levels that now threaten the economic vitality and the livability of our communities. Recent polls taken in the Seattle-Tacoma metropolitan area, for example, consistently indicate that solving congestion is the highest policy priority of residents. They consistently rank transportation congestion as their No. 1 problem, far ahead of concerns over crime, education, taxes, or the environment.

The Washington Legislature has struggled, as many other State legislatures have, to craft statewide and regional packages to fund much-needed transportation projects. The Washington State Legislature voted late last week to increase statewide spending for transportation. This will be financed through a combination of gas tax, truck weight fee, and vehicle sales tax increases. A regional transportation finance mechanism was also authorized. Our transportation problems can only be addressed through bold cooperative actions, not just at the State level, but at all levels of government.

Development Patterns Have Contributed to Congestion

Urban sprawl has been a major contributor to our growing traffic congestion problems. From 1970–1990, population in the Seattle Metropolitan Area grew by 38 percent while the development of land increased by 87 percent. This represents a doubling of land needed for each person over the previous period. Related to this statistic, there has been a 30 percent drop in residential densities since 1970 while we have seen new jobs locate in sprawling low-density employment centers.

Communities comprised of housing exclusively combined with low-density development randomly scattered around a region, have created land use patterns that are difficult for transportation to serve. People have no choice but to drive everywhere. Alternate forms of transportation such as public transit, walking, bicycling, carpooling don't work as well in a pattern of sprawl development because travel trips are too long and too scattered. It is more difficult for government to respond to the growing needs created by these inefficient development patterns. Housing, jobs and shopping become more distant from each other, resulting in greater vehicle miles traveled.

I challenge us to look for ways to meet our current transportation needs, while at the same time, we support efforts to steer new development into smart growth land use patterns. New funding plays an important role in fixing transportation problems in our major metropolitan areas. We need to leverage these new resources by making changes to the development patterns the transportation system serves to get the most efficient use of our money.

Smart Growth Is Part of the Solution

Smart growth is a major factor in reversing the trends resulting from typical development patterns and traffic congestion. Smart growth provides for "common sense" development by encouraging growth where facilities and services already exist, bringing jobs and housing closer, and limiting development into farm lands and low density rural areas. I support the testimony of Don Chen, Executive Director of Smart Growth America, who spoke to your committee 2 weeks ago about the role the Federal Government can play in supporting smart growth policies and actions by local governments. The reauthorization of TEA–21 can become a mechanism to support smart growth initiatives. This committee can help local governments solve transportation problems by encouraging smart growth policies leading to fewer cars on the road.

In King County, we've been working diligently to make Smart Growth work. In 2000, only 4 percent of all of our new housing units went into our designated Rural Area. We're revitalizing our older urban areas as evidenced by the nearly 10 percent growth in the city of Seattle from 1990–2000. Growth in the centers of the close-in suburbs is also rising. Over the last 10 years, the population in King County grew by 15 percent and the city of Seattle grew by 9 percent. This data demonstrates a reverse in the declining growth trend in the city of Seattle during previous decades. This is not just happening in Seattle, but in other metropolitan areas as well. Future transportation investments need to support these recent trends.

The viability of our urban areas is increasingly dependent on reliable transportation networks. If we are successful in creating more Smart Growth communities, where people use their cars less, then we are actually preserving road capacity for those that really need it—like for the movement of freight. A clear example of how land use and transportation are being used together is in a Transit Oriented Development Project, which typically combines housing and local retail with a transit station or a park-and-ride lot.

We need to create better pedestrian linkages to bus service, encourage greater densities and mixed-use developments around transit centers, and simply provide connections within our communities. Ongoing studies are demonstrating that many forms of urban development, especially sprawl, can work against physical activity such as walking and other forms of exercising. We have an obligation to give our citizens the transportation choices they need to make their lives easier and more healthful.

Increases in Vehicle Miles Traveled

People drive more and they own more cars. In King County, there are more registered vehicles than there are registered drivers for those vehicles. Vehicle miles traveled (VMT) has also increased, so traffic congestion continues to worsen.

In the Seattle region, from 1980 to 1990, VMT increased nearly three times faster than population and employment growth. However, from 1990 to 2000, VMT grew at approximately the same pace as population and employment. Although the trend is in the right direction, the transportation system needs to catch-up from the rapid growth in vmt from the past 20 years. Also, through strategic investments, we can ensure that this trend continues and does not revert back to the rapid rise of the 80's.

While traffic congestion is the most evident sign of increasing VMT, other important impacts are significant to our quality of life. Increasing VMTS correlate to worsening air quality and higher energy consumption rates.

Increase in Transit Ridership

As we look to solutions to address our traffic congestion problems, we need to keep in mind that there is no quick fix to eliminate congestion. Instead, we will need broad solutions to address different facets of congestion and to give metropolitan areas the flexibility and choices they need.

Often, we turn first to adding highway lanes. While this is an important part of the solution, alone it will not alleviate the traffic congestion problems we currently face. Additional congestion-fighting tools include improved transit service and other actions.

In King County, we have one of the best transit operations in the Nation. Last year we exceeded 100 million annual riders for the first time. Transit's share of daily travel is also going up. In the Seattle Metropolitan Area, commute trips on public transportation, as a percentage of all work trips, has increased from 6.3 percent in 1990 to 7.1 percent in 2000. I believe strategic investments will help us maintain this trend in transit ridership. However, we know that increasing traffic congestion is having a negative effect on our ability to operate transit efficiently. More congestion makes if harder for buses to maintain schedules, leading to more

buses providing the same level of service. Clearly, this is not a very efficient way to operate.

Transit can and should be one of the key tools to address traffic congestion, especially in metropolitan areas and centers where there are concentrations of people and jobs. To do this, we need to make sure transit becomes a viable alternative. Transit can compete with the car for commute trips if appropriate funding and operating incentives are provided. Many inter-city rail routes, for example, have proven this and incredible progress in ridership has been realized.

Revenue Sharing Formulas May Not Be the Answer

Almost all highway assistance is provided to States based on a formula. Exceptions include the recently enacted trade corridor/border crossing, intelligent transportation system deployment, and transportation community and system preservation programs that are allocated on a national discretionary basis each year. Other exceptions are the regional Surface Transportation Program and Congestion Mitigation/Air Quality programs where project selection is the responsibility of metropolitan planning organizations. About two-thirds of transit assistance is provided to transit operators on a formula basis through their metropolitan planning organizations. About one-third is allocated on a national discretionary basis annually to start new and bus capital projects. Federal assistance must be directed toward solving problems in proportion to their severity.

RECOMMENDATIONS

Encourage and Promote Flexible Funding Approaches

Most Federal transportation programs pay for specific solutions; e.g., new highway lanes or transit new starts, rather than the best overall transportation solution for a given corridor. While ISTEA and TEA–21 included flexible funding programs like the surface transportation program and Congestion Mitigation/Air Quality programs with broad program eligibility, most Federal assistance is still provided on a mode-specific basis to existing road and transit providers. Furthermore in the first 4 years of the CMAQ program, it has managed a mere 57 percent obligation rate. This rate is troubling and is the worst of any of the core programs in TEA–21 suggesting that even when Congress provides tools to the States for metropolitan needs it has not merited enough attention to address the problem.

It is my belief that addressing congestion in the most strategic and effective way demands a comprehensive approach encompassing everything from improving operations to managing growth. Federal, State and local governments can no longer afford to view investments in metropolitan infrastructure in separate, distinct elements particularly when transportation infrastructure at the metropolitan level is far more complex and inter-modal then at the State or Federal levels. The very nature of a global economy and the need for our nation's metropolitan economies to stand up against their competitors around the world by definition necessitates comprehensive, strategic planning and ultimately targeted investments. Funding must be predicated on the notion that metropolitan governments in partnership with their constituents are most familiar with residential growth patterns, commercial development needs, freight mobility and the many other demands on local metropolitan areas. These demands must be dealt with in a cohesive fashion that allows for optimum flow and efficiency.

Creation of a Metropolitan Transportation System

Mr. Lomax's research has consistently shown that roadway congestion can be quantified through various research indexes to identify our nation's significant problem areas. According to his research, rush-hour travel in five regions—Los Angeles, San Francisco-Oakland, Seattle-Everett, the Washington DC Metro Area and Las Vegas—takes 50 percent more time than non-rush hour travel. Additionally, he indicates that drivers in the largest metropolitan areas spend about half of their driving time stuck in traffic, far more than drivers in medium and smaller sized metropolitan areas. This work of identifying our nation's significant problem areas must be advanced further.

I believe Congress should take the next step of calling for in the upcoming reauthorization the creation of a metropolitan transportation system that geographically defines the boundaries of metropolitan areas within which Federal transportation funds will be targeted. Similar in concept to the Federal Highway System or Interstate systems, planning and investments for major highways, regional arterials, bus and subway routes, local and inter-city rail, freight corridors, ferries, and other transportation modes such as air travel must be carried out as part of a comprehensive metropolitan transportation system. Congestion relief is of such an urgent and immediate nature, that a step of this magnitude is necessary and warranted. Some

of this work has already been accomplished through the work of Metropolitan Planning Organizations. We must find ways of furthering this work and aggressively infusing such metropolitan systems with the kind of strategic resource allocation that is needed.

Creation of a Metropolitan Congestion Program

Finally, I it is time for Congress to create a Metropolitan Congestion Program that would funnel Federal dollars directly to the metropolitan transportation system. This Metropolitan Congestion Program should be sized at a minimum equal to the National Highway System Program which this year received nearly $5 billion under TEA–21. I acknowledge the need for the next reauthorization bill to be crafted in a way that does not perpetuate a multiplicity of programs and perhaps this metropolitan program would encompass other programs in the current reauthorization bill originally intended to address congestion. However, at the local level, metropolitan organizations and governments in major urbanized areas are suffering from the lack of tools at their discretion. In fact metropolitan sub-allocations under TEA–21 are smaller as a percentage of total funding as compared to levels under ISTEA.

While land use, permitting and many other functions that involve growth planning, residential and commercial development are primarily the responsibility of these governments we are handcuffed by the lack of balance in matching infrastructure investments to support development planning. Transportation dollars that are funneled ultimately to local areas lack the clarity, transparency and precision in investment decisions that metropolitan governments are most appropriately situated to provide. I strongly advocate that the right and ideal place is in the metropolitan areas.

Over the past several months, I have begun to partner with colleagues around the country to form a metropolitan congestion coalition. The magnitude of these changes require the kind of bold, decisive leadership that our citizens deserve. The purpose of this coalition is to bring together metropolitan elected officials and business leaders in metropolitan areas to address these ideas for the reauthorization of TEA–21. We have to date been successful in our initial discussions around the country because the need is so evident. I have no doubt that you also recognize this need and I am hoping to partner with you during this reauthorization cycle.

I respectfully urge this committee to consider where transportation problems are most severe and the associated socio-economic consequences then to direct available Federal assistance to those areas proactively. In metropolitan areas and at all levels of government public resources are scarce. This only emphasizes the importance of greater discretion in funding decisions. We have strong decisionmakers in every metropolitan area who are first responders and are on the frontline helping to lead the economic engines of this Nation. The depth of this leadership capacity must be further utilized to propose and implement solutions that enhance vitality and energy in these regions. Congestion cannot be allowed to stand in the way.

Thank you, Mr. Chairman and members of the committee, for giving me this opportunity to share with you my views on the reauthorization of the Federal Surface Transportation Program.

STATEMENT OF ANTHONY DOWNS, SENIOR FELLOW, THE BROOKINGS INSTITUTION

My name is Anthony Downs, and I am a Senior Fellow at the Brookings Institution. I am the author of the 1992 book STUCK IN TRAFFIC, which deals with the causes of and possible remedies for peak-hour traffic congestion, and which I am now revising for a second edition. The views I state here are solely my own, and not those of the Brookings Institution, its Trustees, or its other staff members.

My comments will consist of a series of major points, with some supporting discussion of each. These points are focused on a realistic view of the nature of traffic congestion, both present and future, and what actions might be taken to relieve it.

The Positive Social Function of Traffic Congestion

Most people regard peak-hour traffic congestion as an unmitigated evil, but that viewpoint is incorrect. Congestion is a vital de facto device we use to ration the scarce space on our roads during periods when too many people want to use that space at once. In effect, congestion is a balancing mechanism that enables us to pursue many other goals besides rapid movement—goals American society values highly. Those goals include having a wide variety of choices about where to live and where to work, working during similar hours so we can interact with each other efficiently, living in low-density settlement patterns, and enjoying highly flexible means of movement—that is, private vehicles. The only other possible means of rationing

highway space when too many people want to use it would be (1) charging high tolls to keep many people off the roads then, which most Americans decisively reject because it would unduly favor the wealthy, or (2) spending enormously more money to build enough roads to handle all peak-hour traffic without delays. But that would require turning metropolitan areas into virtual cement slabs—which would be environmentally undesirable and prohibitively costly. Since we wisely reject those means of allocating road space, we must use delays from overcrowding in order to pursue the other goals we want to achieve. So congestion makes possible large-scale social benefits as well as the costs of delay on which most people focus when they think about it.

Peak-Hour Congestion Is Inevitably Going to Get Worse All Over the World

Because it performs a critical rationing function, traffic congestion is inescapable in large modern and modernizing metropolitan areas all over the world. In fact, it is certain to get worse in almost all of those areas, because populations are growing, and higher fractions of those increased populations will be using private vehicles for movement. So the biggest future ground transportation problem everywhere in the world will be coping with immense increases in the number of vehicles in use. In the United States, since 1980, we have added 1.2 cars, trucks, or buses to our registered vehicle population for every one person added to our human population. (This ratio was 1.49 to 1 in the 1980's, but declined to 1 to 1 in the 1990's.) In addition, we have increased the average number of miles each vehicle is driven each year. Hence total vehicle miles traveled increased by 72 percent from 1980 to 1998; whereas our total population increased by less than 20 percent.

In the 1990's, we added 32 million persons to our human population, and we may do so again in each of the next two decades. Unless American behavior changes radically, that means we will add as many as 64 million more vehicles to our registered vehicle population by 2020. Coping with the added traffic generated by this increase will be the main challenge to our ground transportation policy in the next two decades. Without doubt, traffic congestion will get worse because of these population dynamics.

Peak-Hour Congestion Is Almost Impossible to Eliminate Once It has Appeared

Once peak-hour congestion appears on a major roadway, it cannot be entirely eliminated by expanding the capacity of that road, though its duration can be reduced. That is because of the operation of the Principle of Triple Convergence. If the road's capacity is expanded, traffic at first moves faster on that road. But soon people realize this, and start altering their behavior. Drivers converge on the expanded road from other routes they have been using to escape congestion, from other times they have been using to avoid it, and even from other modes like buses or trains. Soon the increase in vehicles overloads the expanded road once again until traffic at the peak hour is moving no faster than before. True, the peak period may be shorter and the number of vehicles carried by the road each hour may be larger, since the road's capacity has been expanded. But traffic during the peak period will move no faster than before the road's capacity was increased. This means we cannot "build our way out of congestion" by expanding road capacity on crowded expressways or other key routes, once peak-hour congestion has appeared on them.

Another obstacle to "building our way out of congestion" is that expanded roads may attract more new development along their routes, generating more traffic than before the roads were expanded. This is particularly likely in fast-growing metropolitan areas.

Yet American Society Will Need to Spend Heavily on Road Construction in the Future

Though we cannot build our way out of existing congestion, large future spending on road capacity will certainly be needed for two reasons. The first is to maintain existing roads and bridges, many of which are in serious need of repairs. Existing roadways are almost certain to carry much more traffic in the future than any new roads built, since the former serve large already-existing population centers; whereas new roads will mainly serve lower-density growth areas. That makes improving existing roads a very high priority goal.

The second reason is to provide mobility for new-growth areas, most of which will be located on the peripheries of existing metropolitan regions. As settlements expand outward, new roads will be necessary to create mobility for their residents. Some advocates of "smart growth" argue that most future population increases should be accommodated by raising densities in already-built-up areas, rather than by expanding outward in more "sprawl." Some increases in density will probably occur. But residents of most American neighborhoods do not want higher densities and will resist them vehemently, as experience clearly shows. Therefore, the chance

that even a majority of future growth will occur through higher densities rather than though more outward development is very small. A lot more roads will be needed to provide mobility for residents of those new outlying areas.

Emphasis on Measuring the Aggregate Costs of Congestion Tend to Exaggerate Its Pain

The Texas Transportation Institute (TTI) has developed useful measures of traffic congestion, and changes in it over time, for a large number of major metropolitan areas. But the way these measures are expressed tends to exaggerate the amount of pain inflicted upon the American driving public. TTI estimates that the greatest annual delay from congestion in 1999 per person occurred in the Los Angeles region and equaled 56 hours; the average annual delay per person for 68 regions was 36 hours. 56 hours is a whole week of 8-hour days, and that certainly seems like a lot of wasted time. But when divided by 240 working days, and then by 2 for two trips per day, the average delay per person was 7.0 minutes per one-way commuting trip in the worst case (Los Angeles) and only 4.5 minutes for all 68 regions. When viewed this way, the "excess" time spent commuting does not seem so immense, though we all tend to remember the worst delays as being close to the average. This is the price we pay for rationing the scarce space on our roadways during peak hours so we can pursue all those other goals I mentioned at the outset of this testimony.

Americans Strongly Prefer Moving in Private Vehicles to Using Public Transit

Most Americans prefer using private vehicles for mobility instead of public transit because private vehicles have many superior traits. These include greater comfort, more flexibility as to timing, ability to perform several tasks on one trip, greater speed, more privacy, and—if parking is free—possibly lower costs. The average automobile commuting trip in 1990 was about 22 minutes; whereas the average bus commuting trip was 36 minutes and the average rail commuting trip was 45 minutes. Thus, any major shift from private vehicles to transit would increase the average amount of time spent commuting.

The strong preference among Americans for moving in private vehicles is shown by data from the 1995 nationwide Personal Transportation Survey. Over 90 percent of all work trips were in private vehicles, vs. 3.7 percent on public transit. (Since a large fraction of all public transit work trips are in New York City, if that city's trips are removed, only about 2.2 percent of commuters outside New York City use public transit.) Counting all types of trips, 86.1 percent were in private vehicles, and only 1.8 percent on public transit.

Transit advocates have pointed out that transit usage has recently grown faster in percentage terms than miles driven in private vehicles. Therefore, in December 2000, the Surface Transportation Policy Project (STPP) claimed that "Growth in public transit exceeds growth in driving." But transit usage is so tiny compared to driving that even very small percentage gains in highway travel involve vastly larger absolute increases miles traveled than much larger percentage gains in transit travel. In 1999, the year about which STPP said that "Growth in public transit exceeds growth in driving," total transit travel grew by about 1.7 billion passenger miles. But car passenger travel grew at least 51 billion miles, and travel in all small private vehicles (excluding motorcycles and buses) increased at least 80 billion miles. Thus, the annual increases in highway passenger miles traveled in 1999 exceeded those in transit passenger miles by ratios of either 31 or 48 to 1. That hardly indicates that growth in transit was exceeding growth in driving!

More Spending Is Needed for Public Transit Too—But Much of It Should Be for a Different Kind of Transit

The nation's public transit systems also need major future investments, but they should aim at making significant changes in the way public transit is provided. Future public transit expansion should focus on smaller-scale, more flexible, and less heavily regulated means of movement that are feasible for serving relatively low-density settlement patterns, which will remain dominant. Improving such forms of public transit will be vital in serving portions of the population unable to drive, especially the rapidly rising very elderly population. Major spending on fixed-rail systems, including light rail, is not likely to be very efficient at meeting our most pressing public transit needs. Moreover, expanding public transit is also not likely to reduce future traffic congestion much, if any. Some of the regions with very extensive public transit systems also have among the most intensive traffic congestion, including Washington, Boston, St. Louis, and San Francisco.

How Could Future Traffic Congestion Be Reduced?

What devices exist for improving future congestion levels—even though some worsening of congestion probably cannot be prevented? There are no total remedies, and not even many approaches that might slow down increases in future congestion. However, the following tactics seem the most promising:

- Coping with Accidents and Incidents as Causes of Congestion Delays. Many experts—including the TTI—believe accidents and incidents are the single most important cause of traffic congestion. Accident rates per 100 million miles driven have been steadily declining, partly because a higher fraction of traffic is occurring on better designed roads, especially interstate highways. But the absolute number of accidents has stabilized because of increased driving. Probably the most effective way of reducing accident-caused congestion on major roadways consists of faster removal of accidents from traffic lanes using roving teams of specialists controlled by traffic management centers. Many States already have created such centers, but their effectiveness could be improved with more sensors and more roving teams of obstacle removing specialists. This requires intensive coordination of police, fire, health-care, towing, and communications agencies in each jurisdiction.
- Shifting Some Future Growth to Smaller Regions. Multiple regressions based on TTI congestion measures show that congestion is most serious in the largest metropolitan areas, and those experiencing absolutely large amounts of population growth. Smaller areas are not as seriously affected by congestion even if they have high percentage growth rates. Hence one long-range offset to congestion would be shifting more population growth to smaller metropolitan areas. True, that is difficult to do through public policies. Most larger areas want to keep on growing, and they have important advantages of scale to attract future development. Yet any individual or organization extremely frustrated by congestion can greatly improve his, her, or its mobility by moving to a much smaller metropolitan area.
- Using HOT Lanes to Provide Drivers on Congested Roads with a Fast Choice. On already-heavily congested expressways, HOT lanes (High-Occupancy-Toll lanes) can offer a high-speed peak-hour mobility alternative to those drivers willing to pay tolls, without forcing all those not willing to pay tolls to drive at other times. HOT lanes accept both High Occupancy Vehicles (HOVs) and Single Occupancy Vehicles (SOVs) if the latter pay a toll during peak hours. The toll is variable, and it is set high enough to keep traffic on such lanes low enough to permit rapid traffic flow. This arrangement does not eliminate all congestion on such roads, but offers drivers a choice of rapid movement through paying high tolls or congested movement without tolls. Hence HOT lanes are politically superior to putting tolls on all the lanes in the roadway, which eliminates the choice of traveling without tolls on that roadway during peak hours. However, HOT lanes should be created only by adding new lanes to the roadway or converting HOV lanes, not by converting existing non-toll lanes to HOT lane use.
- Metering Access to Expressways. Metering entry-points onto expressways so as to slow entering flows appears to have some potential for increasing the average speed during peak hours, according to experience in Seattle. However, it may shift some previous congestion to lines of people waiting to get onto the expressways through the meters.
- Adding Capacity at Specific Bottlenecks. Where traffic flows suffer from definite bottlenecks, expanding the capacity of those bottlenecks might speed flows over the whole network of which they are a part. However, doing this is often difficult technically, and may be controversial as well. An example of both problems is the major traffic bottleneck created by the San Francisco Bay Bridge.
- Moving Home and Job Closer Together. One tactic an individual can use to cut commuting time is moving either home or job so they are closer together. This can be quite effective for one person, but may be difficult for a household in which more than one person works outside the home. It is also difficult in regions with very high housing costs, such as the San Jose and San Francisco areas.

Get Used to Traffic Congestion

No matter what public policies are adopted in response to future traffic congestion, it is likely to get worse in nearly all parts of the world. So my final advice is: Get accustomed to it. Commute in an air-conditioned car with a stereo radio, a tape deck and CD player, a hands-free telephone, a micro-wave oven, and a fellow passenger whose company you enjoy. Realize that congestion is providing benefits to you by rationing the roads you use and letting you pursue other goals besides rapid movement. In short, learn to treat being stuck in traffic as part of your normal leisure life, because it's here to stay.

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RESPONSES OF ANTHONY DOWNS TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. In your testimony, you restate in different terms the TTI estimate of delay from congestion, based on 1999 figures. At the hearing, Dr. Lomax of TTI gave updated numbers. Specifically, he testified that "The penalty [from congestion] in areas with populations between 500,000 and 3 million increased by 300 percent [since 1982] . . . Total hours in travelers in the[se] 76 [largest metropolitan] areas were delayed increased from 750 million in 1982 to 3.6 billion in 2000. Do you have any dispute with that testimony?

Response. I have not analyzed the Texas Transportation Institute's (TTI's) method of computing hourly and dollar costs of congestion in detail, and I have great respect for Tim Lomax. So I have no reason to dispute his assertions about these costs.

Question 2. You testified that "the 'excess' time spent commuting does not seem so immense". In light of Dr. Lomax' testimony, what is your opinion of the real dollar cost in lost time and productivity, increased insurance premiums, auto maintenance, and collision repair for the average rush hour commuter in these 76 areas?

Response. The reason I said that "the time spent commuting does not seem so immense" involves dividing TTI's estimates down to their daily impact upon individual commuters. For example, he says that "total hours of delay in the 76 largest metropolitan areas amounted to 3.6 billion in 2000." In 2000, the 76 largest metropolitan areas (MSAs only) contained 160,288,549 residents. In 2000, 46.8 percent of the population was employed. If that ratio were true in these 76 areas, that would be 75.015 million workers living there. If 90 percent drove to work, which is the national average, that would be 67.514 million auto commuters (not counting those on buses who would also experience congestion). Thus, 3.6 billion hours divided by 67.514 million commuters is 51.8 hours per commuter per year in 2000. But there are 240 working days each year, and 2 commuting trips per day. That is 480 trips for each commuter. 51.8 hours equals 3,108 minutes. That number divided by 480 equals an average of 6.48 minutes of delay per commuting trip. That does not seem nearly as immense a figure as 3.6 billion hours for the whole year, but it is the same number.

Furthermore, because people experience commuting delays a little bit at a time, it is not clear to me that they could make as productive use of this lost time as the totals might imply. 51.8 hours per commuter per year is more than an entire work week. But if you saved 6.48 minutes per trip each day, you would not have one block of more time equal to 51.8 hours to use—you would have 480 blocks of 6.48 minutes each. That is why I believe aggregating these numbers into totals exaggerates the real loss that people experience, and the alternate uses to which they could in theory put that time.

I cannot compute the "real dollar cost in lost time and productivity, increased insurance premiums, auto maintenance, and collision repair for the average rush hour commuter." However, I can tell you that the absolute number of automobile accidents in the United States has not risen much in recent years, in spite of large increases in vehicle miles driven. Thus, from 1990 to 2000, when vehicle miles driven in the entire United States rose by 28.6 percent, the absolute number of vehicles of all types involved in accidents increased by only 0.5 percent, and the number involved in fatal accidents declined by 3.7 percent. So I see no reason that commuting

has caused more collisions (since there aren't many more collisions) or higher insurance premiums or repair costs in the period from 1990 to 2000.

Question 3. Please quantify, with as much particularity as you are able, the detrimental impact on our environment (in terms of air quality in the nation's 76 largest metropolitan areas) of traffic congestion.

Response. It is impossible to quantify the detrimental impact of traffic congestion in air quality in the 76 largest metropolitan areas because that impact varies immensely from one region to another, and from one place to another within each region. Air quality is greatly influence by local topography, local wind currents, and other factors that make any large generalizations about its overall reaction to commuting suspect. No doubt congestion does add to the pollutants in the air by keeping people in their cars with their motors running longer than they would be if there were no congestion.

But no large metropolitan area in the world can function efficiently without traffic congestion during peak periods. Traffic congestion is a necessary balancing mechanism in the efficient operation of modern life, which requires most people to work during the same hours so they can interact easily. Therefore, we need some way to ration the limited space on our roads among the many people who want to use them at the same time—far more people than they can hold simultaneously. There are only two other ways to ration that space: by charging money to enter it, and by building so many roads that everyone who wants to travel in peak periods can do so without delay. The latter is impossible as long as we all work the same hours, because it would be immensely costly and turn each region into one giant concrete slab. The former is not politically acceptable to Americans. Therefore, we have to have congestion to function efficiently, since that requires most people in each region to work about the same hours each day.

Question 4. Please describe, with as much particularity as you are able, what you believe to be an acceptable level of environmental impact, in terms of air quality, resulting from traffic congestion in the nation's 76 largest metropolitan areas.

Response. I am not an air quality specialist, so I cannot describe what is "an acceptable level of air quality" resulting from traffic congestion. However, I believe the current method of measuring air quality in individual regions is not reliable. As I understand it, a region's air is considered polluted if it violates pollution standards for a tiny percentage of all the observations made in that region during an entire year. But I leave this esoteric subject to specialists in the relevant regulatory agencies—especially the Environmental Protection Agency—who understand it better than I do.

Question 5. For those of us not so sanguine about traffic congestion as the view expressed in your testimony that "in effect, congestion is a balancing mechanism that enables us to pursue many other goals beside rapid movement", would you please describe, with as much particularity as you are able, all of the detrimental/deleterious effects to our society from traffic congestion?

Response. Congestion does cost people time lost sitting in traffic, but that is the price they are willing to pay for being able to pursue other goals they prefer over getting to work sooner. Those goals include having a wide choice of places to live and work, being able to perform more than one purpose on a single trip, working at the same time as other people for the efficient operation of the economy, buying lower-cost homes that are located far out, living in low-density settlements, and working in scattered low-density workplaces. If many people really placed a huge value on minimizing the time they spent commuting, they would move closer to their jobs, or take jobs closer to where they work, or move to smaller regions where congestion is low. Some do, but most do not because they still prefer pursuing other goals over minimizing their commuting time.

Congestion also increases air pollution and consumes more fuel than would be the case if there were no congestion. But we cannot live in large-scale settlements without peak-hour congestion, for reasons set forth above. If Congress were really interested in conserving fuel and reducing air pollution, it would substantially raise gasoline taxes, as most other developed nations have done. But Congress is clearly not very interested in reducing fuel consumption or air pollution if doing so would incur political costs, which it would because the members know that many Americans would object. Most Americans are not interested in reducing national fuel consumption or air pollution either—if doing so would cost them more, which it would.

Long congestion also makes people irritable and increases tension. This is more likely on days when congestion is unexpectedly long because of some unusual incident than on typical days, because people get used to their "normal" delays.

Question 6. In your testimony, you assert that we cannot "build our way out of congestion" because drivers will divert to newly expanded roads with better travel

times, or expanded roads may attract new development, thus generating more traffic. This phenomenon is often referred to as "induced traffic." How would you describe the positive social benefit of "induced traffic" in terms of increased mobility or congestion?

Response. "Induced traffic" usually means that, if more roads are built, more development will take place along those roads, increasing the traffic flows on them. That is different from the "Principle of Triple Convergence," which states that expanding the capacity of a freeway that is already experiencing peak-hour overloading will cause people who are already traveling in some other manner to shift onto the expanded freeway during peak hours from (1) other routes, (2) other times, and (3) other modes, such as transit. Such shifting will continue until the freeway is just as overloaded as it was before the capacity gain, although the peak period may be shorter and more cars will be able to move on the freeway during that period. Thus, "induced traffic" refers to the creation of additional traffic from people who are not present today; whereas the "Principle of Triple Convergence" refers to people who are already commuting but would rearrange their behavior in response to more freeway capacity.

"Induced traffic" is one way of looking at the result of building roads out into vacant land around a metropolitan area. The existence of the roads makes living in those now-vacant areas more convenient, thereby encouraging developers to build housing and other improvements along those roads. This provides a social benefit to the people who occupy that housing or use those other improvements. In fact, it is impossible to avoid creating "induced traffic" in areas experiencing rapid population growth, which usually occurs at the edge of each region. As more people occupy homes there, a need arises for more roads to serve them—as will surely be the case in the next 20 years in the U.S. But when those roads are built, that encourages still more people to move there. But, after all, those more people will have to live somewhere. "Induced traffic" is thus an almost inescapable accompaniment to population growth. Stopping "induced traffic" would require stopping most future growth, or at least growth in outlying areas. But that is not consistent with the likely future growth of the United States at over 1 percent per year.

Senator Smith's questions display some frustration about the idea that congestion is a necessary and inescapable part of modern life in large metropolitan areas. But it performs a vital social function—that of rationing road space during peak hours. I sympathize with that frustration, which is only natural in light of increasing congestion. But alternatives to rising traffic congestion—such as road pricing or raising gasoline taxes sky high—are understandably unpalatable to Congress.

As our society gets more populous, our traffic congestion is going to get worse because we are not willing to adopt those measures that would prevent it from doing so. Most Americans accept rising congestion as better than those alternative measures, although they like to complain about the resulting congestion. But it is futile to rage against rising congestion if we are not willing to pay the price of adopting those policies that would prevent congestion from rising. The only other alternative is to halt the nation's population growth. But we cannot stop babies from being born or people from crossing our border into the United States without also adopting policies that we do not regard as acceptable. So rising congestion is inescapable under present political and economic conditions. That is why I urge people to get used to it, and learn to enjoy it as best they can!

STATEMENT OF C. KENNETH ORSKI, EDITOR/PUBLISHER, INNOVATION BRIEFS

Mr. Chairman, members of the committee: My name is C. Kenneth Orski. I am editor and publisher of Innovation Briefs, a bi-monthly publication which has been reporting and interpreting developments in the transportation sector for the past 13 years. Innovation Briefs, I am pleased to say, has a wide and influential audience that includes congressional staffs, Federal, State and local transportation officials, newspaper editors, business leaders, association executives, and transportation professionals. My testimony today is based on observations acquired in the course of gathering and analyzing information for our publication. These observations draw on recent briefings and conference presentations, and on interviews and personal communications with members of the transportation community in Washington, and with State and local transportation officials across the country.

My overall conclusion is that we enter this reauthorization cycle with fewer issues that might divide the transportation community, and with a larger measure of a consensus among major stakeholders than at any other time in recent history. Unlike the last reauthorization cycle, when interest groups jockeyed for position and floated a number of competing proposals, this time around I find near-universal sen-

timent that we ought to buildupon the combined legacy of ISTEA and TEA–21rather than engage in a bruising fight to reinvent the Federal surface transportation program. To be sure, there will be some proposals for changes, but these are likely to be refinements to program delivery rather than radical changes in the program structure itself.

Turning to specifics, I discern a large degree of consensus within the transportation industry and among major stakeholder groups on several policy directions:

Protecting the Highway Trust Fund

There is unanimous agreement, I believe, that the budgetary "firewall" protections and the principle of guaranteed minimum levels of annual spending should be preserved. At the same time, everyone recognizes that some refinements in the RABA formula will be necessary in order to prevent dramatic year-to-year swings in highway funding, such as occurred this year.

Increasing Program Flexibility

Similarly, there appears to be much support for greater program flexibility, i.e. giving Federal-aid recipients greater freedom to transfer funds between major programs and between sub-categories within programs. While a good deal of flexibility already exists, there is support for clarifying and enhancing this flexibility, perhaps by reducing the number of existing set-asides and sub-allocations.

Congestion Mitigation

Traffic congestion is viewed by all as a serious national problem that requires a national response. There appears to be a large measure of consensus within the transportation community that the response should include both capacity expansion and improvements in the operation of existing facilities—although opinions among stakeholders differ as to the proper balance to be accorded to these two major traffic mitigation strategies. My own belief is that, while operational strategies can help to some extent to reduce congestion due to accidents and vehicle breakdowns (the so-called "non-recurrent" congestion), only additional highway capacity, in the form of new lanes and design changes, can decrease or eliminate recurrent bottlenecks caused by too many vehicles trying to squeeze into too few highway lanes. Proponents of the "you-can't-build-your-way-out-of-traffic-congestion" school of thought seem to ignore the fact that additional highway lanes, even if eventually they do fill up with traffic, help to accommodate increased population growth and economic development. After all, schools and hospitals in areas of rapid growth also eventually fill up with students and patients, yet this never has stopped us from building more schools and more hospitals to fill growing demand.

A comprehensive Federal attack on the problem of traffic congestion might take the form of a specific "bottleneck reduction" program (along the lines suggested by the American Highway Users Alliance), supplemented by a program of operational improvements designed to squeeze more capacity out of existing facilities. Bottleneck reduction can often be achieved without major new construction by eliminating the sources of traffic flow instability, such as inadequate acceleration and deccelertion lanes, and lane constriction (e.g., three lanes of traffic funneling into two lanes.) Operational improvements would rely heavily on the application of advanced intelligent transportation system (ITS) technologies, to strengthen emergency response, improve detection and clearance of accidents (incident management), promote wider dissemination of real-time weather and traffic information to the traveling public, improve work zone management and establish more regional Traffic Management Centers.

Environmental Streamlining

Simplifying and accelerating the process of highway project review and approval is viewed as a critical priority by large segments of the transportation community . While current efforts of the Federal Highway Administration to streamline procedures through administrative action are commendable, the transportation community, I believe, is looking to Congress to provide more explicit legislative directions to reduce the delays that have plagued the project implementation process. Issues that call for congressional resolution include establishing uniform ground rules and timelines for dispute resolution; further reducing or eliminating the Federal review process for minor projects; setting maximum time limits for federally required reviews for major projects; clarifying responsibilities and requirements under NEPA in Section 4(f); and giving States and localities greater authority to sign off on environmental reviews through self-certification.

The environmental community's position on environmental streamlining reforms is not clear at this time. To my knowledge, no overt opposition to expediting the project approval process has been expressed by environmental groups so far, per-

haps because transportation officials have been careful to stress that advocacy of environmental streamlining should not be construed as an attack on environmental values, and that project delivery can be streamlined without hurting the environment.

Intelligent Transportation Systems (ITS) Program

Continued Federal support of the ITS program remains a high priority for large segments of the transportation community. Specific objectives advocated by the ITS community include initiatives to encourage regional partnerships for coordinated ITS operations; deployment of ITS technology to enhance highway operations and to increase the efficiency and security of intermodal freight movement; and programs to expand freeway and arterial monitoring instrumentation in metropolitan areas (currently, only 22 percent of the urban freeway network and virtually no arterials are instrumented). Another frequently mentioned idea is the creation of a national "infostructure" network, capable of collecting and sharing transportation system condition and performance information covering the entire national highway system. Such a national communication network could become an integral and vital part of a homeland security infrastructure, available in times of national emergency for evacuation and mobilization purposes.

Transit Issues: Bus Rapid Transit (BRT)

Increased funding, especially for New Starts, is likely to dominate the transit industry's reauthorization agenda. According to the latest Annual Report on New Starts published by the Federal Transit Administration, there are some 50 rail projects in preliminary engineering or final design. These projects represent a potential demand of $30–35 billion. Another several dozen projects, worth $70–75 billion, are in the alternatives analysis stage. While the transit industry is not expected to seek funding for all these projects, this begins to define the level of future demand for new starts projects in the eyes of the transit community.

Carving out a bigger role for Bus Rapid Transit (BRT), which is now undergoing a series of demonstrations, could significantly reduce the need for transit capital funding. According to the General Accounting Office, Bus Rapid Transit shows promise of offering a level of service comparable to that of light rail transit (LRT) at a fraction of their cost (an average of $9 million/mile for BRT vs $34.8 million/mile for LRT—Report GAO–01–984). Many transit experts believe that Bus Rapid Transit could lead to a new generation of more flexible, less expensive New Starts.

High Occupancy/Toll (HOT) Lane Networks

However, for Bus Rapid Transit to offer service quality comparable to that of rail (and to make it eligible for New Starts funding) the buses must be able to run in reserved lanes that are congestion-free even in peak periods. This has led to proposals to convert and expand existing stretches of HOV lanes into seamless networks of high occupancy/toll (HOT) lanes in major metropolitan areas. The HOT lanes would be open to buses and carpools without charge and to single-occupant cars for a fee. By varying the fee according to demand with the help of electronic transponders (as is already being done on the I–15 HOT lanes in San Diego), the number of single-occupant cars seeking entry to the HOT lanes could be restrained to maintain free-flowing traffic conditions at all times, thus ensuring the integrity of the Bus Rapid Transit concept. Funds to develop and operate the HOT lane networks could come from a combination of existing Federal-aid highway funds, a New Starts BRT set-aside, and tolls collected from single-occupant vehicles using the reserved lanes.

Surveys of motorists on the SR 91 Express Lanes in Orange County show that people of all income levels choose to use the toll lanes when saving time is really important to them. Indeed, a utility van or a pickup truck is a far common sight on California's HOT lanes than a Lexus. A recent study of the High Occupancy/Toll lanes on I–15 north of San Diego indicates that public opinion strongly favors priced lanes that offer the option of a faster and more reliable trip. As existing urban freeways become more and more congested and as travel on them becomes increasingly slower and less reliable, I believe there will be plenty of people and businesses willing to pay for the privilege of traveling in congestion-free lanes. Such HOT networks would benefit not only individual travelers, freight movers and goods deliverers who need a fast and reliable way to reach their destination, but also users of general purpose lanes, which would become less congested as some traffic switched to the toll lanes. In my judgment, a congressionally authorized program of HOT Lane networks-built as enabling infrastructure for Bus Rapid Transit but also available as a paying option to individual drivers who seek a faster and more reliable trip-would be an eloquent expression of the increasingly intermodal nature of our Federal surface transportation program.

"Essential Intercity Bus Services"

While the subject of Amtrak and intercity transportation falls outside the scope of this hearing, there is one aspect of it that may be of potential concern to this committee. The restructuring of Amtrak and the potential abandonment of some of its unprofitable intercity rail corridors, may create serious mobility deficiencies in many communities across America. One solution would be to establish a network of intercity buses to take the place of the discontinued train services. The bus network would connect small towns and rural communities to regional airports and to transportation hubs in larger cities. The bus services could be run by private carriers and, where necessary, supported by Federal subsidy payments modeled after the congressionally authorized "essential air services" program (49 U.S.C. 41731). Essential air services have been maintained with Federal subsidy support at approximately 100 communities affected by airline deregulation. I believe a similar approach could restore mobility to hundreds of communities threatened by possible cutbacks in intercity rail service.

Long Term Viability of the Trust Fund

Finally, I detect a growing concern within the transportation community about the long term capacity of the Highway Trust Fund to finance the nation's future transportation needs. The preponderance of opinion is that the growth in gasoline tax revenue will not keep pace with the rising demand and cost of highway preservation, reconstruction and rehabilitation. A growing use of ethanol-based fuels (its use jumped 28 percent in 2001) and the long range impact of hybrid and fuel cell vehicles is expected to further diminish the prospects for gas tax revenue sufficiency. In the short run, shifting ethanol tax receipts from the general fund to the Highway Trust Fund might ease the situation somewhat. But looking beyond the next reauthorization cycle, we may have to consider entirely new approaches to Federal transportation program financing. Hence, I join other transportation leaders in urging a congressionally mandated study to explore alternative financing mechanisms that would offer a stable and adequate long-term source of transportation financing.

This concludes my testimony. Thank you for the opportunity to present my views.

RESPONSE OF C. KENNETH ORSKI TO ADDITIONAL QUESTION FROM SENATOR SMITH

Question. Would you please discuss in greater detail your thoughts on HOT lanes. What I am most interested in are your thoughts as to how such a concept can be employed on a nation-wide scale in our bill next year reauthorizing the Highway Trust Fund and surface transportation programs.

Response. HOT Lanes and Bus Rapid Transit are two key ideas on which we should build a new urban transport policy for the 21st century. The first offers urban motorists an option of faster, congestion-free travel, while the second promises effective mass transit service at a fraction of the cost of new rail starts. Combined, they offer a powerful new approach to improving urban mobility.

HOT Lanes

High-Occupancy/Toll (HOT) lanes are limited-access lane which high-occupancy vehicles (carpools and buses) are allowed to use for free while other vehicles gain access to them by paying a variable toll. The lanes are "managed" through pricing so as to maintain free-flow conditions even during the height of rush hours. HOT lanes have been in operation for several years in Orange County (the SR91 Express Lanes) and San Diego County (converted HOV lanes on I–15). More than a dozen other HOT lane projects are in the planning process in places like Dallas, Denver, Houston, Miami and Silicon Valley .HOT lanes have been endorsed by the Environmental Defense Fund and other environmental groups as an innovative transportation concept that offers benefits to all users of a congested corridor-carpoolers and transit riders as well as automobile users.

Bus Rapid Transit

Bus Rapid Transit (BRT) refers to high-capacity bus transit along major corridors, aiming to match the capacity and level of service of rail transit while adding the inherent flexibility of buses. For Bus Rapid Transit to offer service quality comparable to that of rail, buses must be able to operate in limited access, congestion-free lanes. The best examples of high capacity BRT systems are Curitiba, Brazil and Ottawa's Transpo where buses travel on separate dedicated busways. In the U.S., bus rapid transit, as currently promoted by the Federal Transit Administration, includes express-bus service on major streets with traffic-signal preemption, on exclu-

sive bus lanes on arterials, and on freeway HOV lanes. The metro area that has done the best job marrying express buses with HOV lanes is Houston.

Carving out a bigger role for Bus Rapid Transit (BRT), which is now undergoing a series of demonstrations, could significantly reduce the need for transit capital funding. According to the General Accounting Office, Bus Rapid Transit shows promise of offering a level of service comparable to that of light rail transit (LRT) at a fraction of their cost (an average of $9 million/mile for BRT vs $34.8 million/mile for LRT—Report GAO–01–984).

BRT is rapidly picking up support within the transit community, which realizes that only a small number of communities have the fiscal capacity to support costly rail projects and that the Federal New Starts program can only fund a small fraction of the rail candidate projects. Bus Rapid Transit is seen as ushering in a new generation of less costly New Starts and extending the benefits of rapid transit to a much larger number of communities. In the San Francisco Bay Area, both the Metropolitan Transportation Commission and the grass-roots Bay Area Transportation and Land Use Coalition have been advocating much greater use of express buses as an alternative to multi-billion dollar rail-transit expansion.

HOT Networks

Instead of building isolated HOV or HOT lanes on a handful of freeway segments, the new strategy would involve creating seamless, region-wide networks of HOT lanes, including connectors at major freeway interchanges. A metro-area-wide HOT Network could remain congestion-free at all times thanks to variable pricing. The HOT network would become, in effect, a system of fixed guideways for high-speed BRT, giving express buses a speed advantage over buses using congested freeway lanes. At the same time, the HOT network would provide a faster travel option for motorists for whom time savings are really important. Tolls would be debited electronically from the users' smart cards, thus doing away with toll booths and cash transactions. Funds to develop and operate the HOT lane networks could come from a combination of existing Federal-aid highway funds, a New Starts BRT set-aside, and local funds in the form of tolls collected from single-occupant vehicles using the reserved lanes.

Equity Issues

Some people have questioned whether solo motorists should be allowed, as a matter of public policy, to "buy their way out" of congestion. Surely, the answer must be "yes". There is nothing intrinsically unfair about paying for access to a higher level of service in our market-based economy. After all, money buys better service in every other aspect of our lives, including transportation. We pay higher prices for first class travel in planes. Door-to-door taxi service costs more than slower and less convenient public transportation. Even Amtrak, a publicly supported carrier, offers different classes of service. Why, then, should we insist on having a one-size-fits-all level of highway service?

Nor is it just the highly paid professionals that would benefit from priced lanes, but anyone for whom time is a precious commodity. That includes many ordinary people, such as workers whose job depends on always being on time, parents racing to get to a daycare center before the late fee kicks in, and repairmen anxious to fit in one last appointment in a busy day. Surveys of motorists on the SR 91 Express Lanes in Orange County, CA show that people of all income levels choose to use priced lanes when saving time is really important to them. Indeed, a utility van and a pickup truck are a far more common sight on California's HOT lanes than a Lexus or a BMW.

A new study of the High Occupancy/Toll lanes on I–15 north of San Diego indicates that public opinion strongly favors priced lanes that offer an option of a faster and more reliable trip. A survey conducted by Wilbur Smith Associates in the fall of 2001 found that, by a 91 percent to 7 percent margin, I–15 users think it's a good idea to have a timesaving travel option. Surveys in Washington State have reached similar conclusions.

This suggests that paying for the use of lanes (or roads) that offer a premium level of service may become an accepted practice in the years ahead. As existing urban roads become ever more congested and as highway travel becomes increasingly slower and less reliable, there will be more and more people and businesses willing to pay for a chance to travel on congestion-free lanes.

In sum, the HOT Networks approach presents a situation where everyone wins. Transit riders would win because many cities that could not justify or would not qualify for new rail starts, would be able to implement effective region-wide express bus service. Individual motorists would benefit by having the option of faster and more reliable travel on a network of congestion-free lanes when saving time is really

of importance to them. Users of regular lanes would gain because regular lanes would become less congested as some motorists switched to the toll lanes. And, importantly, HOT lanes would provide a revenue stream that could be used to finance the local share of the cost of new lanes.

A congressionally authorized program of High Occupancy/Toll (HOT) networks-built to benefit motorists and transit users alike-would constitute an eloquent expression of the increasingly intermodal nature of our Federal surface transportation program.

Note: an in-depth study of HOT Network feasibility is currently underway at the Reason Policy Institute under the direction of Robert Poole, the Institute's Transportation Director. The study is expected to be completed in early autumn.

RESPONSES OF C. KENNETH ORSKI TO ADDITIONAL QUESTIONS FROM SENATOR GRAHAM

Question 1. Constituents are frustrated with ITS Message Boards that merely flash the news "Congestion Ahead." What have been the best examples you've seen of information sharing to commuters that was time—sensitive and meaningful?

Response. I share your constituents' frustration with meaningless ("Have a Nice Day") or obvious ("Congestion Ahead") messages on electronic variable message boards. In partial defense, let it be noted that, because of their relatively small size, there is not enough room for detailed, informative messages. However, a far better job of informing the traveling public is done on the Internet, where web sites run by State and local transportation agencies display color-coded maps indicating up-to-the-minute levels of congestion on the highway network. Many such web sites also provide camera images of congestion "hot spots," alert motorists about work zones and lane closures, and give estimated trip time between origin-destination pairs on the highway network. Good examples of effective traveler information web sites are those of the city of Houston (traffic.tamu.edu), the Washington State DOT (www.wsdot.wa.gov/traveler) and the Arizona State DOT (www.azfms.org).

The obvious weakness of the Internet as a medium of time-sensitive traveler information is that the information can only be accessed before getting into the car. Since traffic conditions can change rapidly, such "pre-trip" information is often out of date by the time the motorist reaches a reported scene of an accident or congestion bottleneck. This explains the continued popularity of "drive-time" traffic reports on the radio. Despite their alleged shortcomings (spotty, not frequent enough, covering only key corridors) commercial broadcasters still do the best job of keeping drivers currently informed of traffic conditions and incidents. This may change in the years ahead, as cars become equipped with wireless telematic terminals that can display Internet-based messages and congestion maps. A widespread use of in-vehicle telematics, however, is still 5–10 years away, according to industry estimates.

Question 2. I have been concerned that the ITS deployment money in Transportation Appropriations has recently been focused on areas that are not identified in TTI's list of most congested cities. Your testimony mentions that only 22 percent of the urban freeway network is instrumented—do you share the concern that we have a lot more research to do in urban use of ITS?

Response. The fact that only 22 percent of the urban freeway network (and hardly any urban arterials) has been instrumented can be attributed to several factors: the high cost of installing electronic detection equipment (loop detectors, optical sensors, "radio cameras", closed circuit video cameras, etc); the tendency to spend available Federal money on elaborate Transportation Management Centers rather than on roadway instrumentation; the desire to promote rural as well as urban applications of ITS; and a reluctance by local and State governments to give priority to ITS implementation given the many other demands on their highway resources. I agree that highly congested urban areas deserve priority attention in the allocation of scarce Federal ITS deployment funds-because that's where the potential payoff for ITS clearly is the greatest.

RESPONSES OF C. KENNETH ORSKI TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question. In your oral testimony, in summarizing the "policy directions and new initiatives" for reauthorization that enjoy widespread consensus among stakeholders, you include "the need for increased flexibility." Would you elaborate on this. In what respects is the current program insufficiently flexible? How would increased flexibility influence outcomes?

Response. While there already is considerable freedom to move funds within the Federal-aid highway program and between highways and transit, we do continue to hear calls for more flexibility. The calls come primarily from those who would like to see an end to most categorical set-asides and congressional earmarks, on the theory that set asides and earmarks deprive State and local decisionmakers of the flexibility and discretion to allocate resources according to their own notions as to where the resources can do the most good. While one can take issue with this position, the fact remains that calls for "greater program flexibility" can be found in a number of reauthorization-related position statements, among them, those of APTA ("preserve and enhance the flexibility for highway and transit programs . . ."); AASHTO ("encourage greater flexibility in transferring Federal funds"); ARTBA (increase flexibility within the Surface Transportation Program); and STPP.

Question 2. Your analogy between hospitals and roads assumes that the objective is both health care and transportation is to meet an ever-increasing demand that is based solely on population growth. The trouble with this analogy is that the need for hospital beds, or roads, is not primarily based on population growth, but depends on many other factors. In health care, the level of general public health determine how many people need hospitalization.

Response. In transportation, the general accessibility level of the community helps determine whether people need to drive to reach every destination. In fact, what we are seeing is a growth in driving that is far outpacing population growth. For example, Texas Transportation Institute figures show that in Atlanta, the population grew 36 percent between 1990 and 1999, while the amount of driving grew by 64 percent. The distance driven by the average American in that time period increased by 24 percent. If more roads are not inducing more travel, what is the cause of this impressive increase in driving?

In my testimony I stated that "proponents of the 'you-can't-build-your-way—out-of-traffic-congestion' school of thought seem to ignore the fact that additional highway lanes, even if eventually they do fill up with traffic, help to accommodate increased population growth and economic development." There are, of course, other factors, besides population growth, that have contributed to the rapid increase in vehicle-miles-of-travel (VMT) in recent times. For example, according to the 2000 Census, metropolitan densities have dropped by more than 20 percent nationwide between 1982 and 1997 and this has led to a greater dispersal of homes and jobs, and longer commutes. Of the 281 metropolitan areas in the Nation only 17 have become more dense during the decade of the 1990's; all the other 264 metro areas have decentralized, according to the 2000 Census. Another factor responsible for a rapid increase in VMTs is the growth of two-worker households. Today, chances are that both the husband and the wife drive to work, thus doubling the work-related VMTs of "traditional" households of an earlier era..

However, work trips are not solely responsible for the dramatic increase in VMTs. After all, they only constitute about 25 percent of total daily travel. Personal business trips, shopping and social/recreational trips have actually experienced a more rapid growth. Both types of trips are a reflection of a higher rate of economic activity, a rising standard of living and their high contribution to VMTs is a function of the dispersed housing location which cannot be easily served by public transit.

Like hospital beds and school classrooms, roads fill up because of many other factors besides population growth. But, while we are not reluctant to meet growing demand for hospital beds and classrooms, we seem to apply a different standard to meeting highway demand.

STATEMENT OF FREDERICK SALVUCCI, CIVIL ENGINEER SPECIALIZING IN TRANSPORTATION, WITH PARTICULAR INTEREST IN INFRASTRUCTURE, URBAN TRANSPORTATION, PUBLIC TRANSPORTATION, AND INSTITUTIONAL DEVELOPMENT IN DECISIONMAKING.

Biographical Sketch

Most of his career has been in the public sector, having served as transportation advisor to Boston Mayor Kevin White between 1970 and 1974, and then as Secretary of Transportation of the Commonwealth of Massachusetts under Governor Michael Dukakis between 1975 and 1978 and again from 1983 to 1990. In those roles he has participated in much of the transportation planning and policy formulation in the Boston urbanized area and the Commonwealth of Massachusetts over the past 20 years, with particular emphasis on the expansion of the transit system, the development of the financial and political support for the Central Artery/Tunnel Project, and the design of implementation strategies to comply with the Clean Air Act consistent with economic growth. Other efforts include the extension of the Red Line in South Quincy and Alewife, the relocation of the Orange Line in Boston's

Southwest Corridor, the acquisition and modernization of the Commuter Rail Network, the restructuring of the MBTA, the formulation of noise rules to halt the increase in aircraft noise at Logan Airport, the development of strategies to achieve high speed rail service between Boston and New York, and the planning for the redevelopment of the Park Square section of Boston through the location and construction of the State Transportation Building there.

More recent activities have included participation in a restructuring of commuter and rapid transit services in Buenos Aires, Argentina, using concession contracts with private-sector companies (the new system has improved both efficiency and effectiveness); participation with the Volpe Center in a review of the transportation planning process in US metropolitan areas of over 1 million people, and participation in an innovative research and educational collaboration with the University of Puerto Rico and the Puerto Rico Highway and Transportation Authority, focused on the development of a new transit system for San Juan, Puerto Rico. The project, called Tren Urbano, is the first design-build-operate system in the United States. Mr. Salvucci is also a key participant in a new major MIT research project with the Chicago Transit Authority, patterned on the Tren Urbano program.

Mr. Salvucci teaches courses in Urban Transportation Planning, Institutional and Policy Analysis, and Public Transportation. He attended MIT as both an undergraduate and graduate student of Civil Engineering, earning his Bachelor of Science in 1961 and his Master of Science in 1962. International education includes a year at the University of Naples as a Fulbright Scholar from 1964 to 1965, studying the use of transportation investment to stimulate economic development in high poverty regions of Southern Italy.

Introduction

First, let me thank the committee for the extraordinary opportunity to participate in your consideration of the needs to be addressed in the process of reauthorization of Federal Surface Transportation Funding. Let me share with you my views on some key emerging issues, based on my experience as a City and State transportation official in Boston, Massachusetts, and more recently as an academic researcher at the Massachusetts Institute of Technology.

A. Emerging issues

As we anticipate the reauthorization process for the surface transportation bill, I believe this is a useful time to step back and re-examine the evolution of the Federal program since 1956, and the changing needs of the Nation.

The initial impetus of the program, to create a national highway infrastructure, has substantially been accomplished. The mechanism of high Federal matching ratios for capital investment, stable and reliable funding, clear Federal policy guidelines, and implementation decentralized to the State government level, has been very successful at creating an ubiquitous high-quality highway network. As this primary objective has been substantially achieved, the program has evolved to include funding for complementary modes such as transit and the urban system, and to issues of management of operations and maintenance (ITS). These shifts have required more complicated planning and environmental procedures and institutional requirements, with transit authorities, metropolitan areas and cities, and sister agencies with environmental and public health responsibilities, playing important roles, in addition to State highway departments. Persistent issues of congestion, especially in suburban areas, continue to generate intractable problems at the interface of transportation performance, economic growth, land use, and environmental quality. Moreover, as the system ages, deteriorating physical condition of old infrastructure gives rise to the need for reconstruction, or redevelopment of old urban infrastructure in complex urban environments. The Big Dig in Boston is perhaps an extreme example of the cost and complexity of this challenge, and is indicative of challenges ahead in a very large number of urban areas. The need to renew and expand the bridges and tunnels that serve Manhattan, compounded by the tragedy of September 11, is perhaps the most vivid example, but dealing with the earthquake damaged infrastructure in West Coast cities such as Seattle is likely to be similarly challenging. The vulnerability of the air traffic system exposed by the September 11 tragedy was already becoming obvious because of the growing airport congestion, and poses the question of the need for complementary intercity rail services and improved "ground access" to airports.

Finally, the unglamorous question of proper maintenance of the existing highway network is perhaps becoming more important to the national interest than the further expansion of the network.

I believe that our democratic political system will and should translate these emerging problems into a demand to be as innovative and creative with new national initiatives as were the founders of the Interstate system.

My suggestions to anticipate and deal with these emerging issues are these:

(1) Establish a new program to federally fund the cost of operating and maintaining the existing national highway system, with clear Federal guidelines and policies for planning, but a decentralized structure to allow local flexibility for implementation. A pay-as-you-go incentive of 1/3 Federal, 2/3 State funding would, in my judgment, be adequate to create substantially more attention and sophistication to this unglamorous but vital activity.

(2) Develop a new category of funding for the rebuilding and redevelopment of old infrastructure and mega-projects. This will be a very expensive undertaking, but one that is essential to the economic health of the Nation. It will require high Federal matching ratios to be affordable at the State and local levels, and will require planning and financial mechanisms similar to those of the Interstate program. Early costs are likely to be modest because of the long lead times often involved, and some national planning will be required to even develop realistic national cost estimates.

(3) Develop a new initiative to prioritize access to airports, particularly for truck movements which are increasingly trapped in congestion, with severe economic consequences. Again, the early costs are likely to be modest because of lead time, but eventual costs will be high, and require high Federal matching ratios.

(4) Develop a new program to provide Federal funding for improved paratransit services. The dramatic growth in the aging population is creating a mobility demand far in excess of the "interim" services for the elderly and disabled provided by transit authorities for systems which are not fully accessible. The growing need extends well beyond the extent of many transit providers, and as transit systems become physically accessible they could theoretically withdraw the current limited services. To deal with this emerging issue at an adequate level requires that it be viewed as a responsibility of the entire transportation system (not just inaccessible public transportation systems) and that it receive reliable Federal funding, not be imposed as an unfunded Federal mandate. A 50–50 Federal share of costs is probably adequate to motivate the level of effort required, but the unserved need is great and growing, so the (Federal and State) funding needs will grow substantially as organizational capacity to serve the need improves.

(5) Understand and anticipate increased funding requirements for complementary systems such as transit, intercity rail, elderly and disabled access, and recognize that aviation funding authorizations will be considered in the same timeframe as surface transportation reauthorization.

(B) Implementation Considerations

For all of these emerging needs, an expanded and restructured financial base will be required, and it is important to consider the political and financial context of reauthorization.

The Federal role in transportation has been evolving based on a combination of three factors:

(1) the changing needs of the Nation as a whole,

(2) The narrower needs of the transportation public agencies at the State, metropolitan, and local level, and

(3) the needs of the transportation construction industry whose economic viability is strongly affected by Federal transportation authorizations and appropriations.

In many ways the evolution of the Federal program has been shaped by these three forces, particularly in the recent history of the program (1990 to the present), and the challenge facing the re-authorization process of 2003. In order to balance these three considerations, the Congress has periodically increased Federal funding through increases in the gasoline tax so that "new" issues can be addressed without weakening existing programs, but the President appears unlikely to support this approach in 2003.

I believe that the successful balancing of these three considerations in 2003 could best be achieved by reconsidering three major features of the Federal program:

(1) If the pay-as-you-go philosophy, established by Eisenhower, were partially replaced by a capital budget bonding approach, similar to that used by every State government, the existing tax revenue streams could support a major expansion of program to meet changing national needs and allow expansion for all transportation agencies and the transportation construction industry, while deferring the need to increase gasoline taxes. If one-third of the existing revenue streams were to be used for debt service, the program size could expand, so that over the next 6 years, instead of approximately $145 billion it would be possible to invest approximately $175 billion, approximately a 20 percent increase. While OMB would oppose this

possible change (as it has in the past) it would have major economic benefits to the Nation by allowing increased investment now, producing both short-term economic stimulus, and long-term economic growth, within the existing tax constraints.

(2) If the State and local matching ratios were increased beyond the 20 percent ratio now favored, national program size would increase, and State and local accountability would grow, easing the burden on Federal oversight somewhat. Traditional thinking has favored very low State and local matching ratios based on the precedent of the 90/10 ratios of the Interstate highway program and the strength and popularity of that program, and the very simple political task of building State and local political will to raise 10θ to attract 90θ. But it is still a bargain to raise 33θ at the local and State level and get 67θ from the Feds, and you "leverage" a somewhat larger program, with more fiscal discipline at the State and local level.

(3) If the focus of the Federal role were shifted from capital investment to include a larger component for operation and maintenance, the effectiveness and efficiency of the overall program would increase. An extremely large and extensive highway network has now been created, but the operation and maintenance of that system is often inadequate and inefficient. The "new" capital needs are increasingly to rebuild older parts of the system which have deteriorated from decades of inadequate attention to operation and maintenance.

Modification of any one of these three features alone is very difficult, but a combination of the three could make it possible to deal with both pressing "new" initiatives such as elderly and disabled needs, environmental concerns, very expensive reinvestment and renewal needs, and increased levels of funding for operation and maintenance as well as continuing existing programs, allowing all major players to "win" without a tax increase during the near-term future.

The current situation, with gasoline tax revenue estimates low, has created multiple political problems. Highway appropriations have been cut, and the beginning point for the reauthorization is lower. In a policy area with increasing claims, a "growing pie" is essential to accommodate new interests without damage to longstanding constituencies. A "shrinking pie" is a disaster. This political problem could produce the political will to partially shift to a capital budget approach, which could produce growth rather than shrinkage, and allow the Congress to better deal with emerging issues.

ISTEA began a process of introducing operation and maintenance themes into the program through its management reporting systems and "flexibility", but these have not been fully embraced by the States because the management reporting requirements were often treated as perfunctory paperwork, and flexibility requires shifting money away from some traditional activities. This proposed new combination would allow introduction of funded operation and maintenance activities (perhaps at "low" 30 percent match) that would produce the carrot for real operation and maintenance reform, without sacrifice of capital investment, and could really continue, deepen and consolidate the new initiatives of ISTEA while respecting the continuing need for new investment (and the economic and political importance of the construction industry). It could also prepare the capacity to deal with major national infrastructure rebuild issues such as Manhattan Post–9/11 and (to extrapolate to the aviation re-authorization process) large reinvestment projects like the proposed restructuring of O'Hare Airport.

(c) Some additional clarification of conceptual proposals

Let me provide a little more explanation of the new program initiatives I proposed earlier.

(1) Operations and/or Maintenance Funding

Such an extensive highway and transit system has now been built that the use of what we have, and its proper maintenance, is more important to performance of the overall system than the addition of a new link. Yet in spite of the importance of maintenance and operations, and the system management requirements of ISTEA, maintenance and operations continue to be treated as afterthoughts, with sporadic attention and funding. Most State transportation systems continue to focus on facilities, not the operation of the system, and new construction continues to be the most visible activity. This is partly institutional; these agencies tend to be dominated and led by civil engineers (like myself) who like to build things, especially new things. New construction is exciting, highly visible, expensive, and federally funded, so there is a lot of attention to doing the job right (and less attention to asking if we are doing the right job). In these organizations there is often high capacity to design and manage the construction of new facilities coexisting with underfunded and poorly managed maintenance, so that facilities require reconstruction because of deferred maintenance. Traffic operations is often viewed as less exciting, or important, and is reactive. Very little attention is given to protecting existing ca-

pacity and safety through acquisition of development rights, so we see sprawl development eroding highway capacity, as well as environmental quality. In order to transform this institutional landscape into one where improved mobility and accessibility are the primary objectives, and sophisticated management of facility maintenance is available to serve the accessibility mission (while retaining capacity for excellence in the design and construction of new facilities or the redevelopment of obsolete facilities), it is necessary for Federal leadership to adequately fund maintenance and operations activities and provide support for research and management improvement. Steady reliable Federal funding, even at modest ratios such as 30 percent, will serve to protect O&M budgets from the vagaries of local budget fluctuation, and allow this transformation to occur.

(2) Rebuilding, redevelopment of old infrastructure and mega-projects.

I believe that there is a large backlog of aging infrastructure in most metropolitan areas which badly need to be renewed, replaced, redeveloped, or augmented, but which are systematically under prioritized in the planning and procurement systems in metropolitan areas. Often these facilities are seen as lower priority because they already exist. In addition, they are often intensively utilized, creating dramatic problems of maintenance of traffic during construction, so agencies may tend to postpone projects that will be very difficult to manage and politically unpopular. The environmental processing of redeveloping and/or replacing old, heavily used facilities can be complex and time-consuming, and the high cost and "lumpiness" of these can be very difficult to deal with in an MPO process, because they often require a large share of available funds on one project in a small geographic areas over multiple years. The combination of competition for resources from other projects, the difficulty and potential political unpopularity, and large funding requirements make these difficult to achieve, yet they are crucial to the future viability of many of our major metropolitan areas.

I believe that some protection from competition, through dedication of Federal funds at high Federal ratios, is essential to mitigate a tendency to avoid these challenges, with long-term destructive impact on accessibility and economic performance.

There are often suggestions that simplification of environmental procedures would expedite these and other "mega-projects." I believe this is a dramatically mistaken view. First of all, the complexity of the environmental process is a reflection of the real impacts that redeveloping our infrastructure will have, on both traffic and the environment. Moreover, old infrastructure problems are often seen as the occasion to reconceptualize the facility and its relationship to the environment, not simply "rebuild" it. Indeed, if we do not want our regions to become a form of "petrified wood," locked into hundred-year-old patterns, reconceptualization is an appropriate and essential activity. Developing public understanding and participation in this process is desirable and necessary, and I believe the environmental process is a useful way to organize this essential participation. Given the political importance of the environmentalists rather than picking a fight, I propose that we should strengthen the enforceability of environmental commitments. More fundamentally, the real delays in implementation do not come from legitimate environmental process so much as from lack of available funding, "predatory" competition for funds, and agency reluctance to implement these difficult projects. Attempting to reduce environmental process is likely to simply increase the political unpopularity of these projects and exacerbate the real problem, which is competition for limited funds. Creating an adequately funded, high Federal matching ratio, dedicated funds for these "mega-projects" would deal directly with the real problem which inhibits dealing with this category of issues. In addition, increased Federal capacity for technical support and oversight of these projects is needed. I believe that the FTA Project Management Oversight program which uses expert consultants responsible to FTA to help oversee these unique projects is a good model. New York's West Side Highway collapsing without real replacement, and the redevelopment of Boston's Central Artery as a depressed highway, at very high cost, are good examples of the range of possibilities, and the importance of this issue.

(3) Airport Access

This represents another category of accessibility likely to be very important to the economy, but underprioritized in the metropolitan area process. Airports and the aviation industry zealously oppose any idea of responsibility to deal with landside access. Additionally, port authorities tend to make money from parking and rent-a-car revenues, leading to a lack of advocacy or even support for improved public transportation access to airports. Truck access to airports, presumably very important for high-value goods, generally receives no particular attention. In the competition for scarce funds at the metropolitan area level, airport and other intermodal access is often a bit of an orphan (similar to rebuild and mega-projects). Again, a

separate high Federal matching ratio dedicated fund for airport and intermodal facilities could help ensure adequate attention to this important area. Since the reauthorization of aviation funding is under consideration by Congress at the same time as the surface transportation authorization, it should be possible to introduce symmetrical provisions in the aviation reauthorization to create some responsibility and funding to prioritize landside access. If some matching share from the airport proprietor were required to access dedicated surface transportation funds for airport and inter-terminal access, an incentive could be created to encourage a more proactive attitude by airport operators.

(4) Elderly and disabled paratransit services.

Currently, most paratransit services for the elderly and/or disabled population are provided by public transportation providers whose fixed-route services have not yet achieved full ADA accessibility. There are several problems inherent in this situation:

a) Funding the paratransit service competes directly with funds to operate fixed-route bus and rail services, and weakens fare recovery ratios. (Paratransit fares typically cover only 5–10 percent of operating costs.)

b) This leads transit providers to consider the paratransit an "unfunded Federal mandate," and provide paratransit service of lower than desirable quality, and (because of budget and fare-recover ratio constraints) reduce fixed-route service.

c) As fixed-route service comes into compliance with ADA, the legal obligation to provide paratransit service is removed, but approximately 50 percent of the clients cannot really use "accessible" fixed-route service, creating a potential crisis.

d) Outside of fixed-route transit districts, paratransit services are less available.

e) The aging population, some of whom should not drive but still need mobility, is growing dramatically.

For all of these reasons I believe we should recognize that we are dealing with a problem of access to society, not access to fixed-route systems, for growing numbers of people, and that this is a transportation system responsibility, to be funded (at a 50–50 level) by Federal funds with Federal planning and service characteristics, in order to provide reasonable access and mobility to the full population. This could be a building block toward creating institutions focused on mobility and accessibility rather than exclusively on facilities.

(5) Intercity rail and bus services to complement aviation in the aftermath of 9/11.

Partly because of the ongoing fiscal problems of Amtrak, partly because of the increased aviation travel times caused by the increased security in the aftermath of 9/11, intercity rail and bus facilities are likely to be seen as increasingly legitimate claimants for a share of transportation funding. While this will raise complex institutional issues which neither States nor MPOs are perfectly suited to encompass, I believe there is legitimacy to the public claim and that it would be prudent to anticipate a need for a new funding initiative here, at least for capital.

(6) Implementation of reauthorization.

Again, given the combination of legitimate increased public claims for participation, the reduced level of gasoline tax receipts, and the likelihood of great resistance to increasing the gasoline tax before the next election, and that the historic reality has been that the surface transportation act reauthorization require "all winners," I believe that re-opening the question of a capital budget approach to surface transportation is the best hope to create adequate room to go forward with a broad consensus.

To be sure, using part of the current revenue streams for bonding allows increased investment in the short run, but requires either ending some capital investment or increasing the gasoline tax at some point in the future. But either of those outcomes is better than the status quo. Bonding costs are at or lower than the rate of inflation in the construction industry, so dealing with investment needs sooner through bonding does not cost more. On the contrary, it provides both short-term economic stimulus and long-term economic growth, both of which are desirable. It is the way every homeowner in America buys a house, most private investment is financed, and every State and City government invests. If, in 6 years new investments are curtailed, we're better off to have had the investment early. If, on the other hand a unified constituency successfully lobbies to increase the gasoline tax so investment can continue, that's even better.

In the short term, we need a strategy to incorporate "new" claimants and environmentalists in support of an expanded surface transportation authorization, and I believe these suggestions can help us get there.

Thank you again for the opportunity to testify.

RESPONSES OF FREDERICK SALVUCCI TO ADDITIONAL QUESTIONS FROM SENATOR GRAHAM

Question 1. You raise an important point about highway maintenance. It is as important, or more so, than new construction. Do you feel that poorly maintained roads and bridges cause congestion?

Response. Senator Graham, I support your view that maintenance is as important as new construction, if not more so. I believe there is a complex interrelationship between poor maintenance of roads and bridges, and congestion, and that increased Federal attention and funding could produce improved management of maintenance with beneficial effect in reducing congestion. When poor maintenance leads to closure or load limits on bridges there can be dramatic impact on congestion as vehicles are forced to re-route to other route where they may cause congestion. Generally, maintenance and operations are under-funded at the local level. Consequently, responsible officials tend to carry out maintenance in the "cheapest" manner for the agency budget, even if that means causing congestion and shifting costs to motorists. Carrying out some maintenance activities at night may lower congestion impacts to motorists, but will cost the agency more money from an already inadequate maintenance budget, so the agency is likely to use higher cost/lower congestion methods only when forced to do so by political pressure on very high-traffic routes. Moreover, reconceptualizing maintenance activities in coordination with operations of traffic systems, and maintenance of the more sophisticated ITS methods increasingly available requires a commitment of management attention and money, when agencies are usually under-funded for maintenance, and management attention is usually focused on more visible, and better funded construction activities. As a result you are more likely to see sophisticated traffic management techniques applied in ad hoc application to reasonably well-funded reconstruction projects, to minimize congestion impact of reconstruction, than as part of ongoing maintenance activities. ISTEA mandated the development of improved maintenance and management systems, but provided no dedicated funding, so the results have been modest. If the Federal requirement to develop maintenance and operations management systems is strengthened, but accompanied by Federal funding to facilitate not only the development of management systems but also the more expensive techniques which can reduce congestion, then I believe we will see much more significant utilization of techniques to reduce congestion, as well as a better level of ongoing maintenance to reduce the need for very costly and expensive reconstruction which current policies encourage.

Question 2. You also raise the issue of truck and cargo access to airports in your testimony—and possibly a new Federal revenue stream to make access improvements. Do you feel the same re: access to seaports?

Response. Yes, I believe that a new Federal revenue stream, to prioritize access to airports, should include access to seaports and other intermodal terminals. Again, ISTEA encouraged more planning attention to cargo and intermodal issues, but provided no dedicated funding to facilitate implementation. Developing ways to improve intermodal connections, and prioritize truck access generally is very difficult conceptually, can be unpopular with the general motoring public if not done very carefully, and often receives little support from the terminals who fear they maybe asked to provide financial support to any potential solutions. If the ISTEA mandates are strengthened and supported with dedicated funding streams, I believe we will see better results.

RESPONSES OF FREDERICK SALVUCCI TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. Your testimony provides many important insights on some of the key areas that needed to be addressed by this committee. I wanted to focus on your comment that "if one-third of the existing revenue streams were to be used for debt service, the program could expand . . . by approximately 20 percent."

How would you structure this new approach? Would this new approach conform with your view that "proper maintenance of the existing system is perhaps becoming more important to the national interest than further expansion of the network?"

Response. I am suggesting that a portion of the existing Federal funding streams be used to support debt service on bonds, so that a somewhat larger capital program can be feasible along with a new program for Federal funding of a portion of operation and maintenance costs. Another candidate for new Federal operating funds should be Federal funding for the growth cost of elderly and disabled paratransit services. Without bonding, any appreciable expansion of the capital program, and

any new operation and maintenance program would require an increase in dedicated taxes (presumably gasoline taxes). I have suggested partial bonding because it facilitates program expansion without a gas tax increase in the near term. Even if a gas tax increase were politically feasible, I believe partial bonding would be desirable to get a larger program expansion. Bonding could be done at the Federal level directly. Alternately, USDOT agencies could enter into long-term (25-year contracts) for contract assistance with State and regional entities, for long-term maintenance assistance and/or debt service on State or local bonds. These could be similar to "T.I.F.I.A." loans or "G.A.R.V.E.E." bonds, except with Federal support. Either approach could work, as long as there is equitable access to the expanded funding among States and regional entities.

Question 2. I noted your interest in providing more coordination of resources between TEA–21 and AIR–21. You noted some attention to freight needs. Do you also see some need to address intercity passenger travel as well, linking airports to city centers along corridors?

Response. As part of coordinating TEA–2 and AIR–21 reauthorization bills, I agree that it would make sense to look at intercity passenger travel across air, rail, bus, and auto modes, particularly for trips within 300 miles, and move toward better integrated passenger systems, as the Europeans are achieving. On the cargo side, while we need a new emphasis on intermodal coordination supported by Federal funding, I emphasized the cargo issue because it can be developed more rapidly, as there are advantages to most parties whereas passenger services, particularly involving rail, will likely conflict with both rail cargo needs and air passenger suppliers, and may be less amenable to resolution in TEA–21 and AIR–21 reauthorization processes.

STATEMENT OF ELIZABETH STUTTS, GRANT PROGRAMS ADMINISTRATOR, FLORIDA DEPARTMENT OF TRANSPORTATION ON BEHALF OF THE ASSOCIATION FOR COMMUTER TRANSPORTATION

Introduction

Mr. Chairman, members of the committee, thank you very much for the opportunity to participate in the dialog on the reauthorization of the Transportation Equity Act for the 21st Century, or TEA–21. My name is Elizabeth Stutts, Grants Program Administrator for the Florida Department of Transportation in Tallahassee, Florida. I am pleased to be here today representing the Association for Commuter Transportation—or ACT.

The members of ACT represent a broad coalition of organizations—from major private-sector businesses and institutions to transportation agencies—but we all have one thing in common . . . We are all working cooperatively to make transportation work better by making it more efficient and less costly.

ACT members are working together in public-private partnerships to make transportation work better for business. Major employers recognize that transportation issues impact the bottom-line. Workers are facing commutes that get longer each day—under more stressful and less predictable travel conditions. This situation has a direct impact on employee recruitment, retention, and productivity—increasing labor-related costs and affecting competitiveness.

Our testimony today will focus on creative approaches to making our transportation system work better by investing in a more comprehensive approach—not just to the way we build our transportation systems, but to the way we use our transportation systems.

In communities around the country, ACT members are working closely with the people who use transportation on a daily basis. We have a customer-driven approach. After all, transportation is really about the people who use it—and the individual decisions they make everyday about where they need to go, when they need to leave, and how they're going to get there. Unfortunately, all too often, everyone tries to go the same place, at the same time, using the same route and the same mode of travel. The result is congestion and inefficiency, which greatly impacts our business productivity and our quality of life. Our members include public-sector entities working in partnership with businesses and residents to make transportation more efficient; private-sector employers, working with their employees to improve the commute; and schools working with their students to improve connections to the campus and the classroom.

The reauthorization of TEA–21 presents a clear opportunity to support America's businesses, workers, and citizens by supporting transportation programs and partnerships that can make a difference. In our testimony today, we are asking the committee to:

- Build upon the foundations of flexibility and partnership established under ISTEA and TEA–21,
- Recognize the important balance between the way we build transportation and the way we use transportation,
- Increase support for partnerships that engage the private sector, and
- Enhance travel choices and provide incentives for smart choices.

ISTEA and TEA–21: Building the Foundation

The enactment of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and its successor, TEA–21, in 1998, signaled a new era in the development of our nation's transportation system. By the early 1990's, the construction of the original interstate highway network was complete, and a growing number of business and community leaders were looking to broaden their approach to meeting the transportation needs of their workers and citizens. ISTEA and TEA–21 responded. By giving communities new flexibility to use Federal funds to invest in a variety of travel modes—from highways, to rail lines, to bike paths—ISTEA and TEA–21 recognized the benefits of allowing communities to invest in transportation that gives people more choices in how they get around. These bills recognized the significant power of transportation investments—not simply as an end in themselves—but as an effective tool to achieve a wide range of community goals.

Throughout the 1990's, transportation agencies, metropolitan planning organizations, and local jurisdictions responded to increasingly diverse travel needs by investing in multi-modal transportation improvements. The results of this shift were significant. Annual Federal investments in public transportation systems doubled from just over $3 billion in 1990 to nearly $6 billion in 1999, and Federal funding for bicycle and pedestrian projects grew from only $7 million in 1990 to $220 million in 1999.

In addition to enhancing funding flexibility, ISTEA and TEA–21 stressed the importance of partnerships between Federal, State and local agencies—empowering metropolitan planning organizations (MPOs) to facilitate intergovernmental partnerships in the transportation decisionmaking process. This focus on partnerships allowed Federal transportation investment decisions to better respond to the unique transportation goals of States and communities—and led to an overall increase in State and local funding for projects that provide citizens with enhanced travel choices. For example, between 1990 and 1999, local and State funding for public transportation grew by 34 percent.

As we move toward the reauthorization of TEA–21, we must build on these foundations of flexibility and partnership. We must continue to strengthen our national transportation infrastructure, including road and bridge networks, bus and rail transportation lines, ferry services, and bicycle and pedestrian trails. We must continue to prioritize investments in preserving the quality of existing roads and bridges and improvements in transportation safety. And we must continue to support the expansion of rail and bus transit services to meet the ever-growing demand for these services.

TEA–21 Reauthorization: Making It All Work

While ISTEA and TEA–21 were remarkable steps forward, many challenges remain. Across the country, traffic congestion is a serious and pervasive problem for both businesses and communities. In 1999, congestion cost the Unites States over $78 billion dollars in wasted time and wasted fuel. People are spending more and more time stuck in traffic and less time with families. More frustrating and less predictable commute times are impeding the ability of employers to recruit and retain valued employees, and congestion is impeding the efficient movement of goods. Air quality continues to endanger public health and degrade community livability. Finally, as the tragic events of September 11th revealed, the functionality of transportation systems affect a wide range of security and emergency preparedness issues, from the movement of response vehicles to the evacuation and protection of citizens.

To tackle these critical challenges, the reauthorization of TEA–21 must build on the foundations of flexibility and partnership first established by ISTEA. Reauthorization must take the next step forward by integrating programs and partnerships that can make the transportation system work better—by not simply focusing on the way we build transportation, but on the way we use transportation. This is a critical distinction, as it recognizes that how well the transportation system works depends on the balance between the availability of transportation infrastructure—from roads to bridges to transit lines—and the way that people use this available infrastructure.

Focusing on the way that people use transportation means focusing on where they need to go, when they need to leave, and what choices they have in how to get there.

It means providing people more transportation choices and real-time travel information about these choices. It means recognizing that people make travel decisions based on a variety of factors like time, cost, convenience, safety and reliability—and developing incentives to encourage smart travel choices. And it means forging partnerships between the people that depend on transportation every day—partnerships between transportation organizations and private employers, between employers and their employees, between educational institutions and their students, and between developers and their tenants.

To address the significant transportation challenges facing our businesses and communities, the reauthorization of TEA–21 must recognize the importance of this balance between the way we build transportation and the way we use transportation. The following sections highlight the need to integrate programs and partnerships designed to achieve this balance.

Partnerships with Employers

Reauthorization represents a key opportunity to enhance the spirit of partnerships developed in ISTEA and TEA–21 by supporting win-win public-private partnerships between employers and transportation organizations. Through commuter benefits like monthly transit passes, onsite commute information, and flexible work schedules, employers play a significant role in the travel decisions of their employees. A 2001 national survey called the Zylo Report found that, on average, employers that provide commuter benefits have 15 percent fewer employees driving to work alone (86 percent vs. 71 percent). Employers offer commute programs because they make good business sense. Employer commute programs allow businesses to address employee recruitment and retention problems, increase employee productivity, and lower facility construction and maintenance costs related to employee parking. For example, a commute assistance program saved a company in San Antonio, Texas, over $2.5 million by eliminating the need to build and maintain 1,000 extra parking spaces.

Employer partnerships are an important source of additional funding for transportation—as businesses invest in employee transit passes, invest in the development and operation of shuttle programs, and invest in other commute resources for their employees. As a powerful example, in 2000–2001, every $1 that the public sector invested in supporting employer commute programs in the State of Washington resulted in $12 of additional investment from employers.

Employers and the organizations that support employer partnerships are also a critical resource in emergency preparedness planning and response. On September 11th, ACT members worked with employers and employees to get people home safely—providing critical information on the availability of transportation alternatives. In the weeks following September 11th, our members worked in partnerships to keep businesses productive by supporting commute alternatives like telecommuting and ridesharing.

The reauthorization of TEA–21 should strengthen support for organizations that facilitate employer partnerships. These organizations integrate one of the sectors most impacted by transportation challenges—America's businesses—into the fold as partners in developing effective solutions. For example, innovative programs spurred by the Congestion Mitigation and Air Quality Improvement Program (CMAQ)—including public-private organizations called Transportation Management Associations, or TMAs—are responsible for many employer-partnership success stories. To further promote these programs, the next transportation bill should maintain support for the CMAQ program with an enhanced emphasis on partnerships and innovation. Reauthorization should further recognize the value of employer partnerships by supporting a tax credit for businesses that offer commuter benefits to their employees. A commute benefit tax credit would provide a powerful tool to leverage additional private-sector investments in transportation solutions that work.

Choices, Incentives and Information

On a daily basis, people make a variety of transportation decisions. These decisions begin with the travel choices available to them—where to go, when to leave, what mode to use, what route to take—but they also include a variety of other influencing factors, like travel time, trip cost, convenience, safety, and reliability.

The reauthorization of TEA–21 should support the continued enhancement of travel choices. A strong and balanced transportation system provides travelers with a variety of choices—rather than limiting choices—allowing each traveler to choose the best travel alternatives to meet their needs. The next transportation bill should continue to support a multi-modal approach to building transportation by continuing to encourage flexibility in the use of Federal funds and by maintaining the Transportation Enhancements program.

In addition, the bill should also support smart travel choices that make more efficient use of existing facilities—including smart mode choices like transit, ridesharing, bicycling, and walking; smart time choices like traveling during off-peak hours, smart route choices based on real-time traveler information; and smart location choices like living near your place of employment, living near public transit services, or utilizing travel-free alternatives like telecommuting and e-commerce. Supporting smart travel choices can reduce the overall "demand" for transportation—improve the efficiency, operation, and performance of the existing system—and produce broad-based benefits.

We must also work to make smart travel choices truly viable. We must create an environment where the other key decision criteria—like travel time and travel cost—are equitable between travel choices. As an example, commuters can currently receive up to $185/month in tax-free benefits from the their employer to park their cars at work all day, yet they can only receive a maximum of $100/month for the same trip via transit or vanpool. This inequity does not encourage smart travel choices and should be addressed during reauthorization. In addition, other travel choices like carpooling, bicycling, walking, and telecommuting should be made eligible for this transportation benefit, creating equity between all travel choices.

Finally, people cannot make smart travel choices without increased awareness and real-time information on the alternatives available, how to use them, and even when to use them. The development of Intelligent Transportation Systems (ITS) should continue, especially development of real-time traveler information services. At the same time, the development of ITS infostructure must be supported by programs and services that can get real-time transportation information into the hands of the people that need it, when they need it, and where they need it—so that they have ample opportunity to make the smart travel choices that can make a difference.

Integration with Operations and Major Investment Planning

The programs and services developed and implemented by ACT members to forge partnerships with major employers and enhance travel choices are a critical tool in the effort to make transportation more efficient and less costly. As a compliment to major capital improvements, these customer-driven programs and services (often called transportation demand management, or TDM) can provide near-term benefits which improve transportation operations and make the most of existing resources by improving the way we use transportation. The reauthorization of TEA–21 should recognize the role of TDM organizations by supporting improved coordination between these and other organizations that manage and improve the daily operation of the transportation system.

Finally, the reauthorization of TEA–21 must strengthen the integration of TDM programs and services in major investment and corridor planning efforts. Too often, TDM programs are compared to other major investment alternatives in a "no-build" versus "build" analysis, setting up an illogical either-or evaluation. Instead, reauthorization should require the integration of TDM programs and strategies as a complement to major capital investments. TDM programs have proved effective as construction mitigation measures, and offer near-term implementation advantages to address transportation challenges before the construction of the major investment is complete.

CONCLUSION

Again, the reauthorization of TEA–21 presents a clear opportunity to support America's businesses, workers, and citizens by supporting programs and partnerships that make transportation more efficient and less costly. Reauthorization should:

- Build upon the foundations of flexibility and partnership established under ISTEA and TEA–21,
- Recognize the important balance between the way we build transportation and the way we use transportation,
- Increase support for partnerships that engage the private sector, and
- Enhance travel choices and provide incentives for smart choices.

We appreciate the opportunity to present testimony before the committee and offer the Association for Commuter Transportation as a resource on these important issues. If you have any questions, or would like to discuss these matters further, please contact Kevin Luten, ACT Assistant Director, by phone: (202) 546–5478, or by email: kevin@act-hq.com. You may also contact ACT's Washington, DC, representative Thomas J. Bulger, Government Relations, Inc., by phone: (202) 775–0079, or by email: tbulger825@aol.com.

STATEMENT OF ELISSA MARGOLIN, EXECUTIVE DIRECTOR, LEAGUE OF AMERICAN BICYCLISTS

Mr. Chairman, Senator Smith and members of the committee, thank you for holding these hearings regarding the reauthorization of the Transportation and Equity Act for the 21st Century. On behalf of the League of American Bicyclists, I am pleased to have this opportunity to address the benefits associated with the use of the bicycle as it relates to mobility, congestion and intermodalism.

The League of American Bicyclists was founded in 1880 as the League of American Wheelmen when cyclists from across the United States joined together to advocate for paved roads. Their efforts ultimately led to our national highway system.

Today, the League promotes bicycling for fun, fitness and transportation and works through advocacy and education for a bicycle-friendly America. We represent the interests of the nation's 42.5 million cyclists. With a current membership of 300,000 affiliated cyclists, including 40,000 individuals and 600 affiliated organizations, the League works to bring better bicycling to communities across the country.

We recognize that bicyclists are not going to completely solve our nation's congestion problems. However, they are certainly a key piece of the puzzle and cannot be overlooked. It is important that Congress recognize the important role bicycling plays in transportation during this reauthorization process.

Aside from creating gridlock, traffic congestion wastes time and energy and creates pollution and driver frustration. Those who use their bike as a mode of transportation will be the first to tell you that their bicycling commuting experience is far more pleasant than sitting in a car. The typical bike commute takes less time than driving, particularly in urban areas such as Washington, DC; is less expensive; certainly uses less gasoline and emits no air pollution. Generally, the bicyclist arrives at work less stressed and invigorated for a productive day.

According to the Federal Highway Administration, 40 percent of all automobile trips are less than 2 miles. Turning even a small percentage of those trips into bicycle trips would ease congestion tremendously. Many of those trips are made by parents dropping their children off at school, creating dangerous congestion near and around schools. If we help make those school routes become safer for children to travel by bike or by foot, think of the congestion that would be eliminated, not to mention improving their health by promoting physical activity. Mr. Chairman, the physical benefits of bicycling for all Americans is an important topic that deserves its own hearing, as does the environmental benefits.

Not only will getting more people to take trips on their bicycle decrease the amount of vehicles on our roads, it will also substantially decrease air pollution.

At the present, 80 percent of carbon monoxide and 50 percent of nitrogen oxide emissions in the United States are a result of our transportation system. 60 percent of automobile emissions pollution occurs at the very beginning of vehicle operation when the engine is cold and the pollution control devices have not begun to work effectively. Therefore, the shorter automobile trips are producing more pollution on a per-mile basis than shorter trips.

With regard to intermodalism, the bicycle plays a vital role. All over this country, in addition to bicycling all the way to work, people are biking to their local bus stop or train station and then taking mass transit. In some cases, they keep a bicycle at the other end to finish their commute. The Federal Transit Administration estimates that at least one-in-five transit buses nationwide are equipped with bike racks.

Buses in Seattle carry over 60,000 bicyclists a month, or 60,000 single-occupancy vehicle drivers. More and more of our nation's subways and trains are encouraging bicycle access, making it easier for bicyclists to use mass transit and reducing the number of cars on our roads and highways, especially during rush hours.

Mr. Chairman, it is critical that Congress continue to recognize the contributions that bicyclists make with regard to mobility, congestion and intermodalism. Even a small percentage increase in bicycling will go a long way in making a positive change and improve mobility for all.

Thank you once again for the opportunity to testify before this distinguished committee. We look forward to working with you throughout this important reauthorization process, as we collectively strive to improve the transportation system in the United States for all Americans.

DEFENDERS OF WILDLIFE

March 19, 2002.

U.S. Senate,
Committee on Environment and Public Works,
410 Dirksen Senate Office Building,
Washington, DC 20510–6175.

For submission to hearing record: "Mobility, Congestion and Intermodalism" Tuesday, March 19, 2002, 2:30 p.m. Hearing Room (SD–406)

Defenders of Wildlife is a national nonprofit conservation organization with over 400,000 members, committed to preserving the integrity and diversity of natural ecosystems, preventing the decline of native species and restoration of threatened habitats and wildlife populations. We have been involved with transportation and environment issues for nearly a decade, recognizing the importance of this often overlooked segment of our nation's continued growth. Recently, Defenders launched a new campaign to address the conflicts between transportation and wildlife. Our objective is to reduce the impact of surface transportation on wildlife and habitat, and to incorporate conservation into transportation planning to avoid or minimize the negative effects on wildlife and habitat.

In your attempt to examine fresh ideas on transportation demand, access, mobility and program flexibility, we remind you that mobility is not always best served via the single occupant vehicle and that additional roadbuilding and lane miles are not always the most efficient answer to traffic congestion. We submit the following information for the record:

1. *A Taxonomy for Induced Demand in Transportation. 2001. Hunt, J.D. United Nations Commission on Sustainable Development.
2. Highways and Induced Travel Demand. 2000. Marshall, Norm. Resource Systems Group.
3. Estimating Induced Travel, Emissions and Benefits in Highway Corridor Analysis. 1998. DeCorla-Souza, Patrick. Federal Highway Administration.
4. *A Framework for Understanding the Demand Inducing Effects of Highway Capacity. 1994. Dowling, Richard G. Transportation Research Board.
5. *Trunk Roads and the Generation of Traffic. 1994. Wood, D.A. Great Britain Department of Transport.
6. *Effects of Increased Highway Capacity on Travel Behavior. 1993. Dowling Associates. California Air Resources Board.
7. *The Air Quality Impacts of Urban Highway Capacity Expansion: Traffic Generation and Land-Use Impacts. 1993. Dobbins, Allison. California Air Resources Board.
8. *Portland's Livable Downtown. 1992. Corbett, Judith. Surface Transportation Policy Project.
9. *User Response to New Road Capacity: A Review of Published Evidence. 1989. Pells, S.R. Institute for Transport Studies.
10. *The Relationship of Changes in Urban Highway Supply to Vehicle Miles of Travel. 1979. Cambridge Systematics, Inc. National Cooperative Highway Research Program, Transportation Research Board, National Research Council.

*Regrettably, most of these reports are available in hardcopy only, copies provided.

Sincerely,

PATRICIA A. WHITE, *Transportation Associate.*

REATHORIZATION OF TEA–21

WEDNESDAY, MAY 15, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m. in room 406, Dirksen Senate Office Building, Hon. James M. Jeffords [chairman of the committee] presiding.

TRANSPORTATION PLANNING AND SMART GROWTH

Present: Senators Jeffords, Reid, Corzine, Chafee, and Wyden.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. The hearing will come to order.

Welcome to today's hearing on transportation planning and smart growth. We are joined this morning by a number of fine witnesses from around the Nation. I appreciate their willingness to lend us a hand as we proceed with our examination of the Nation's surface transportation program.

Our topic this morning, transportation planning, is one of the lynch pins of the new thinking introduced by the Intermodal Surface Transportation Efficiency Act of 1991, or ISTEA, as it has become known. In passing ISTEA, Congress inaugurated the post-interstate era. With its enactment, our transportation program moved from a focus on new highway construction to a recognition that transportation is the means to the end. We recognize that our investments in transportation and other infrastructure mold and shape our communities. Beyond community form, we saw transportation's influence on people's daily lives, on the time they spent away from their families, and on their health and well-being.

Because of transportation's broad ramifications, ISTEA provided States and, for the first time, local officials, wide latitude in the use of Federal aid dollars. ISTEA had provided flexibility, the freedom to move Federal money from category to category as best fit the needs of a given State or metropolitan area.

I had the honor to serve on this committee during the enactment of ISTEA. At the time, we recognized that with the freedom of flexibility came enormous responsibility. The highway program, alone, has provided $300 billion in taxpayers' dollars to State and local officials. Stewardship of these funds demands great care. The transportation planning provisions of ISTEA were intended to ensure that would be working.

The idea is simple. Let's think before we act. Before spending Federal aid dollars, State and metro officials would first assess needs, communicate with citizens, coordinate with stakeholders, and realistically forecast financial resources. This basic planning process would guide and inform the investments to follow.

TEA–21, the Transportation Equity Act for the 21st Century of 1998, refined the ISTEA planning provisions but retained its basic thrust. As a result, we now have 10 years of experience in this new way of doing the Nation's transportation business. Today we will explore lessons learned over the past 10 years. We will also examine a range of ideas for the future of the planning program.

I will turn now to my good friend, Senator Reid.

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. Thank you very much, Mr. Chairman. I appreciate your holding this very important hearing. Let me say, to the witnesses, that while there might not be many Senators—Senators will come in and out during the day—that we have everything taken down, and this, of course, is shared with the other committee members. And, of course, every person that is a member of this committee is represented here by staff, so these are extremely important hearings.

One of our goals in writing transportation policy is to maximize the mobility of people and freight while minimizing air pollution and other environmental impacts. This isn't easy, and success requires a thorough planning process. Planning is especially important in areas that are experiencing high rates of population growth—for example, Las Vegas metropolitan area in the State of Nevada.

The Las Vegas region is the fastest-growing area in this country. Its population doubled over the past decade. So the challenges are especially acute, but almost every metropolitan region in the Nation is growing.

I think people sometimes don't realize how difficult in a relatively small State growth is. We have as many as 10,000 people each month moving into the Las Vegas area. Just to keep up, for example—and I've used this illustration before—to keep up with the growth in schools, we've had to build as many as 18 new schools every year, just in the Clark County School District. Think of that—18 new schools. It's very difficult.

And from a transportation perspective we always seem to be trying to catch up to growth after traffic congestion begins to choke our roads. We'd be better off if we could stay one step ahead of growth and make the important connection between land use and transportation before growth accelerates rapidly, rather than as an afterthought.

The Federal Government must give States and metropolitan regions the tools necessary to ensure that transportation planning and population growth go hand in hand, and planners need the maximum flexibility within the transportation program to address growth in the way that best suits each region's needs.

Many transportation options are available: road construction, mass transit, high-speed rail, improved management of transpor-

tation system, upgraded pedestrian access, new bike routes, carpooling, high occupancy lanes, to name a few. I'm sure many of you will talk about these things I've spoken of in more detail. Good planning can ensure that the best mix of these options is chosen.

Our challenge in Las Vegas is to address the needs of a booming population while maintaining the high quality of life that attracts so many to move west, but transportation is a key to this challenge.

The Regional Transportation Commission of Southern Nevada is using almost every transportation option that I just mentioned to address traffic congestion. In addition, Las Vegas is trying to promote transit use through some smart growth initiative of its own—for example, planning transit-based development around the construction of a new monorail system, also tied to new bus rapid transit system. The monorail will eventually connect the airport to the strip to downtown to the rapid transit buses to population centers to park and ride lots and to an eventual high-speed train connection with southern California.

I have made no secret of my belief that we need to invest more money in our transportation infrastructure nationally, and I was happy to take the House take action, Mr. Chairman, yesterday. That's not as much as we need, but it is a step in the right direction.

As chairman of this committee's transportation subcommittee, I'll make increasing the level of investment in transportation a top priority. However, with more money comes more responsibility. We need to make sure this funding is put to its best use, and a robust and open planning process is the best way to ensure that transportation stays one step ahead of growth.

Mr. Chairman, let me again congratulate you for having this meeting, and also we start activity on the floor at 10:30, so I'll have to be over there to referee some of the fights.

Senator JEFFORDS. Thank you. It's a pleasure having you here, and you're doing a great job as chairman of the subcommittee.

Our first panel consists of practitioners from across the Federal, State, and local spectrum. They include: Ms. Cynthia Burbank of the Federal Highway Administration; Mr. Kenneth J. Leonard of the Wisconsin Department of Transportation, on behalf of the American Association of State Highway and Transportation Officials; Mr. Ronald Kirby from the Metropolitan Washington Council of Governments, on behalf of the Association of Metropolitan Planning Organizations; Mr. Peter Gregory from the Two Rivers Ottauguechee Regional Commission in Woodstock, Vermont, on behalf of the National Association of Regional Councils.

Let us start with Ms. Burbank.

STATEMENT OF CYNTHIA BURBANK, PROGRAM MANAGER, PLANNING AND ENVIRONMENT, FEDERAL HIGHWAY ADMINISTRATION, WASHINGTON, DC

Ms. BURBANK. Mr. Chairman and Senator Reid, thank you very much for the opportunity to report to you today on the status of transportation planning and what FHWA has been doing to assist States and MPOs to meet the planning goals of ISTEA and TEA–21. I wanted to note it is a particular pleasure, Mr. Chairman, for

me as a long-time Vermonter, a ninth-generation Vermonter who goes back to a family history when it was an independent nation, to appear before you.

I ask that my written statement be made part of the record for this hearing.

Senator JEFFORDS. It will be.

Ms. BURBANK. Thank you.

Transportation planning identifies transportation problems and solutions that fulfill multiple national, State, and local goals. Planning must do more than merely list highway and transit capital investments. It must advance a State's or an area's long-term goals, as you have noted, through strategies for operating, managing, maintaining, and financing the transportation system.

ISTEA and TEA–21 made significant changes in planning requirements for highways and transit. These changes require greater attention to public involvement, fiscal prudence, and environmental impacts.

States continue to have the primary responsibility and authority, but the role of MPOs and local governments in transportation planning and programming has been strengthened. The States, in consultation and cooperation with MPOs, local governments, and transit operators, choose which projects will advance.

To assist in making the best transportation choices for these areas and States, FHWA and FTA have launched a major initiative that we call "capacity building," and by this I mean institutional capacity building, not necessarily transit and highway capacity building.

Our first effort in this institutional capacity building has focused on metropolitan planning needs through developing training courses, providing and preparing models and case studies. More recently, we have developed a rural capacity building initiative because there are unique needs in rural areas. Through this effort we are also providing training, technical assistance, and information exchange targeted to the needs of the rural areas.

The rural capacity building initiative is a partnership with the National Association of Regional Councils, the National Association of Counties, and the National Association of Development Organizations.

Now let me address for a moment an issue of concern to both metropolitan and rural areas, smart growth. Smart growth means different things to different people. FHWA has looked at this very carefully and our perspective on smart growth is that it is a set of State and local policies and programs designed to protect and preserve natural and cultural resources and make efficient use of existing infrastructure while accommodating economic development and population growth, as Senator Reid described in Las Vegas.

Smart growth often means expanding transportation choices and providing a balanced intermodal transportation system to allow for efficient and economical movement of both people and goods. In some areas that may mean more transit, in other areas it may entail significant roadway improvements, and in most areas it probably means both, as well as bicycle and pedestrian improvements and meeting the needs of freight transportation.

We want to stress that it is up to State and local officials to decide how best to address their unique circumstances and serve their smart growth interests, and it is U.S. DOT's role to help areas best implement their decisions within the funding available.

We believe that all of the programs in TEA–21 can be effective tools to serve smart growth, but one that I know is of particular interest to the members of this committee is the TCSP program—Transportation and Community, and System Preservation Pilot Program. It is a small program authorized at just $25 million per year, but it is an opportunity to provide innovative funding to areas to involve their citizens more in making these important decisions and to achieving their economic growth and environmental interests.

While FHWA strongly believes that land use decisions are State and local in nature and should remain that way, we believe there is much to be gained from more coordination among State and local planning, zoning, and housing authorities, and, as well, environmental and transportation officials, to reach good decisions.

The changes in planning under ISTEA and TEA–21 have enhanced and improved the transportation decisionmaking process, but we are well aware that continued progress is needed. In reauthorization, we look forward to working with this committee and with our partners to find additional means of assisting States and local governments in strengthening the transportation planning process.

Mr. Chairman, thank you again for the opportunity to testify. I look forward to answering your questions.

Senator JEFFORDS. Thank you for your excellent statement.

Mr. Leonard?

STATEMENT OF KENNETH J. LEONARD, DIRECTOR, DIVISION OF TRANSPORTATION INVESTMENT MANAGEMENT, WISCONSIN DEPARTMENT OF TRANSPORTATION, MADISON, WISCONSIN, ON BEHALF OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

Mr. LEONARD. Mr. Chairman, members of the committee, I'm Ken Leonard. I'm director of planning with the Wisconsin Department of Transportation. I'm also the vice chair of the Standing Committee on Planning for the American Association of State Highway and Transportation Officials.

Transportation planning today is a complicated process, and an overriding recommendation we have is simplify, simplify, simplify. ISTEA and TEA–21 made some positive changes in the planning process, first by shifting decisionmaking in many areas from Federal to the State level and by emphasizing a broad planning process that includes all stakeholders, as well as all modes of transportation, but there's still room for improvement. Among these areas are: freight planning, financial constraint provisions, local consultation, and the role of States in regard to land use.

First, in regard to freight planning, freight movement is growing faster than capacity. Over the next 20 years, international trade is expected to triple and domestic freight is expected to double. It is critical that we upgrade our freight planning efforts.

AASHTO is recommending an increase in freight training and capacity building for States and for local agencies, and we're recommending an increase in freight transportation research, and also the creation of a National Freight Advisory Council.

In Wisconsin, as well as in a number of other States, we already have advisory committees represented by freight providers and shippers that advise us on our State planning process, and we are recommending something like that at the national level.

In regard to financially constrained plans, the intent was to avoid the creation of transportation wish lists where funds were not available. I think, as a whole, we've accomplished that intent. Our programs, in terms of a total level, stay within what we expect in terms of financial resources, but the actual day-to-day application is still difficult for States in terms of making adjustments when projects are delayed or when there's additional resources. AASHTO believes that reauthorization should increase flexibility related to financial constraints for both States and MPOs.

Congress attempted in TEA–21 to eliminate major investment studies as a separate requirement and to integrate that within the planning process and the NEPA process, but that has really not occurred. In fact, the proposed USDOT regulations really expanded the applicability of MISes.

We would urge that in reauthorization you direct USDOT to eliminate the MIS requirement effective immediately and not contingent upon new regulations.

State DOTs and MPOs should develop options to ensure that decisions reached in the statewide and the metropolitan planning process regarding purpose and need and the range of alternatives would then be binding in the NEPA process, therefore eliminating duplication.

In regard to State long-range plans and timelines, Congress should continue to provide flexibility to States in terms of performance measures and planning horizons as long as we keep the minimum 20-year planning horizon. To improve the planning process and public involvement within that, AASHTO also advocates that Congress change the update cycle for long-range metropolitan plans from 3 years to 5 years.

In the area of smart growth, most States defer land use decisionmaking to local governments, believing that it reflects a number of local circumstances and that local officials should have the responsibility to determine land use for their particular area.

Federal statutes should continue to defer to local and State governments in whether and how to consider land use. That being said, AASHTO and the State DOTs are doing a number of things in the area of smart growth. Wisconsin has smart growth legislation, and we're working cooperatively with our local units of government. We've developed a transportation guide to help local units of government, and we're encouraging them to plan land use and transportation together once they develop what the vision is for their community.

AASHTO is also developing a guide and contact-sensitive design that's going to be published later this year. AASHTO is sponsoring a smart growth competition between States to highlight best practices in the States. AASHTO also has an environmental steward-

ship initiative and has launched the creation of a Center for Environmental Excellence. All of these things will deal with land use and smart growth.

In regard to the roles and the tools of the various parties, the existing balance of decisionmaking authority between the MPO, the State, and the local officials has worked well for a decade and that should continue. We think that Congress should maintain this balance and reaffirm the leadership role and the authority of States as TEA–21 is reauthorized.

AASHTO is working closely with others in developing tools to assist transportation planners and is identifying needed research.

Finally, States and MPOs need flexibility to adapt their planning provisions to the many diverse parts of the country.

I look forward to answering any questions you have.

Senator JEFFORDS. Thank you for an excellent statement.

Mr. Kirby, please proceed.

STATEMENT OF RONALD KIRBY, TRANSPORTATION DIRECTOR, METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS, WASHINGTON, DC, ON BEHALF OF THE ASSOCIATION OF METROPOLITAN PLANNING ORGANIZATIONS

Mr. KIRBY. Thank you, Mr. Chairman, members of the committee. I'm Ronald Kirby, director of transportation planning for the National Capital Region Transportation Planning Board, which is the metropolitan planning organization for the Washington, DC, metropolitan area. I am appearing today at your invitation on behalf of the Association of Metropolitan Planning Organizations.

TEA–21 and its predecessor, ISTEA, rightfully recognize the importance of planning a metropolitan transportation system and gave the Nation's 340 MPOs increased responsibility to develop effective, strategic, long-range plans and comprehensive multimodal transportation improvement programs. With the 2000 census, we expect that additional MPOs will be designated, perhaps as many as 60, to establish newly designated urbanized areas, and that the geographic areas and populations served by existing MPOs will grow significantly.

While we've got new responsibilities such as management and operations required by TEA–21, the percentage of the highway program funding for metropolitan planning has remained at the 1 percent level set in ISTEA. AMPO believes that it is time to increase this takedown from the highway program, and also the amount allocated from the transit program for metropolitan planning to reflect the almost 20 percent increase in MPOs that we expect the growth in population and increased responsibilities, and we suggest that we look at a level of 2 percent of the overall program for metropolitan planning.

I'd like to mention three different categories of tools for metropolitan planning: those the we believe are working effectively and that we should retain, those that are effective and that we should expand, and some new tools that we need.

First, with regard to those that are working effectively, we believe the that requirement for a financially realistic plan in a fiscally constrained program is the most effective tool provided by ISTEA and TEA–21. This requirement eliminated the possibility of

wish list plans and programs which did not identify enough funds for implementation. The financial restrain requirement gave credibility to the MPO plans and programs and presented the public with a realistic view of what can be delivered in the way of transportation projects and services. It is imperative that this requirement be retained.

In addition to this, two ancillary requirements need by retained—the requirement for cooperative revenue forecasting among MPOs, States, and transit authorities; and the requirement for an annual listing of obligated projects to be prepared by the MPO.

Along with the financial tools, the overall planning approach established in ISTEA and TEA–21 should be retained. The requirement that long-range plans be strategic in nature with broad community goals and specific objectives places the transportation agenda in a broader context, encouraging the linkage between transportation, land use, the economy, and the environment in a metropolitan area, and the MPO provides a forum to bring together State and local groups and agencies that have to deal with smart growth initiatives. We feel we have the opportunity to do that.

With this approach, with extensive and early involvement of the community, the MPO has a solid basis for developing its long-range plan and transportation improvement program. The proactive public involvement requirements in ISTEA and TEA–21 have been particularly important in enhancing the effectiveness of the MPO process and should be retained.

In the Washington metropolitan area these ISTEA and TEA–21 tools have, in the words of one of our elected officials and board members, "forced us to ask the right questions." Application of the financial constraint in the early 1990's resulted in a rather stressful prioritization of transportation improvements for inclusion in our long-range plan and the initiative of a visioning process aimed at developing a broad community consensus on regional goals and addressing the critical funding needs that we had identified as a result of applying the financial constraint requirement.

The transportation, community, and system preservation pilot program has allowed us to pursue previously unaddressed goals and a new vision regarding a new system of regional greenways and circulation systems within regional activity centers and allowed us to focus increased attention on those areas in project selection.

With regard to existing tools that work effectively that we should expand, we are particularly interested in, obviously, the planning resources to MPOs, which I mentioned earlier, and then, with regard to funds for building projects, ISTEA and TEA–21 for the first time put funds in the hands of local elected officials to assign to projects developed cooperatively through the MPO process. Each MPO with more than 200,000 in population receives a portion of the STP funds allocated to its State to expend on specific projects. These funds could be program based on the MPOs best judgment of the transportation needs of their areas. The funds are made available by the States through sub-allocation. The availability of these funds not only provides funding for vital local projects, but also encourages local officials to get involved in the transportation

decisionmaking process for their region, since there is real money on the table.

Sub-allocation of STP funds has been a great success for the one-third of the MPOs that have populations over 200,000 and needs to be expanded to the remaining two-thirds of small areas that still have pressing needs.

AMPO suggests restoring the suballocation of the STP minimum guarantee funds that was in ISTEA but disappeared in TEA–21, and extending the sub-allocation of STP funds to all MPOs. Second, that we should sub-allocate CMAQ funds to MPOs in air quality nonattainment and maintenance areas.

With regard to new tools, in order to complement the financial restraint requirement and sub-allocation proposal, we would like to see that the States account annually for expenditures of NHS and other programs so that we know what we have done, as opposed to what we plan to do.

Once facilities have been built, it is important that we manage and operate them effectively and monitor their performance. We would like to put more resources into monitoring devices to track the operations of existing facilities, the so-called "infostructure," and to encourage the development of performance-based management and operation elements within MPO plans and programs, and we'd like to have NHS, STP, and CMAQ funds eligible for use on projects that manage and operate the system, in addition to building new facilities.

In the area of planning, freight planning needs some new tools. We are concerned about this area, as well. We have it as a planning factor, but we have limited eligibility of funding for freight projects, particularly in our port areas, which has been a problem for a number of our members. We'd like to see port access and gateways be eligible for the corridors and borders program in the reauthorization.

We're also concerned about streamlining project delivery and air quality conformity processes. There are opportunities within the MPO process, we believe, to identify environmental issues and incorporate them into the planning process before we get down to specific project alternatives in the EIS process.

We'd like to have Federal project sponsoring and resource agencies engaged at the MPO level prior to the development of specific EIS projects.

We'd like concurrent reviews and also incentives for innovative streamlining techniques.

With regard to air quality conformity requirements, we would recommend that the new law add two tools. First, put the State air quality implementation plan and transportation conformity plans on the same timeframes—they are quite different at the present time—and to focus conformity on the plan, as opposed to the 6-year program or 3-year program.

In summary, I'd like to emphasize the importance of planning in producing effective transportation systems. In the planning, designing, and building of transportation facilities, the most important leadership must come in the planning phase. If we do a good job of planning, the implementation will follow. If we shortchange the planning process, we often end up having to go back and start over

when project development comes to grief. With that kind of planning, we can assure you, we hope, that we will have a transportation system that works.

Thank you for the time and opportunity.

Senator JEFFORDS. Thank you, Mr. Kirby. Excellent statement.

Mr. Gregory, we are pleased to have you here. Please proceed.

STATEMENT OF PETER GREGORY, EXECUTIVE DIRECTOR, TWO RIVERS OTTAUGUECHEE REGIONAL COMMISSION, WOODSTOCK, VERMONT, ON BEHALF OF THE NATIONAL ASSOCIATION OF REGIONAL COUNCILS

Mr. GREGORY. Thank you, Mr. Jeffords and committee members, for inviting me to appear before the committee and speak on transportation planning.

Transportation planning, the resources necessary to carry it out, and the role of the local elected officials is key to my commission, to the National Association of Regional Councils—NARC—and all my colleagues across the region and the country.

My name is Peter Gregory. I am director of the Two Rivers Ottauguechee Regional Commission in Woodstock, Vermont. I'm also a member of the Executive Directors Committee of NARC, and I serve on the NARC Transportation Working Group and advise rural transportation interests to the association. I am here in multiple capacities today, as an executive director representing 27 rural towns, most with populations of less than 1,000 residents, their elected officials; as spokesman for NARC on transportation issues; and on transportation issues for all councils and MPOs across the country.

NARC is a full-service, nonprofit organization serving the interests of urban and rural regional councils, councils of government, and MPOs. Regional councils and MPOs are created by compact, enabling legislation as consortia of local governments. As such, regional councils and MPOs represent locally elected officials from cities, towns, counties, and villages. As such, RPCs and COGs are uniquely positioned to address issues across jurisdictional lines.

In my jurisdiction and across the State of Vermont, for example, councils have a strong voice in transportation planning. Each regional planning commission's work is guided by a Transportation Advisory Committee made up of locally elected officials. These officials provide the Vermont Agency of Transportation, VTRANS, with a regional transportation plan and a list of prioritized projects across all modes. This comprehensive program to document local interest has served VTRANS well since 1992. Successive Governors and secretaries of the Vermont Agency of Transportation have all strongly supported the processes that regional planning commissions use to identify and support projects. However, Vermont's regional planning commissions need a consistent and predictable funding source to provide these services. Although they have close working relationships with VTRANS today, it is imperative that the process my council has undertaken over the last 10 years does not falter due to changing economic or political situations. Therefore, guaranteed funding for rural areas to carry out this planning is essential.

As in Vermont, councils need funding to plan the best transportation systems possible. To help achieve this, NARC is proposing new funding opportunities and a net set-aside for rural transportation planning.

NARC proposes changes in TEA–21 to allow States and regions to replicate the success in Vermont. We will ask Congress to smooth inconsistencies among the States by adopting clear and concise law incorporating local governments into the transportation decisionmaking and planning process.

Urban areas are being held hostage to congestion, delay, and loss of productivity while workers and freight sit in traffic. This is a symptom manifest beyond any local jurisdiction. It is a national problem and needs a national solution, and NARC pledges to work cooperatively with this committee to address that.

We need to not only guarantee States the flexibility to spend funds, plan and program projects based on their priorities, but also extend the same responsibility and authority to all locally elected officials. Furthermore, we need to reexamine the process we use to achieve clean air goals. The current process opens regions to poorly defined legal challenges, faulty science, and consigns many of them to a bureaucratic quagmire. While conformity is well intended and necessary, its application should be modified. As others have mentioned, conformity and plans should be timed together to achieve maximum results.

NARC will also urge Congress for this in the coming year to consider greater emphasis in safety in rural and urban communities, a balanced and intermodal approach to Federal funding, comprehensive review and consideration of technology deployment, and greater consideration of freight movement as an essential part of the transportation planning process. Of particular concern to NARC members and its citizens they represent are the tens of thousands of lives lost on our rural roads each year. Coupled with increasing safety concerns in urban areas, this presents a sobering picture of travel in America. NARC is urging Congress to apply resources in new and innovative ways to lessen this tragedy.

NARC is asking Congress to consider ways to streamline project delivery, while ensuring the health of our natural environment. The ability to move projects quickly, especially those that make our roads safer, is of key concern. Given the fact that many regional councils are currently involved in emergency management activities, NARC will ask Congress also to consider regional councils and MPOs as primary recipients for homeland security funding.

When completed, NARC will submit to you its position and policies for reauthorization of TEA–21. We hope you will consider them as part of your ongoing process.

Thank you, Mr. Chairman, for this opportunity. Further comments have been submitted to this committee and I will be happy to answer any questions. Thank you very much.

Senator JEFFORDS. Well, thank you for an excellent statement.

Peter, I am very proud of the work that you and your colleagues have done in Vermont. Can you summarize for us the value to any State in providing funding for rural transportation planning?

Mr. GREGORY. Well, as you know, Mr. Chairman, many of the areas are not served by MPOs, and engaging in a process that in-

cludes the rurals ensures that all citizens throughout the country have the same access to decisionmaking and project prioritization. Many of these decisions are made elsewhere and directly affect the lives and the quality of life of our rural citizens, so it is imperative that we provide the same benefits and opportunities to rural America as we do currently to urban America.

Senator JEFFORDS. Ms. Burbank, how many applications do you receive for the TCSP program?

Ms. BURBANK. We've received 1,332 applications for discretionary funding under the TCSP program over the period since it started under TEA–21, so there has been significant interest.

Senator JEFFORDS. And how many do you accept?

Ms. BURBANK. Pardon?

Senator JEFFORDS. How many do you accept?

Ms. BURBANK. Of those, we awarded 80, given the $25 million in funding that was available. Several hundred additional projects have been earmarked.

Senator JEFFORDS. What is the ratio of need to desire for TCSP?

Ms. BURBANK. I think the ratio is roughly 10 to 12 times the funds authorized. Beyond the authorized funds in TEA–21, additional funds were made available through the appropriations process.

Senator JEFFORDS. What does that tell you about community desire to plan proactively?

Ms. BURBANK. There is a tremendous interest in more community-level planning. It certainly indicates the strength of that interest from all across the country.

Senator JEFFORDS. Thank you.

Let me go back to Mr. Gregory. This is for all of you, but I'll go down the line. While consideration of land use trends is not specifically referenced among the planning factors in Title 23, it seems to me to be a basic element in planning for transportation needs. How do each of you incorporate considerations of land use trends in your work? We'll start with Mr. Gregory.

Mr. GREGORY. Thank you, Mr. Chairman. The regional planning commissions, of course, deal with all kinds of issues, not just transportation, so, again, they are qualified to work and bring in all these different issues.

In our area of the country, we integrate land use planning, local development decisions, access management, demand side management to a great extent. It is clear that we could never build our way out of congestion, and although "congestion" is a relative term, we do have it in Vermont. But managing the demand, controlling access, and things like that can preserve the functionality of our system.

Senator JEFFORDS. Mr. Kirby?

Mr. KIRBY. Mr. Chairman, as part of the committee structure at the Metropolitan Washington Council of Governments, we have the local planning directors from the local governments who report up to our board of directors, and we work closely with them in developing forecasts of population and employment by small area zones for our travel forecasting process. We've also developed a comprehensive regional map showing the location of development centers and linking them to where the transportation facilities are,

and it has given us the ability to look at where we have transportation and not enough development, where we have development and not enough transportation, so those linkages exist within our organization.

Senator JEFFORDS. Mr. Leonard?

Mr. LEONARD. Mr. Chairman, in Wisconsin, when we develop our State-wide, long-range transportation plan, we work with our local regional planning commissions and our metropolitan planning organizations and develop that transportation plan based upon their land use plans.

Also, in addressing the smart growth legislation in Wisconsin, we've worked with all the local communities and we've put together a transportation guide to help them do their transportation element of their comprehensive plan. In that guide, we recommend that they develop land use and transportation plans together, but that they first think about what the vision is for their community, what they would like that community to be, and then develop their land use plan and transportation plan based on that. So it gets a very high level of emphasis.

Senator JEFFORDS. Ms. Burbank, would you like to make a comment?

Ms. BURBANK. Sure. I want to emphasize that by statute the transportation plans are required to look forward 20 years, and in doing so it is essential that the 20-year look-ahead considers how land use is going to evolve, how it will affect transportation, and how various transportation investments will affect land use. That needs to be part of that planning process. Land use is further brought in through the conformity requirements, where you have to examine the air quality impacts of those long-range plans in the interplay of land use and transportation. So we work closely with the State and local governments to make sure that their plans are doing this and to provide them tools.

Senator JEFFORDS. Thank you.

Next question is there appears to be some disagreement over the application of fiscal constraint in your planning work. I'd like to hear your thoughts on that issue, and I'd also like to ask you your perspective of organizations—how your organizations work together over the next few months to seek common ground on the issue. In general, I would prefer to receive solutions rather than problems, and from those interested in the reauthorization.

Mr. Gregory?

Mr. GREGORY. We look forward to continuing our dialog with all of the organizations that have a role to play in transportation planning, be it urban or rural or State organizations, and look forward to continuing that dialog with the committee.

The fiscally constrained issue is something that we work closely with our MPO on and the MPO works closely with the State of Vermont on. In fact, the State of Vermont developed a way to pare down its capital program, a little bit of truth in advertising so citizens understand that not everything that had been on a capital plan would ever get built, and regional commissions were key in working with local governments to ensure those programs and projects that were on the list were realistic, were fully supportive,

and were likely to be built in our lifetime, so we continue to work in that direction.

Senator JEFFORDS. Mr. Kirby?

Mr. KIRBY. Mr. Chairman, we believe that the law in ISTEA and TEA–21 and the regulations that were developed following ISTEA were really appropriate for metropolitan planning. We've found them to be very workable from the regional level. They have been very important to us in developing our plans. The development of revenue forecasts and cost forecasts and matching these over time over our 25-year period is probably the most important activity that we undertake as an MPO. We update these every 3 years and our board members and technical staff are very focused on that exercise. It has also had an impact back through our State DOTs and our transit agency. They work closely with us on this.

I think it is a provision that is working well. I think the fact that we are updating our plans regularly does provide the flexibility to update revenues and costs as new information comes along, so overall I think it is a very good requirement.

Mr. LEONARD. AASHTO plans to, over the next few months, work with all the various organizations addressing what are our draft policy positions, working with AMPO and NARC and Federal Highway Administration, as well as the other organizations. I think that, as a whole, we certainly understand and support financial constraint, having our plans and programs live within expected revenues. Our problems are probably more on a day-to-day basis. For instance, when we run into a complex project in contaminated soil, things like that, that extend the life of the project, change the cost, then we have to go back and change our program, go back through the review and approval process, so it is more on a day-to-day basis where it causes us problems, but we'll certainly work with the organizations on this issue.

Senator JEFFORDS. Ms. Burbank, do you have a comment?

Ms. BURBANK. First, I want to emphasize the Department's very strong commitment to fiscal constraint. It is essential to a good planning process, and we are committed to fiscal constraint.

Having said that, however, it requires flexibility, good judgment, and reason in judging what fiscal constraint is in any particular program or plan. I think the greatest need is for good administration of fiscal constraint . I haven't heard a lot of specific ideas for statutory changes to fiscal constraint in reauthorization, but we'll certainly be willing to look at that and discuss it with our partners and with the Congress.

Senator JEFFORDS. Senator Chafee?

OPENING STATEMENT OF HON. LINCOLN CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. Thank you very much, Mr. Chairman, for having the hearing. I'm just struck that, as we have these various hearings on the reauthorization, you don't hear too many dissenting notes about the reauthorization. I think that's different from the last time it was reauthorized. There were a lot of questions about it. I don't think this panel is any different from the others we've heard in the last number of weeks.

I don't have any other further questions.

Senator JEFFORDS. Thank you, Senator.

The traditional planning process begins with a problem statement, develops information, weighs alternatives, and then sets a course of action. To be effective, it must be a continuing process. In the classic planning model, the mechanism for regenerating the process is evaluation. Did this strategy work? And what were the outcomes?

My question is: do we have an evaluation step in our transportation planning process? And are we measuring outcomes? And can we become more effective in this regard?

Mr. Gregory, I'll pick on you first again.

Mr. GREGORY. By the nature of planning, planning is iterative, so we are constantly reevaluating our situations, taking into account new circumstances. But you are absolutely correct that evaluation and measurable progress toward our goals is key. We can always do more. We are always looking at ways to further integrating data that we collect, whether it be natural resource or economic development data, to ensure that the transportation goals that we have set out in our local, regional, and State-wide plans are met.

Mr. KIRBY. Mr. Chairman, this is a question we are often asked as MPOs is, "How accurate has your planning been?" The MPO process has been in place now for some 30 years, and we are able to look back in the Washington region to plans in the 1960's and see how well they turned out, how the forecast turned out. We have not always projected population and employment growth on target. We under-estimated the growth of labor force participation by women. We didn't anticipate the growth in telecommuting. We didn't anticipate people buying SUVs as much as they have. So there are changes that occur in lifestyles that we have to keep up with, but the continuing updating nature of the process is what gives us the ability to check on our progress, to look backward as well as forward.

Mr. Chairman, you mentioned the word "continuing." That's the critical component, I think, to evaluation and keeping up with changes as they occur.

Senator JEFFORDS. Mr. Leonard?

Mr. LEONARD. Mr. Chairman, State DOTs use performance measures in their State-wide plans, and one of the things AASHTO is doing is supporting increased research and training in the use of performance measures so we can always continue to evaluate how well we are doing, what's the condition of our transportation system.

You've also probably heard the term "asset management." That is a large emphasis area within AASHTO so that we are continuing to evaluate how well we are doing at preserving the existing system, as well as improvements in that system. So between performance measures and asset management, we are doing a good job of evaluating the outcomes and what have been the changes.

Senator JEFFORDS. Comments, Ms. Burbank?

Ms. BURBANK. Yes. Starting at the Federal level, we do establish performance measures for ourselves and track them under The Government Performance and Results Act (GPRA), and I think we are getting better at doing that. However, it is certainly not easy

to track those outcomes and to identify what they should be. They range from mobility measures to productivity measures to environmental measures and safety measures.

Shifting to the State and local level, we have noticed increasing emphasis by both MPOs and State DOTs on establishing performance measures and doing performance planning.

Senator JEFFORDS. Well, I want to thank you all for your excellent answers, and hopefully we will all work together.

Ms. Burbank, I understand that other members who have been delayed in attending today's hearing were looking forward to discussing the issues with you. I wonder if you would mind staying on a little bit after the next panel?

Ms. BURBANK. I would be happy to.

Senator JEFFORDS. Thank you very much.

Well, thank you all. We're going to be back in touch and depending upon you to help us keep going in the right direction, so thank you very much.

Our second panel will offer a range of views on the effectiveness of the planning program and on the scope going forward. The second panel will include: Mr. Andrew Cotugno of the Portland Oregon MTO known as METRO; Ms. Judith Espinosa from the University of New Mexico on behalf of the Surface Transportation Policy Project; Ms. Jennifer Joy Wilson on behalf of the National Stone, Sand and Gravel Association; Wendell Cox from Belleville, Illinois; and Mr. Tom Downs of the University of Maryland.

Again, thanks to the panelists for coming. We look forward to your testimony.

Mr. Cotugno?

STATEMENT OF ANDREW COTUGNO, PLANNING DIRECTOR, METRO, PORTLAND, OREGON

Mr. COTUGNO. Thank you. Mr. Chairman, I want to thank you for holding this series of hearings on reauthorization of TEA–21 and inviting me. I'm Andy Cotugno, planning director for METRO. We're the regional government of the Portland, Oregon, metropolitan area. METRO is the only elected regional government in the U.S. We also serve as the MPO and are active members of the Association of MPOs.

Portland is often cited as the smart growth capital of the world. Whether that's true or not, we are certainly scrutinized for our smart growth programs and they are closely tracked from across the country. It is from this unique base of experience linking land use and transportation that I offer my comments this morning.

I'd first like to speak on the principles of making the smart growth connection to transportation and then relate that to recommendations for how the next authorization bill could recognize these principles. The linkage between smart growth and transportation is about understanding how developing land use patterns impact the effectiveness of the transportation system and, in turn, how new transportation projects affect these development patterns.

METRO and the Portland region have implemented a number of integrated land use and transportation strategies. We have an urban growth boundary in place for now more than 20 years, which has effectively stopped the sprawling development pattern leap-

frogging onto farmland. We've used zoning to reinforce a higher-density development pattern in locations that can be well served by transit, producing six consecutive years of ridership increases. We have protected industrial areas and intermodal freight terminals from conversion to big box retail, preserving this land and highway capacity for more important economic uses.

We've adopted parking limitations to ensure new development does not over-build parking. We've adopted a requirement for greater local street connectivity to ensure that a system of cul-de-sacs does not simply shift local traffic onto the regional system.

We have restricted development near streams and purchased open space to ensure a balance between growth and access to nature.

We have adopted revised street design guidelines to ensure highways intended for through traffic are built to emphasize moving cars and trucks, while streets in downtowns and neighborhoods support a strong pedestrian environment.

We've used the flexibility provided by ISTEA and TEA–21 to fund a broad mix of highways, light rail, bike trails, sidewalks, and transportation development projects. We've put to good use funding made available through the new starts program to build a successful light rail system that helps to focus growth and has ridership 7 years ahead of forecast.

We've leveraged the requirement for an MPO into a coordinated regional growth management and environmental protection program.

With this framework, my focus on smart growth and the next authorization bill is going to emphasize three programs—the Federal new starts program, FTA new starts program; the Federal highway national trade corridor, so-called "borders and corridors" program; and the Federal Highway TCSP program.

First, the new starts, which I believe can be a model for the other two programs. It has been successful in constructing light rail projects. As a result of high competition for these funds, there is a long line waiting for funding, and to manage that demand, Congress has set clear criteria to distinguish the most meritorious projects. The Federal Transit Administration requires local areas to go through a rigorous process, producing the best projects.

The Federal Transit Administration makes a recommendation to Congress on projects that are recommended, highly recommended, or not recommended for funding, and based upon that the congressional authorizing and appropriating committees authorize execution of a multi-year funding contract.

This program produces a limited number of good projects that stand up to scrutiny from a large, competitive field, and produce projects that actually make a difference. For the Portland region, the new starts program has provided the means to build an essential part of the region's infrastructure and shape growth of the region in the process. It has had a profound impact on our ability to reign in sprawl and hold tight an urban growth boundary. It has helped produced a terrific downtown Portland, and is now shaping the future of downtowns in Gresham, Beaverton, and Hillsboro, and has been possible to leverage State and local funds that would otherwise not have been spent on transportation into the projects.

So what might be the equivalent on the highway side? You might think the national highway system program would be that because it is intended for modernization of the most significant part of the Nation's highway system, but that system is large and the use of those funds is quite varied.

I would follow the new starts model with a national trade corridor program to make that smart growth connection to build a strong economic base with a trade and freight emphasis. Like new starts, I would suggest it be authorized at over $1 billion, allowing Congress to make multi-year commitments to large construction projects; however, with those funds Congress should set a high standard on how those funds are spent to ensure high-quality projects are funded that produce the greatest impact on global economic competitiveness. Federal Highway Administration, like the new starts, should make sure that the local areas go through a rigorous process so that there can be a recommend, highly recommend, or not recommend recommendation to Congress, providing the basis for executing a full funding contract.

In Portland, the case study is I–5 through the middle of town connecting Oregon and Washington and California. It is a national trade corridor. It is one of the national trade corridors. But the I–5 bridge across the Columbia River is the bottleneck. It was built in 1917, well before the interstate system was conceived, and represents the bottleneck right where the port of Portland, the intermodal railroad terminals, access to the Portland International Airport, and access to 80 percent of the region's truck terminals are all concentrated.

We've developed a fragile consensus on how to fix this problem, but a consensus faces many difficulties because of the high impact of further widening in a low income minority area, because of the Endangered Species Act affecting construction across the Columbia River, and because that 1917 bridge is on the National Register of Historic Places.

But we've come to a conclusion that that bridge needs to be expanded from six lanes to ten lanes, light rail needs to be expanded from Portland into Clark County, Washington. We need an aggressive program to minimize demand. And we've reached an agreement that land uses need to be controlled to avoid simply more sprawl in response to a bigger freeway resulting in simply a bigger traffic jam in the future.

The third program is the Federal TCSP program. It was really founded to make the land use connection to transportation system and was based upon the principle of having transportation projects support good local and regional growth decisions. In the first year, I believe Federal Highway did a good job of setting guidance and selecting competitive projects; however, since then it has been earmarked to a potpourri of different projects and I believe could also benefit from the rigor of the new starts model, not the build the major elements like freeways and light rail, but to build good communities that support the transportation system around that.

Again, Federal Highway should continue its guidance to development to identify what are the best types of projects to fund and publish these as best practices. I would consider increasing the authorization level to that that was earmarked in 2002, but tighten

up the statutory language to ensure grants cannot be awarded unless they demonstrate a supportive land use connection, and base those earmarks on a Federal Highway recommendation of recommend, highly recommend, or not recommended, the same for all three programs. The areas go through a rigorous process, therefore justifying a substantial funding commitment to a project that actually makes a difference.

The final comment I would like to make, in addition to support of Ron Kirby's comments about the MPOs' planning funds and STP funds, is a suggestion that there be a better connection between the Clean Water Act and the Endangered Species Act with TEA–21 reauthorization. There's already a strong connection with the Clean Air Act, and similar kinds of linkages would be appropriate for Clean Water and Endangered Species.

Thank you, Mr. Chair.

Senator JEFFORDS. Thank you.

Ms. Espinosa?

STATEMENT OF JUDITH ESPINOSA, DIRECTOR, ALLIANCE FOR TRANSPORTATION RESEARCH, ALBUQUERQUE, NEW MEXICO, ON BEHALF OF THE SURFACE TRANSPORTATION POLICY PROJECT

Ms. ESPINOSA. Thank you, Mr. Chairman, and thank you for allowing me to be here to testify. I am Judith Espinosa, director for the Alliance for Transportation Research Institute at the University of New Mexico. I appear here today on behalf of the Surface Transportation Policy Project, where I serve as a member of the board of directors.

I thank you, Mr. Chairman. STPP has just celebrated 10 years of progress since ISTEA and TEA–21 reauthorization, and I believe, Mr. Chairman, you and Senator Chafee were there to celebrate with us.

I also bring greetings from New Mexico and to say that we are very pleased to see that Senator Domenici has rejoined the committee again, and we look forward to working with the committee and with him on all of these issues.

New Mexico has had 400 years of cultural diversity, and with that has brought 400 years of the oldest commercial trade route in this country founded by the Spanish called the Camino Real, so we think we know a little bit about pedestrian and horse cart and now ultimately automobile and transit through our State. Like Vermont, we are a rural State, and so I was pleased to hear panelists earlier talk about the need for rural planning and for the engagement of the public not only in our large urban centers, but also in rural America, as well. We find that to be very important, and I believe that my written testimony, which I would ask to be put into the record, speaks to that.

STPP and its coalition of national, regional, and local organizations—of which we now number many hundreds due to a new charter that we have engaged many hundreds of organizations and individuals around the country—believe that the transportation policy and planning concepts and the structure in the current law is fundamentally sound and should be preserved. However, despite the progress that we have made over 10 years, we also want to

make sure that we can fully capitalize on the many opportunities that TEA–21 has intended to make available, and we still feel that there need to be improvements. Like my mother almost always told me, Mr. Chairman, "Improvements is what life is all about," and so we cannot stop on the progress that we've made.

The public has an appetite now for transportation improvements. It has been stimulated over the last decade, and I think that is due to the public input provisions in ISTEA and TEA–21. The public wants choice and balance and transportation with options that add value to their lives.

STPP views TEA–21 reauthorization as the ability for this committee and for Congress to continue to renew the public's concerns with transportation investments, but to do good planning, Mr. Chairman, we need good data and good research. I believe that Cindy Burbank and I have talked about this on some of the Transportation Research Board committees we have been on. We need to continue to develop that.

You will see, Mr. Chairman, on this panel and other panels that you hear from the discrepancies in data. Some will argue that smart growth is very difficult to achieve and that what smart growth plans and what transportation planning does now does not achieve what we are looking for. I would say to you, Mr. Chairman, that that is why we need to present ourselves with good data, and this governing body and the Federal Government can help do that for the States and the local MPOs.

We need funding transparency. You've already heard about investments and looking at that. The public wants to know where their money is going. This is a taxpayer issue. This is an issue for the public taxpayers. The public does not want to continue paying for incremental increases in capacity and in infrastructure without knowing exactly whether things can be done differently, how they can be done differently, and alternatives to that planning.

We need to know what the budgets are from the States. They change. The MPOs do not always know. MPOs do not know from only year to year what kind of budget they will have to spend in their areas.

Those are all very important and critical needs that we have in order to effect and enhance our planning process in this country.

I might also mention, Mr. Chairman, just to know and to say last that this Congress this year and next year and this committee has the opportunity to look at transportation in an integrated fashion. You, Mr. Chairman, on this committee and Members of Congress will be looking in 2003 at air, rail, highway, and transit reauthorizations. We would urge the Congress and this committee to look at an integrated transportation system for this country that looks at not just surface transportation but integrating our airports with our cities and also our cities with our rural areas. That will bring a diversity of bus, light rail, high-speed rail, aviation, and highways to our population, and that we can start planning for that in this millennium so that we have a truly integrated opportunity to provide benefits and quality of life to our communities.

Thank you.

Senator JEFFORDS. I thank you for an excellent statement.

Mr. Cox?

STATEMENT OF WENDELL COX, WENDELL COX CONSULTANCY, BELLEVILLE, ILLINOIS

Mr. COX. Thank you, Mr. Chairman. You surprised me. I am a consultant. I live in Belleville, Illinois. I was appointed to three terms on the Los Angeles County Transportation Commission by Mayor Tom Bradley and to the Amtrak Reform Council by Speaker Gingrich. I have just returned from 2 months as a visiting professor at a French national university, and I am visiting fellow at Heritage Foundation, though I don't speak for them today. I speak for myself.

What I will suggest to you today are things probably you've not heard before, things that are very controversial, things that will probably disagree with most everything else you hear today. But recognize that in the 1950's urban renewal and ripping up our cities was what planners thought we needed to have, and I'm here to suggest to you today that the whole smart growth agenda in many ways is a step in the wrong direction.

First of all, if you look at my slide No. 2, you see what's happened to Paris in the last 50 years. Urban Sprawl is not an American problem. Urban sprawl occurs all over. It occurs where there is affluence and it occurs where there is population growth. And, of course, we have great amounts of land in this country. Only about 3 percent of it is urbanized at this point, according to USDA data.

Now, smart growth seeks to control sprawl, to reduce sprawl, and, in attempting to do so, claims that it will reduce traffic congestion, that it will reduce air pollution, it will lower overall costs, and so on.

The key to smart growth is density. If you do not increase density, you can accomplish nothing of what smart growth seeks to accomplish. But the claims don't hold up. International and national evidence proves that traffic congestion is greater where densities are higher. That's not surprising. Federal research indicates that at the present densities of our urban areas, if you have 100 percent increase in density you will have about an 80 percent increase in traffic. Now, granted, that means the per capita driving drops, but the overall increase in traffic continues, and that creates another problem. Traffic slows down, commute times are longer. In addition to that, because traffic slows down and because there is more stop-and-go driving, you have worse air pollution. All the data internationally and nationally shows that density is associated with worst traffic congestion.

By the way, we've made great progress, and I want to make sure you are aware of the progress we've made in this country. This chart in my presentation from the EPA indicates great progress in reducing the three criteria pollutants or two of the three criteria pollutants in this country at the same time that vehicle miles traveled have gone up very much.

You've also probably been told that sprawl is costly, and I don't come here with a brief for sprawl, I come here with a brief for freedom. I believe we ought to allow people to live and work where they like, and we ought not to interfere with that unless there's a good reason. The fact is that the overall consumer expenditure data of the U.S. Department of Labor shows that, where densities are

lower, costs are lower overall. Yes, transportation costs are higher, but housing costs are lower.

But worst of all is the impact of the anti-sprawl efforts and the densification efforts on minorities and low-income people. Sprawl is associated with higher levels of home ownership. The data is very clear on that. There's all sorts of research on that. There's a raging debate between people like me—and there are other people like me in the academic community—and those on the other side who say, "Well, how much is sprawl increasing? How much is the anti-sprawl movement increasing the price of housing?" Well, the problem is this—it's an intellectual discussion. Any increase in the price of housing hurts people. Smart growth rations lands and development. When you ration, you raise prices. As prices go up, you hurt the lower part of the income spectrum, and that means in this country that minorities and low-income people will pay the greatest price for the anti-sprawl measures that will inevitably increase the price of housing relative to income.

Now, the normal answer to that is to hear people say, "Well, we'll increase the housing affordability program, the affordable housing programs." The problem with that is in this country today we only support one-third of the eligible recipients of housing assistance with our programs as they are, so before we even start with the anti-sprawl strategies we've got two-thirds of the people who are eligible who aren't even getting money.

Finally, we should remember that this country is the richest country in the world. It is the most prosperous country per capita in the world except for countries smaller than Fresno, for example, and we need to recognize the role that land plays in wealth creation and we need to be very careful about limiting land and regulating land.

Now, a couple of quick notes on transit. Transit is very concentrated in this country. I am not here to be anti-transit or pro-transit or anti-roads or pro-roads. The fact is transit works very well. Transit carries 75 percent of the people who work in New York. Transit carries 60 percent of the people who work in the loop in Chicago. But it carries virtually no one to work who has a car outside our central business districts, and, unfortunately, our central business districts now represent only 10 percent of employment. What that says is that transit is in no position to reduce traffic congestion except in those corridors going to central business districts.

I take a bit of evidence—a recent study by the Union of International Public Transport. The International American Public Transit Association was quoted thusly: "In the United States, with the exception of New York, public transit is unable to compete with the automobile. Its speed is half as fast, which means that door-to-door travel times incorporating terminal distance times, waiting and transfer times are three to four times longer than public transport." I think that's an over-statement. It isn't that bad. The fact is, however, that transit, unfortunately, has no potential because of our dispersion to reduce traffic congestion except in those downtown corridors.

Now, in conclusion I would suggest to you that no problem has been identified of sufficient magnitude to justify the coercive smart

growth strategies; two, that there is little potential for reducing traffic congestion or increasing transportation choice for all but a few, mainly those going downtown through transit. There are no material successes. You will not find any successes in this regard anywhere in the developed world. And, finally, smart growth strategies tend to intensify the very problems they are purported to solve. Therefore, I would suggest new Federal mandates with respect to planning on local agencies based upon a philosophy of smart growth are inappropriate.

Finally, I won't read the quotation from Adlai Stevenson, but I think it is well to remember that we are a country that is very prosperous and we have led the world in economic progress and a whole bunch of other things through history, and the Stevenson quotation from the 1952 campaign basically concludes with, "Who shall say the American dream has ended? I think we need to look forward to the future with confidence, recognizing the great success we have had and not go back and start regulating land and reduce the affluence of this country and, frankly, make minorities pay the price."

Thank you, Mr. Chairman.

Senator JEFFORDS. Thank you, Mr. Cox.

Ms. Wilson?

STATEMENT OF JENNIFER JOY WILSON, PRESIDENT, NATIONAL STONE, SAND AND GRAVEL ASSOCIATION, ARLINGTON, VIRGINIA

Ms. WILSON. Good morning. I'm Joy Wilson, president and CEO of the National Stone, Sand and Gravel Association located in Arlington, Virginia.

Mr. Chairman, as someone once confirmed by former membership of this committee and as a former Senate staffer, it is a pleasure to be here.

NSSGA represents the Nation's crushed stone, sand, and gravel industries, and our membership represents 90 percent of the crushed stone and 70 percent of the sand and gravel produced annually in the United States. Nearly three billion tons of aggregate valued at approximately $14.5 billion were produced in this country in 2001. There are about 10,000 construction aggregate operations nationwide in virtually every congressional District, and construction aggregates are used primarily in asphalt and concrete. Of asphalt pavement, 94 percent is aggregate, 80 percent of concrete is aggregate.

While I appear this morning representing the aggregates industry, I also appear as a member of the Partnership for Quality Growth, which is 13 labor and industry organizations that share a common interest and concern for the future of our country's growth management and its impact on transportation infrastructure. I know this is something we share with the members of this committee, so we particularly appreciate this, Mr. Chairman, and your initiative in holding this hearing.

Our industry labor coalition adheres to the basic concept that Americans should be allowed the freedom of mobility and the freedom of choice in where we live and when and how we travel. We recognize that as our population continues to grow, all planning,

whether it is Federal or local, must accommodate that continued growth, plus the collateral increase and transport of freight that will be needed to support that population. We hope to ensure that Federal policies respect local planning power to meet growth needs, especially with regard to infrastructure improvements.

Use of Federal transportation law to drive local planning decisions should be approached with extreme caution lest local and State land use decisions become usurped by Federal determinations.

Since 1975, the U.S. population has increased more than 30 percent, passenger car traffic has more than doubled, and truck traffic has increased six-fold. At the same time, highway capacity rose just 6 percent. There is no wonder we are experiencing congestion. We haven't, as a Nation, kept up with our needs.

Traffic congestion in and around our cities costs our economy $78 billion annually in added time, wasted fuel, and labor costs.

Economic growth is not the only cost to society. Each year 14,500 people die in traffic accidents attributable to unsafe road and bridge conditions. Safety improvements and maintenance of our current system will take $50 billion a year. We're about $20 billion a year short of that investment, even with TEA–21, and we need to understand and support what additionally it will take to solve the capacity issues.

One in eight traffic fatalities results from a collision involving a large truck. That's about 5,000 deaths a year. This last figure warrants some thinking about the benefits of separate truck lanes, or HVLs—heavy vehicle lanes. This idea merits consideration because such separation of heavy vehicles from passenger vehicles could enhance motorist safety, relieve congestion, and reduce wear and tear on lanes used by lighter vehicles.

Even though our country is blessed with the best transportation system in the world, transportation planners can fail society if they refuse to acknowledge the data that is critically important to decisions when they are made about when and where to add capacity. Consider this: suburbanites or rural residents who move to an urban area are estimated to drive 90 percent as much as they did before, but if the urban population doubles, then even with the reduced per person driving pattern the city will see a tremendous increase in vehicle miles traveled.

How then are cities going to reduce congestion and still offer Americans freedom of mobility? Capacity increases will need original thinking and some creative, tough, practical know-how. Everything should be on the table, from adding turn lanes and smart signals to considering additional land miles or new roads, as well as public transportation, HOV lanes, maybe heavy vehicle lanes, tunnels, elevated streets, and so forth.

Americans view as fundamental their freedom of choice in where they live and work and how they travel. In 2000, when the voting public in Arizona and Colorado came to fully understand the ramifications of State-wide ballot initiatives on smart growth, the initiatives failed. They failed because the proponents misread how strongly the vast majority of Americans hold to the values of home ownership, safe neighborhoods, and the freedom to travel and to choose where to live.

Consider these statistics: by 2025 the U.S. population is expected to reach 337 million people, an increase of 60 million over 2000. Annual passenger miles traveled are predicted to increase from 5 trillion miles in 2000 to 8.4 trillion miles in 2025. By 2025, freight transportation will expand to just over 5 billion ton miles, a 29 percent expansion. Rail ton miles is also projected to grow by 2 percent per year between 2000 and 2025. Capacity needs are real and present for all modes of transportation—air, waterways, ports, rail, transit, and road. That's why we must increase our investment in transportation infrastructure.

Mr. Chairman, I know I'm getting to the end of my time. I've got just about one more page of summary, if that's all right.

Senator JEFFORDS. Keep on going.

Ms. WILSON. Thank you.

The reality is that goods will need to continue to be shipped, primarily in trucks on our Nation's highways. People will still want to go to work and have the freedom to be fuel efficient and timewise by practicing trip chaining, or going to multiple destinations in one trip. The decisions made in the reauthorization of TEA–21 and the successor legislation will have significant impact on this Nation 21 years from now when the U.S. population will have increased by 60 million people.

I thank you for this opportunity to testify.

Senator JEFFORDS. Thank you for your testimony.

Mr. Downs?

STATEMENT OF TOM DOWNS, DIRECTOR, NATIONAL CENTER FOR SMART GROWTH EDUCATION AND RESEARCH, UNIVERSITY OF MARYLAND, BALTIMORE, MARYLAND

Mr. DOWNS. Thank you, Mr. Chairman and Senator Chafee. I'm Tom Downs, and I'm the director of the National Center for Smart Growth Research and Education at the University of Maryland, created by a consortium of schools of engineering, agriculture, public affairs, and architecture and planning.

Instead of giving you the kind of executive summary of my comments, I was struck by a couple of things that maybe I can summarize and perhaps reinforce. One is that smart growth is about growth. That's why the "growth" word is part of that. And you can quibble about whether or not it is smart, quality, efficient, effective growth. It is a framework that questions how we will respond to the demographics that Ms. Wilson just laid out—the demographics which, by the way, are about 64 million people additional in the United States in the next 20 years, not 25 years. Demographics are destiny. That's two Californias. The question is how this country will choose, with hundreds of billions of dollars worth of transportation investment, to cope with eight trillion miles of travel in the United States in the next two decades.

If the frustration with the existing system at its current population levels and travel levels is high enough to be ranked at the top of almost every public attitude survey in the United States about local issues, then we have to be accountable in this reauthorization for how we begin to answer some of those questions about how we absorb that growth.

The Center received a grant from the Packard Foundation to look at some of the issues in data and modeling to see where we were in this. An incredible gap between assumptions about how the planning process works in America, about transportation funding, and what we know it actually produces. There is relatively little research of a national level that shows the impact of highway investments, transit investments, or any other modal investment over the long haul about density, suburbanization, growth, land use patterns. The research that is there suggests that there are little economic development impacts of the construction of a highway corridor; that, in effect, that highway corridor is simply a moving of the economic chairs within a region. There's no net gain or loss from that from an economic development standpoint for the region. There are winners and losers within the region.

It suggests that urban areas with beltways sprawl faster than areas without beltways, but it is inconclusive.

It shows some linkages between highway capacity, expansion, and growth in VMT, but the correlation, the actual growth in VMT is less than popular literature would suggest.

The literature also suggests strongly that not building highways does not change VMT growth within an urban area. So if you don't build it, they come. If you build it, some of them come. But the research doesn't help us enough to understand why we are making hundreds and hundreds of billions of dollars worth of national investment in transportation systems.

The question that the planning process and the framing of TEA–21 in its purpose chapter needs to be looked at again, expanded, and put in the planning chapters of the next bill. It posited that the Nation had an interest in safe, efficient movement of goods, intermodalism, social justice, social equity, clean air, environmental mitigation, and all of those were expectations about the use of those Federal funds. If we say that they are simply block grants to be passed along to the rest of the inter-governmental system, we miss an important point about our national responsibilities.

I'd like to hit two points, one that was raised by Mr. Cox about the question about whether or not the suburbanization or smart growth impacts minorities adversely or positively. To show you the lack of data, there is an additional study that shows that the poorest of families, the lower 25 percent of families in terms of income in the United States, are severely disadvantaged from a transportation cost standpoint about a move to the suburbs, and that those costs more than offset the gains in housing so that there are no easy answers.

The answer is that the poor and the disadvantaged have always been disadvantaged by transportation investments. We simply don't have that as a focus in our transportation systems.

One of the points that Ms. Wilson made about how many roads within the Washington region were drawn, only one was built, failing to mention that, of those, just one envisioned the removal of 15,000 individuals from that corridor, alone; that our transportation system has always made assumptions about what is best for communities, and the strength of this last bill was in mandating more direct involvement in the planning process by counties and local communities.

The last is that one of the major assumptions that people make is that density increases traffic. We don't actually know that because we don't count one of the important methods of transportation in most urban areas, and that is pedestrians. Unless you are carrying around 2,000 pounds of sheet metal, you don't get counted in the transportation process. There's some data that suggests, for instance, that there are more pedestrian trips in New York City than there are transit and automobile trips combined, but we don't know that because pedestrians obviously don't count. They don't pay a gas tax.

What we don't need is a lot of ideology struggling over the outcome of this bill. What we don't need are opinions. What we need is a funded set of research objectives beyond materials and road construction that lets us understand how we have affected the land, our jobs, and how we live in America, and I think that there is an emerging consensus among a lot of people about the purpose of transportation investments, at least at this level, and that is to help Americans choose how they want to live and travel—something that for a lot of Americans is very difficult to do. In this democratic society, we hope it is about choice and freedom.

Thank you, Mr. Chairman.

Senator JEFFORDS. Thank you, Mr. Downs.

I now will ask a question for the panel, and I'll go down and start at the opposite end again.

Our committee has jurisdiction over the highway title, while the Banking Committee handles transit. I look forward to working closely with Senator Sarbanes on the reauthorization. One element in the transit title that appears very promising to the transit-oriented development using TOD, transit properties can enter into partnerships with the private sector to generate new land uses that both support and benefit from the availability of transit facilities, and the Federal Transit Administrations encourage and support these partnerships. In so doing, TOD can return revenues to the transit property and the transportation system.

I would like to explore the transferability of the TOD concept to highways, and I would like your thoughts on this.

Mr. COTUGNO. Mr. Chairman, we use the flexible dollars now to support transit-oriented development projects. We use it by transferring STP or CMAQ funds from Federal Highway to Federal Transit, which is available under TEA–21, and thereby access the Title 49 eligibility for TODs that's not available under Title 23, but the transferability of funds is available to do that.

If it were more directly included in the Title 23 side, I think that would be useful. Certainly, the TCSP category explicitly incorporates that eligibility, whereas the other categories require this transfer to the FTA site. It works, and we've used it effectively.

Senator JEFFORDS. Ms. Burbank, do you have any comment?

Ms. BURBANK. Were you asking whether highway programs could be revised to be more supportive of transit-oriented development? Is that the thrust your question?

Senator JEFFORDS. I believe so, yes.

Ms. BURBANK. Well, as Andy noted, there is considerable flexibility now, and yes, I'm sure there are opportunities to take that further. It's something we could take a look at and comment on.

Senator JEFFORDS. Ms. Espinosa?

Ms. ESPINOSA. Yes, Mr. Chairman. I agree with what Mr. Cotugno said, and also I believe that looking at transit-oriented design and where highways come into play, you're looking at a note and a place where people want to be and where they come from. To be able to increase the funding on the TCSP side would be, I think, one of the more opportune available methods for this body to use, perhaps looking at minimum amounts. I know that is sometimes difficult with earmarks, but it is quite important. It has been a very popular program and one that can be flexed to look at transit-oriented design, and also how that is designed around streets and around roadways in communities. I know in Albuquerque one of the mayors is doing that in a small community because he doesn't have available transit. He's looking at how pedestrians interact and bicyclists interact with the roadways.

Flexing the money is certainly important, but there is also the ability to get that money into the local areas so that the flexibility comes within the MPOs and within the local government areas. They know best where some of that, if you will, transit-oriented, highway-oriented design should be placed and how that might be able to be worked. They're the ones that work within their community, I believe, and they also can provide the transparency and the public input to be able to make those plans realistic. We would like to see that more in a local type setting, whether it's a rural planning or whether it's a local MPO planning area, rather than sitting at the State side where those decisions would be made at that level.

Mr. COX. Mr. Chairman, as you know, these programs need to be effective. I mean, we, as we've heard from two of the witnesses today, are looking at a situation where we're going to have eight trillion vehicle miles in this country in 20 years, and I fully agree with Mr. Downs with the view that we need a whole lot better research than we have at this particular moment.

What we do with TOD with respect to the Federal program I think should, to some extent, have to do with how effective that program is with respect to other alternatives that we have, and I would really urge you, Mr. Chairman, and the committee and the Congress to be thinking very seriously about some new ways to think about transportation planning in this country and some new indicators.

One that strikes me—and there may very well be much better indicators than this, but, I mean, think about eight trillion miles in the next 25 years. I mean, we are going to spend a lot more time sitting in traffic. There is just simply no way that that's not going to be the case. And so maybe we ought to be looking at trying to restructure the Federal program to encourage those kinds of strategies that reduce hours of delays for people the most, and maybe the indicator ought to become, with respect to all these programs and whether they survive in an overall package, whether this year or next reauthorization, perhaps we ought to be looking at something like cost per reduced hour of delay.

Senator JEFFORDS. Thank you.

Ms. WILSON. Mr. Chairman, the only thing I might add to that discussion is I think the flexibility is important, but I think it is

important that it be at the ability of the local level to flex either way. It may be in a particular community that a combination of some sort of HOV bus lanes would be the proper thing. It may not be transit in the rail sense, and it may be adding turn lanes, it may be traffic signalization. There are all sorts of things that I think need to be looked at in the flexibility, and would propose that when you look at flexibility and adding enhancing options that the flexibility be able to go in and out of the road program both ways.

Mr. DOWNS. Mr. Chairman, only an editorial comment that if we're going to talk about a future we probably ought to start talking about people miles of travel rather than vehicle. Vehicle miles of travel always proposes that vehicles count more than people.

The recent research about transit-oriented development suggests that the key factor is not the investment, it is the local land use set of relationships if you link in the transportation plan, a set of expectations about the development that local jurisdictions ought to be required to show how their local land use and zoning is compatible with that set of investments. It is not a Federal predisposition to say that a set of local land use requirements are better than others, but it should be that, if there is a Federal investment that is based on a series of expectations at the local level about an outcome, that the local jurisdiction show how it is going to make that outcome happen.

My guess is that transportation-oriented development will suffer the same lack of linkage to local land use decisions that transit-oriented development does now.

Senator JEFFORDS. Thank you all.

A second concept that seems promising is the safe path to schools initiative. I know that my colleague in the House, Congressman Oberstar, shares my interest. How can transportation planning most effectively advance the safe routes to school idea?

Mr. COTUGNO. Maybe just to start, the focus of transportation tends to emphasize moving adults a lot more than it does moving kids—getting to work, moving freight. Safe routes to schools is the younger population that is just as important and ought to be just as much attention as getting to work or getting to shopping or getting to the warehouse for trucks.

Senator JEFFORDS. Ms. Burbank?

Ms. BURBANK. Yes. One way it can do that is greater attention to pedestrian and bicycle facilities in neighborhoods. Through our bike/ped activities and fulfilling some of the mandates in TEA–21, we have been working on that, providing curricula on bicycle design and safety which kids can use to get to school, as well as promoting better design of sidewalks to accommodate children and disabled adults. And so there are many ways to support safe routes to schools through greater attention to bicycle and pedestrian design, incorporating bike/ped needs into the design of highways, and context-sensitive design that can make a difference and are taking place now.

Senator JEFFORDS. Thank you.

Ms. ESPINOSA. Mr. Chairman, I'm proud to say that the Surface Transportation Policy Project was a sponsor of safe routes to school in California. That program has shown what will happen with good flexibility when a State and local governments come together to be

able to flex money to get it out to local planning, particularly for schools and for children getting to schools.

While in places other than California there's different ways of doing this, but I think the concept is very appropriate and the concept is very appropriate for consideration and reauthorization.

Safe routes to school allows for what we're talking about, which is public input and public decisionmaking and a place where the public can see where their investment is going.

Let me give you an example. Outside of Albuquerque, New Mexico, we were working on planning a contact-sensitive design project. Actually, the community stopped a five-lane roadway through there because they wanted to see smaller lanes. One of the chief areas of interest was that going right past this roadway or right by this roadway were two schools, a middle school and a first-grade-through-fifth-grade school. Neither the Highway Department in the State nor the local public works agencies had ever talked to the schools or the children or their parents to see what kind of walkways we needed, what kind of pedestrian walkways, what kind of bicycle routes, how people would cross this proposed five-lane highway.

Safe routes should be put into planning where new models can be developed for planning where you can talk about the disadvantaged communities which in this community were disadvantaged children, how they are going to get to school, and what is the safest route to go.

That brings the entire circle in. It also allows for new challenges in modeling. How do we get research? How do we get data? And how do we do new models that are going to include our younger generation—which, by the way, is very fast-growing in this country. So we would hope that this body would look at a safe routes to school provision in TEA–21 reauthorization, do it in a broad fashion that allows local governments that kind of planning with their communities.

Senator JEFFORDS. Thank you.

Mr. Cox?

Mr. COX. Mr. Chairman, I would only urge some caution, because oftentimes the beginning of Federal regulation and the beginning of Federal programs brings us into a situation where local prerogatives are interfered with in the long run. I'm not saying that's what is happening here, but we need to be concerned with that.

I'm real pleased to have the opportunity—I know that you here don't spend a lot of time on school buses because school buses tend to be a local and a State issue, for the most part, but the school bus systems in our local school districts around the country are one of the real transportation successes of this country. Every school day they carry 45 million rides. That's almost double the number of rides that are carried by all of the buses and subways in this country. So it is quite a transportation resource, and obviously we ought to do whatever we can to make that ride and that walk to school the safest possible.

Senator JEFFORDS. Thank you.

Ms. Wilson?

Ms. WILSON. Mr. Chairman, I'm not familiar with this specific legislation, and I may need to expand this answer for the record, if that would be all right.

Senator JEFFORDS. It would be.

Ms. WILSON. But I would simply say that I'm delighted that you're focusing on some of the safety aspects, whether it is for school children getting to school on foot or on bike or on bus. The safety situation with our transportation system is one of the saddest but also one of the most motivational things we can do in the reauthorization. We're trying to correct that in this country, and I applaud you for going in this direction. Thank you.

Senator JEFFORDS. Thank you.

Mr. Downs?

Mr. DOWNS. Mr. Chairman, I think it goes without saying that the transportation system should not kill or maim children. We don't count them. If they don't count, they don't count. We don't understand any of the relationships between the spiraling out of control of childhood obesity, childhood asthma, and transportation or how children move. None of the local planning processes that I know do any kind of accurate update about how children move through their transportation system. It is perceived to be recreational, and it just doesn't count.

If this is a comprehensive transportation planning process and we think that children count in this process, it should start with them literally counting children and how they behave and move within the system, but we do not, and you could address that in this legislation.

Senator JEFFORDS. Now I'd like to welcome Senator Wyden here. You could have the last word.

Senator WYDEN. Thank you, Mr. Chairman. I apologize for the bad manners. As you know, we've got Enron hearings and that's of special importance to the Pacific Northwest. But I very much want to thank you for holding this important hearing. I look forward very much to working with you as we go forward on the next significant transportation initiative in this area. As you know, I was a principal author of the transportation community system preservation program, and we're especially proud because so much of what the Federal Government is now doing under that legislation really stems from the efforts that began at home with METRO, its predecessor, and we're very glad Mr. Cotugno is here and is in a position to talk to us about these issues. Let me, if I might, just begin with him for a question or two.

Andy, what has been METRO's experience with applying for grants under the program? Obviously, what we want to do is we want to increase the funding. We want to try to get the Congress away from earmarks, which has been almost a biological imperative around here. Come up with a good program, and somebody says, "Well, let's hijack the money. Let's hijack it." And what we had sought to do—and Senator Moynihan and Senator Chafee were especially helpful to me as a new member of the Senate in putting together the program. They said, "Let's make this something done on merit and we'll have a competitive bidding process so as to encourage people all across the country to come forward with innova-

tive ideas for linking smart growth and transportation at the local level."

So tell us, if you would, what your experience has been with the program.

Mr. COTUGNO. Thank you, Mr. Chairman. Senator Wyden, we applied the first year for two grants, and, as I indicated in my remarks earlier, the first year was run as a competitive process by merit by the Federal Highway Administration, and we succeeded in getting one of those two grants.

The next year we applied for one grant, decided we should pick our own priorities and not submit two, so we submitted one, and we thought we had that grant award because we were receiving calls from the Secretary's office indicating that it was going to be announced, but it was withdrawn because the funds were earmarked.

The third year we applied and I don't think it ever went through a review process because it was also earmarked again the third time.

So we were successful that first year, but have not been able to obtain a grant since then.

Senator WYDEN. Well, I want you to know, and all of you, that I'm going to pull out all the stops to go back to what was originally produced in this legislation. We do have the good fortune—Chairman Jeffords, of course, has a long record and history of support for smart growth, and his State, as well as Oregon, are really considered the pioneers in terms of the smart growth area, so we are very fortunate in this crusade to get back to making these calls on the merits, to have a leader with a gavel in his hand who can help us and, of course, has the State experience that is very much in sync with Oregon.

Let me wrap up by asking you a couple of questions about what model we might choose in terms of trying to get this program back to what it was intended.

Andy, as I understand it, what you all are suggesting is that something along the lines of the new starts program for transit projects would be a sensible foundation for improving the program. Would something like this allow the Vermonts and the Oregons and the States that have really been leaders in smart growth to get this program back to what we envisaged, which is one where the calls are made on competition and the merit?

Mr. COTUGNO. Mr. Chairman, yes. Senator Wyden, I think that's an approach you could take. I think it would entail including in the authorizing language a restriction that requires that funding only be awarded based upon a recommendation that recognizes that smart growth connection.

Like the new starts program, if the Federal Highway Administration comes forward with a recommendation, a high recommendation, or a not recommended, then it is still up to the appropriations and authorizing committee to award that project. You can choose to take and fund a not-recommended project, but your own peer pressure amongst each other would tend to pick the highly recommended projects because those are the ones that are shown to stand up on a merit basis.

Senator WYDEN. Ms. Burbank, I appreciate your staying, as well, given how hectic the schedule is. I understand that you all had applications many, many times over the amount of the available funding, and to me, as we go forward in this effort—and Chairman Jeffords and others have been involved with the Smart Growth Caucus and we've had a lot of exciting developments since our first effort with the last ISTEA legislation, but all of it is going to be hard to achieve unless the Administration will support additional funding for this program.

Is this something that you can discuss this morning and talk about the designs of the Administration? I mean, what I like about this—and, you know, Mitch Daniels has always been very open in terms of dealing with me, and I'm going to make this case to him. This is something that's locally driven and home grown, and the idea of having a program with competitive grants, with the opportunity to try different approaches at the local level strikes me to be very much consistent with the Administration's philosophy.

I don't think I've ever told Chairman Jeffords, but Scoop Jackson, interestingly enough, put in the first Federal bill to promote smart growth. He, of course, was a legend in our part of the world. And when scoop put this bill in they said this is a monster plot, it's going to lead to Federal zoning and the Federal Government is going to confiscate private property. I think that what we were able to do in the last ISTEA bill was just the opposite of Federal zoning. We have basically said, "Let's let folks do their thing at the local level, and the Vermonts and Oregons play up their innovative approaches in growth, and we'll encourage the other States to catch up." So I would see this as very much consistent with the Administration's philosophy.

Make my day, Ms. Burbank, and tell us, by god, we're going to find some additional dollars for this important effort.

Ms. BURBANK. I'm not sure I can make your day, but I do want to be as positive as possible because certainly that program has been one of the most popular programs. TCSP is exciting because it does generate local initiatives and innovative ideas. We do feel that the competitive process of reviewing and ranking them at the Department through a multimodal group of evaluators has yielded some really good projects, but the projects that have been identified through earmarking are quite different. They don't tend to put as much emphasis on efforts to involve the local citizens in planning and anticipating needs. The earmarked projects tend to be oriented more toward a specific, pre-ordained solution, and we think that has some limitations to it. So we certainly would like to see a competitive program. We think a competitive application process has a lot of benefits.

In terms of funding level and reauthorization, it goes without saying that we are all going to face some tough choices with funding because there are a lot of needs in transportation. So I can't quite make your day in going so far as to say what the Administration's position will be. It is too early to say. But we do see a lot of benefit in TCSP.

Senator WYDEN. I've imposed on the chairman's time, but I hope that you will really be a passionate advocate for this, both for additional funding and for returning to something along the lines of a

competitive model. I mean, you have been very diplomatic here this morning by saying, "Gee, Senator, the earmarked projects are a little different." The idea is that, well, maybe they have something foreordained. I mean, to me that just defeats the whole idea. I mean, when I went to Senator Moynihan and Senator Chafee as a brand new Senator, Senator Moynihan said, "Look, we know Oregon is a leader in this, but they're going to have to compete with everybody else." That's the whole point. I mean, it seems to me that we have got an opportunity to really catalyze all across this country in communities from one end of the country to another a wave of innovative thinking in this area if we have the dollars, if we make the calls on the merits.

Mr. Chairman, I feel badly about imposing on you. Just know that I am very glad that you've got the gavel in your hand on this, because the Vermont/Oregon smart growth axis has an opportunity, in my view, to show the rest of the country how to do the job right, while at the same time giving them all the freedom and all the flexibility to carve out their own approaches that are consistent with their needs. I really look forward to working with you.

Senator JEFFORDS. Well, I certainly look forward to working with you. Oregon and Vermont are almost peas in the same pod. We do everything the innovative——

Senator WYDEN. The enlightened way.

Senator JEFFORDS. Right, the enlightened way. We could go on. [Laughter.]

Senator JEFFORDS. Ms. Burbank, I want to thank you for spending the extra time to be with us during both panels. I look forward to working with you.

This has been a very wonderful experience this morning, my first time in this area. I have a number of first times in store for me, my new responsibilities, but you have been very helpful and enjoyable and innovative and, wow, you're great. Thank you.

[Whereupon, at 11:54 a.m., the committee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF CYNTHIA BURBANK, PROGRAM MANAGER, PLANNING AND ENVIRONMENT CORE BUSINESS UNIT, FEDERAL HIGHWAY ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

Mr. Chairman, members of the committee, thank you for this opportunity to provide testimony on the important subject of transportation planning. Today, I would like to report to you on the status of transportation planning, and what FHWA is doing to assist States and Metropolitan Planning Organizations (MPOs) in fulfilling the planning goals of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA–21).

OVERVIEW: THE ESSENTIAL ROLE OF PLANNING

Transportation planning is the process of identifying transportation problems and looking for solutions that fulfill multiple national, State, and local goals. Statewide and metropolitan transportation planning processes, governed by Federal law (23 United States Code (USC) sections 134 and 135; 49 USC sections 5303–5305) and applicable State and local laws, are required if Federal highway or transit funds are to be used for transportation investments in the State or metropolitan area. The planning process must do more than merely list highway and transit capital investments. It must provide strategies for operating, managing, maintaining, and financing an area's transportation system in such a way as to best advance that area's long-term goals. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) rely on the transportation planning process as the pri-

mary mechanism for cooperative decisionmaking at the State and local level. This means that local officials and others who anticipate using Federal transportation funds must be involved in planning. Transportation planning must be attentive to the public's needs and include sufficient opportunities for public input.

The planning process produces the information on which elected officials and policymakers will base their decisions regarding transportation improvements, and helps ensure better, more informed decisionmaking. Transportation planners undertake comprehensive analyses and evaluation of the potential impact of transportation plans and programs and, at the same time, address the aspirations and concerns of the community that these plans and programs serve. Planners examine past, present, and prospective trends, and issues associated with the demand for the movement of people and goods at local, rural, metropolitan, statewide, national, and international levels. Public officials equipped with this information can make decisions that address key community objectives and tradeoffs, while reducing unanticipated consequences.

Transportation planning must reflect the desires of communities and take into account the impacts on both the natural and human environments. Transportation plans should help regions and communities set and achieve their goals. A comprehensive planning process that considers land use, development, safety, and security, also helps ensure that transportation decisions will be made in an environmentally sensitive way. The States, MPOs, and transit operators choose which projects will advance. The Federal role is to provide funds, standards, technical assistance, and planning models so that State and local decisionmakers are able to make the best transportation choices for their area within the funding available.

PLANNING UNDER ISTEA AND TEA–21

ISTEA made significant changes in the metropolitan and statewide planning requirements for highways and transit, requiring greater attention to public involvement, fiscal prudence, and multimodal transportation systems planning. In addition, ISTEA provided State and local governments more flexibility in determining transportation solutions, whether transit or highways. ISTEA instituted statewide planning and continued the metropolitan planning processes as the framework for making these decisions. As a result, much of the past 10 years has been devoted to adjusting to these changes and applying the new requirements. In most cases, the MPOs, State Departments of Transportation (DOTs), and transit operators have worked together in a cooperative way to implement the changes. The ISTEA reforms have resulted in more attention to developing financially sound transportation plans and programs and to involving the public and stakeholder interest groups in developing the plans and programs. The changes have enhanced and improved the integrity and effectiveness of the transportation decisionmaking process, but continued progress is needed.

To assist the MPOs, State DOTs, and transit operators in implementing the ISTEA changes, FHWA and FTA have focused on conducting training courses, providing technical assistance, supporting peer exchanges, identifying best practices, and preparing case studies.

The changes initiated by ISTEA were carried forward by TEA–21 with some further refinements. The financial discipline in the development of plans and programs introduced in ISTEA was continued, with an added requirement that financial estimates be developed cooperatively between the State and MPO.

By statute, metropolitan transportation plans must address a minimum of a twenty-year planning horizon and be updated on a schedule identified by the Secretary (currently 3 years in non-attainment areas and 5 years in attainment areas). By statute, Transportation Improvement Programs (TIPs) address a 3-year horizon and must be updated at least every 2 years at the State and metropolitan level. State plans are updated on a cycle identified by the State. In non-attainment areas, under the Clean Air Act, FHWA and FTA have sought, in cooperation with the Environmental Protection Agency (EPA), to develop approaches to more effectively integrate air quality and transportation planning timeframes and processes. This is a continuing challenge, which will arise in reauthorization.

Section 1308 of TEA–21 directed the Secretary to eliminate the separate requirement for a Major Investment Study (MIS) and integrate the remainder of the process into the environment and planning processes. Although regulatory changes have not been completed, FHWA and FTA have fostered and supported experimentation with alternative approaches, as mutually developed at the State and local level.

While ISTEA and TEA–21 strengthened the role of MPOs and local governments in transportation planning and programming, States continue to have the primary

role, responsibility, and authority-albeit in a framework of consultation and cooperation with MPOs, local governments, and transit operators.

Since the passage of ISTEA and TEA–21, States have become more involved in comprehensive transportation planning, including the development of multi-modal transportation plans. As a result, many States are now engaged in activities, such as rural freight issues, which previously received little attention. Because the statewide planning process is continuing to evolve, many States are looking at ways to restructure their transportation planning and programming processes. They are determining which decisions should be made at the State level and which can be decided at the rural or metropolitan level.

INSTITUTIONAL CAPACITY BUILDING

FHWA and FTA have jointly developed specialized training courses and new tools and procedures that address the emerging needs. Also, FHWA and FTA have sponsored peer exchanges that have allowed States, MPOs, and transit operators to share best practices.

FHWA and FTA, in a collaborative effort with the American Association of State Highway and Transportation Officials (AASHTO), the American Public Transportation Association (APTA), the Association of Metropolitan Planning Organizations (AMPO), and the National Association of Regional Councils (NARC), have launched the Metropolitan Capacity Building (MCB) Program-an initiative to strengthen MPOs. The program is targeted not only for transportation professionals, but also the elected officials who make transportation decisions. Collecting, synthesizing, and disseminating examples of successful innovations by States, MPOs, and transit operators, the Capacity Building initiative provides multiple mechanisms for getting critical information to decisionmakers. Moreover, it helps spread innovation in decisionmaking by publicizing the new techniques and strategies developed by State and local officials. This initiative has supported peer exchanges focusing on transportation modeling and fiscal constraint. A new course on metropolitan planning has been developed to provide public officials and staff with an overview of planning process expectations and options. A public officials briefing book has been prepared, directed specifically to helping elected officials understand their role and responsibilities, as well as the overall planning process. Additional activities are in development and will be disseminated over the coming year.

In addition to the involvement of the MPO, State DOT, and transit operators, TEA–21 made it very clear that new parties should be coming to the planning table at both the metropolitan and statewide levels. TEA–21 added a requirement that freight shippers and users of public transit be provided a reasonable opportunity to comment on transportation plans and programs. Among the most important parties to come to the planning table are local officials, and TEA–21 emphasized the importance of bringing non-metropolitan officials into the process. Most States have procedures for engaging local officials throughout their planning and programming processes. FHWA and FTA are working hard with States and MPOs to improve or otherwise enhance their efforts to bring non-metropolitan local officials, freight shippers, and users of public transit to the table and involve them in planning and programming.

FHWA and FTA have advanced several initiatives, including safety conscious planning, implementation of the Intelligent Transportation Systems (ITS) Architecture requirements, freight planning, work zone safety, and operational improvements. These efforts have contributed to congestion mitigation and enhanced safety consideration.

TRANSPORTATION PLANNING AND SMART GROWTH

Today, we frequently hear the term "smart growth"-a term that means different things to different people. FHWA views "smart growth" as a set of State and local policies and programs designed to protect and preserve valuable natural and cultural resources and make efficient use of existing infrastructure, while accommodating economic development and population growth. "Smart growth" policies link transportation projects with desired land use patterns in order to make more efficient use of infrastructure and reduce environmental impact. Land use and transportation have a symbiotic relationship. How development occurs can greatly influence regional travel patterns and, in turn, the degree of access provided by the transportation system can influence land use distribution. Transportation affects land use just as do affordable housing, good schools, and low crime rates.

State and local governments have the responsibility for establishing growth policies. Transportation agencies respect those policies and work with the State and local requirements. Smart growth can mean State and local land use strategies to

increase population and housing densities and make transit more viable, and it can also mean managing and operating existing highway, transit, and other transportation modes to maintain or improve performance for each mode without adversely affecting neighborhoods or urban centers. The goals for smart growth include knitting transportation improvement projects and public/private investments so that they merge as seamlessly as possible into the community; supporting the provision of mixed use development, where feasible, so that transit, bicycle and pedestrian facilities, and ferry boats are viable options to driving; and accommodating the flow of freight and passengers throughout the country so that the economy can continue to grow.

Smart growth does not mean pitting transit or any other mode against highways. We recognize that it is impractical to completely build our way out of congestion in our most congested metropolitan areas. But that does not mean that we think that new roads and improvements to the existing road network should be eliminated. It is not an issue of highways versus transit. It is an issue of expanding transportation choices and providing a balanced intermodal transportation system that allows for the efficient and economical movement of people and goods. In some areas that may mean more transit and in other areas it may entail significant roadway improvements, and in most areas it probably means both. It is up to State and local officials to decide how best to address their unique set of circumstances, and it is the Department of Transportation's role to help them best implement their decision.

While FHWA and FTA strongly believe that land use decisions are State and local decisions, and should remain that way, we do believe that there is much to be gained from more coordination among State and local planning, zoning, and housing authorities, and environmental and transportation officials, in reaching those decisions. We also believe that there should be more dialog between local decisionmakers and transportation professionals on the connections between land use and surface transportation-including, for example, more dialog between airport sponsors and metropolitan planning organizations. Such dialogs would allow us to learn from each other and produce better transportation outcomes.

FHWA's role in promoting "smart growth" is to provide technical assistance and training to our State and local customers concerning the linkages between transportation and land use. Along with FTA, we will work cooperatively with other Federal agencies such as the Department of Housing and Urban Development (HUD) and the EPA, to assist us with transportation-related issues, such as affordable housing or brownfields, to provide as much assistance as possible in the form of research, technical expertise, and training to local and State governments. At the same time, we will be mindful that the people of this country hold freedom of mobility as a cherished individual right.

In addition to the Metropolitan and statewide Capacity Building Program mentioned above, our efforts to help State and local governments make smart decisions about growth include support for the Transportation Enhancements Program, the Congestion Mitigation and Air Quality Improvement Program (CMAQ), the Transportation and Community and System Preservation Pilot Program (TCSP), and research in areas such as value pricing, modeling, and land use.

TRANSPORTATION AND COMMUNITY AND SYSTEM PRESERVATION PILOT PROGRAM (TCSP)

The TCSP program was created by section 1221 of TEA–21, as a competitive discretionary program to stimulate innovative strategies for using transportation investments to achieve economic growth, while simultaneously protecting the environment and ensuring a high quality of life. TCSP projects funded in fiscal year (FY) 1999 and fiscal year 2000 are demonstrating results that include: developing new analytical tools to assess the impacts of transportation and land use alternatives on mobility and economic development; expanding the range of partners involved in transportation and land use planning; and demonstrating design practices that increase travel options and improve the character of local communities. For example, TCSP grants are being used in Mono County, California; Centreville, Delaware; and Cleveland, Ohio to investigate design changes that can improve safety and pedestrian access, while still maintaining traffic flow, where high-traffic roads run through community centers. A TCSP project in Oregon will survey the impact on travel patterns of telecommuting centers being developed in rural Oregon by the Oregon Department of Energy.

TCSP was authorized in TEA–21 at $25 million per year. The response to the program has been positive—between fiscal year 1999 and fiscal year 2002, we received approximately 1,332 applications totaling $906 million in response to Federal Reg-

ister Notices. With the pending announcement of fiscal year 2002 TCSP awards, there will be a total of 420 TCSP grant awards.

A significant number of TCSP projects in fiscal year 2001 and 2002 were designated in congressional committee reports. While many of these projects might not have been selected in a competitive process similar to the one used to recommend the fiscal year 1999 and 2000 TCSP discretionary awards, we can state that all projects that have received funds are statutorily eligible.

Although FHWA believes that a truly discretionary program, administered through a competitive merit-based process, would allow us to better maximize the benefits of the TCSP program, we are working aggressively to ensure that the funds provided for TCSP projects are used to advance the program's goals as established in TEA–21.

TCSP outreach efforts by FHWA, including a comprehensive report on the first 3 years of implementation based in part on interviews with grantees, have elicited suggestions for improving TCSP in reauthorization. Suggestions include: award future TCSP grants through a competitive process; continue to emphasize learning and knowledge transfer; and maintain a focus on both planning and implementation.

CONCLUSION

ISTEA and TEA–21 have provided us a solid and balanced structure around which to shape reauthorization legislation and we will build on the programmatic and financial initiatives of these two historic surface transportation acts. To this end, we will apply the core principles enunciated by Secretary Mineta in testimony before this committee in January, including:

- Building on the intermodal approaches of ISTEA and TEA–21; * Preserving funding flexibility to allow the broadest application of funds to transportation solutions, as identified by State and local governments; and
- Simplifying Federal transportation programs and continuing efforts to streamline project approval and implementation.

In reauthorization, we want to work with this committee and with our partners in the transportation community to find additional means of assisting States to strengthen and improve their transportation planning processes to better achieve not only their transportation goals but their other societal goals as well.

Mr. Chairman, thank you again for the opportunity to testify. I look forward to responding to any questions you may have.

RESPONSES OF CYNTHIA BURBANK TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Transportation Planning and Smart Growth

Question 1. A recent report by the Transportation Research Board on long-term research needs states, "Research on transportation and the environment has only recently begun to explore in any significant depth the complex relationships among land development patterns, transportation investments, travel behavior and consequent environmental impacts." Please comment on the practicalities of implementing a "smart growth" program given our limited understanding of these relationships.

Response. FHWA's approach to Smart Growth recognizes the limits of our knowledge of the complex relationships among land use, transportation, and environment. Our approach relies on (a) research into these relationships, often via case study approaches and through research partnering with other organizations; and (b) deference to State and local governments in establishing and carrying out land use and Smart Growth policies, based on the circumstances and community values on issues such as economic growth and environmental quality in each State or area.

Question 2. How can we develop a more outcome-oriented transportation planning process that relies less on mandatory planning processes?

Response. FHWA has initiated Planning "Capacity Building" programs to improve the planning process through best practices, case studies, training, peer-to-peer exchanges, and technical assistance tools. This is a cooperative effort with Federal Transit Administration (FTA), the American Public Transit Association (APTA), the Association of Metropolitan Planning Organizations (AMPO), the National Association of Regional Councils (NARC), and the American Association of Highway and Transportation Officials (AASHTO).

As part of this Capacity Building initiative, we are focusing on "performance-based planning," which several States and metropolitan planning organizations (MPOs) have undertaken. We will disseminate information and case studies on per-

formance-based planning and will encourage all States and MPOs to adopt performance-based planning, which focuses on establishing outcome goals, tracking progress, and making adjustments as needed to achieve those outcome goals.

STATEMENT OF KENNETH J. LEONARD, DIRECTOR, BUREAU OF PLANNING, WISCONSIN DEPARTMENT OF TRANSPORTATION, ON BEHALF OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

Founded in 1914, AASHTO represents the departments concerned with highway and transportation in the 50 States, the District of Columbia and Puerto Rico. Its mission is a transportation system for the Nation that balances mobility, economic prosperity, safety and the environment.

TEA–21 REAUTHORIZATION—STATEWIDE TRANSPORTATION PLANNING

AASHTO Recommends that Congress Consider the following:

Freight

- Provide funding to support the development and implementation of a training and capacity-building program to strengthen the ability of State and local transportation agencies to effectively address freight transportation issues.
- Provide funding for the FHWA research program to support freight transportation research that includes the private sector, and allows the pooling of U.S. DOT modal agency funds.
- Establish and fund a Freight Transportation Cooperative Research Program.
- Strengthen the transportation data programs and link them to national, State and local planning for freight transportation.
- Authorize a Freight Advisory Council that will communicate to U.S. DOT, State DOTs, and others the industry's needs and issues.

Financial Constraint

- Calculate financial constraint based on total dollars in the program compared to total revenue available, including both Federal and State funds.
- Allow flexibility in the documentation requirements used by States to demonstrate financial constraint.
- Revise financial planning and financial constraint requirements for mega-projects to get away from the "one size fits all approach" that impacts all projects over a certain cost level.
- Permit the States and implementing agencies to cooperatively develop definitions of "anticipated full funding" and "reasonably available."
- Permit projects for which discretionary funding is being sought to be included in financially constrained TIPs.
- Permit a 10-year fiscal constraint time horizon for purposes of the metropolitan long range transportation plan.

Major Investment Studies

- Direct U.S. DOT to eliminate the MIS requirements effective immediately and not make elimination of the MIS contingent on the issuance of new regulations.
- Authorize State DOTs and MPOs to develop optional procedures (with public transit operators, as appropriate) through which decisions reached in the statewide and metropolitan planning process regarding purpose-and-need and range of alternatives would be binding in the NEPA process.

Planning Timeline

- Continue to provide flexibility to States as to the content of statewide Long Range Transportation Plans, performance measures and planning horizons so long as a minimum 20-year horizon is maintained.
- Change the update cycle for Long Range Metropolitan Transportation Plans from 3 years to 5 years.

Land Use and Smart Growth

- Continue to defer to local and State governments on whether and how to consider land use in the course of transportation planning.

Consultation

- Continue the existing balance of decisionmaking authority between the MPO, the State and local officials.

Planning Roles and Responsibilities

- Maintain the current balance of responsibility for the development of highway transit and intermodal projects, and reaffirm the leadership role and authority of the States.
- Retain the current definitions of planning "consultation, cooperation and coordination."
- Retain the existing program structure rather than authorizing new set-asides or program categories.

Mr. Chairman, my name is Ken Leonard. I am the Director of the Bureau of Planning at the Wisconsin Department of Transportation. I am speaking today on behalf of the American Association of State Highway and Transportation Officials (AASHTO) in my role as vice chairman of the AASHTO Standing Committee on Planning.

Mr. Chairman, thank you on behalf of the State transportation officials across the country for inviting AASHTO to participate in this hearing to examine the State of the transportation planning process. My testimony today will address a number of specific planning issues that have drawn attention, including freight planning capacity, financial constraint provisions, local consultation, performance-based planning and the role of State department of transportation (DOTs) with respect to land use. First, I want preface my remarks with the observation that the statewide transportation planning process is very complicated, in part because of the very complex set of transportation challenges that the transportation planning process must address, but also because of the many layers of Federal and State transportation and environmental statutes and directives that guide the process. From our perspective, the goal should be to simplify the process and not add further complexity.

Federal law has long established that the Federal-aid highway program is a "federally assisted State program". The program has evolved through the years and, in addition to providing roles for Federal and State officials, provides roles for local governments and Metropolitan Planning Organizations (MPOs).

The Intermodal Surface Transportation Efficiency Act (ISTEA) was important as the first piece of transportation legislation in the post-Interstate era. ISTEA set in motion a positive effort toward implementation of a responsive transportation program designed to meet a diversity of national transportation needs.

ISTEA placed a strong emphasis on the transportation planning process, including much more emphasis on public involvement. In addition, ISTEA included 23 planning factors for use in statewide planning, and 16 planning factors for use in Metropolitan Planning. While much of this type of analysis and public involvement was already being done by many State DOTs, ISTEA placed stronger emphasis on these matters.

The successor to ISTEA, the Transportation Equity Act for the 21st Century (TEA–21) consolidated the planning factors into seven, including:

- Support the economic vitality of the Nation, the States and MPOs.
- Increase the safety and security of the transportation system for motorized and non-motorized users.
- Increase the accessibility and mobility options for people and freight.
- Protect and enhance the environment, promote energy conservation and quality of life.
- Enhance the integration and connectivity of the transportation system, across and between modes throughout the State for people and freight.
- Promote efficient system management and operation; and
- Emphasize the preservation of the existing transportation system.

TEA–21 also included a provision that failure to consider any one of the planning factors is not actionable in a court of law. In part, this recognizes the need to allow diverse approaches that reflect the unique conditions in each State—i.e., State constitutional and statutory requirements, geographic size and population, institutional history, political environments and differing transportation challenges, needs and priorities. Despite its complexity, the post-Interstate transportation planning process has evolved effectively because of support for innovation, understanding of the need for flexible approaches and emphasis on training, technical assistance and information sharing rather than command and control oversight.

Current Transportation Planning Practices and Innovative Approaches

The current framework for statewide and metropolitan transportation planning was established in TEA–21 and its predecessor ISTEA. In the past decade, we have seen significant changes in the transportation planning process. We have strengthened the stakeholder and public involvement, and established multi-modal planning processes that take into account a broad array of factors, including community input

and goals, economic development, improved access to transportation facilities and services for all, and enhanced environmental quality and protection.

In addition, there has been a renewed focus on attainment of the Federal clean air standards, and with that we have incorporated transportation conformity requirements into the planning process. The objective of transportation conformity is to better harmonize transportation and air quality planning and to ensure that transportation investments do not thwart clean air goals.

While the transportation planning processes within the States and metropolitan areas are generally sound and should be retained, some improvements can be made to simplify and improve the efficiency and effectiveness of the process. However, in doing so, we need to ensure that new requirements are not added that will encumber the processes that have evolved over the past decade. In addition, the U.S. DOT should continue and enhance its training, technical assistance, capacity building and information sharing efforts.

Greater Focus on Freight in the Transportation Planning Process

Both ISTEA and TEA–21 emphasize the need for increased attention to freight movement in their planning factors. States have been including the freight system in their statewide multimodal transportation plans as required first by ISTEA. As part of this effort, Wisconsin, and a number of other States, include a freight advisory committee as part of their planning process that engages both freight transportation providers and shippers.

Recognizing the increased importance of freight transportation, AASHTO has created a new committee to focus on freight, the Special Committee on Intermodal Transportation and Economic Expansion.

AASHTO has also been putting increased emphasis on freight planning in its tools development and capacity building for States and MPOs. Currently we are funding a research project on "Best practices in statewide Freight Planning" which will examine planning in States where efforts have been made to better understand goods movement. The lessons learned in this project will then be passed on to other States and MPOs. We will also be conducting a workshop this year on the need for better intermodal freight connections. The objective of this workshop will be to improve the awareness within States and MPOs of intermodal freight needs.

In addition, AASHTO is sponsoring an increasing amount of freight research through the National Cooperative Highway Research Program administered by the Transportation Research Board (TRB). I am personally chairing a research project for $500,000 to develop "Methods for Forecasting statewide Freight Movements and Related Performance Measures". The results of this research should improve our ability to predict future freight movements so we can plan and construct facilities accordingly. Another research project is entitled "Freight Movement by Rail—Impacts and Opportunities". This project will examine the relationships between rail and other freight modes to identify opportunities for rail as part of an optimum mix.

To facilitate freight consideration in the planning process, AASHTO recommends the following actions:

- $10 million annually should be provided to support an initiative through which the U.S. DOT and the State DOTs will jointly develop and implement a training and capacity-building program to strengthen the ability of State and local transportation agencies to effectively address freight transportation issues.
- Congress should increase funding for the FHWA research program to support freight transportation research that includes the private sector, and allows the pooling of U.S. DOT modal agency funds. A Freight Transportation Cooperative Research Program should be created and funded in the range of $5 million to $7.5 million annually. The transportation data programs should be strengthened and linked effectively to national, State and local planning for freight transportation.

AASHTO's recommendations to Congress also include support for authorizing a Freight Advisory Council that would communicate to U.S. DOT, State DOTs and others with one voice the industry's needs and issues.

Financially Constrained Plans

ISTEA included a provision for a financially constrained Transportation Improvement Program (TIP) and State Transportation Improvement Program (STIP). Subsequent FHWA regulations defined this requirement to mean fiscal constraint by type of fund and year, with no over-programming.

TEA–21 continued requirements for financial constraint for State Transportation Improvement Programs (STIPS) and urban Transportation Improvement Programs (TIPS). The intent of these requirements was to match program-level project commitments to overall resources at the planning and program development stage in order to avoid the creation of wish lists of projects for which funds might not be

realistically available for the foreseeable future under any circumstances. While the expectation for a fiscally constrained planning and programming process is both reasonable and beneficial, in practice it is sometimes being applied to cash-flow and project management.

From the State DOT perspective, the financial constraint requirement makes it difficult for States to make adjustments needed as to which projects can move forward to obligation and letting. States need flexibility in managing their programs to be able to make adjustments should a project become delayed. The financial constraint provision makes it difficult to move forward another ready project for funding should a project in the STIP be delayed for any reason. It is equally difficult to move forward with projects when unanticipated State initiatives make additional funds available.

The TEA–21 reauthorization legislation needs to provide sufficient flexibility in financial constraint and timing to allow States to deal with unexpected delays in project development and in working with their State legislatures to obtain adequate funding. State DOTs and MPOs need flexibility and discretion in the development of their STIPs and TIPs to enable them to deal with the realities of cash-flow, uncertainties in project schedules, and fluctuating funding levels. Moreover, when air quality and other environmental laws are paired with financial constraint requirements, it creates a bureaucratic maze that delays needed projects and prevents States from concluding the NEPA process on large, multi-phase projects whose costs are spread over a long time period.

AASHTO believes that the TEA–21 reauthorization legislation should increase flexibility related to financial constraint in State and Metropolitan Transportation Improvement Programs. AASHTO recommends legislative changes that:

1. Calculate financial constraint based on total dollars in the program compared to total revenue available, including both Federal and State funds. 2. Allow flexibility in the documentation requirements used by States to demonstrate financial constraint. 3. Revise financial planning and financial constraint requirements for mega-projects to get away from the "one size fits all approach" that impacts all projects over a certain cost level. 4. Permit the States and implementing agencies to cooperatively develop definitions of "anticipated full funding" and "reasonably available". 5. Permit projects for which discretionary funding is being sought to be included in financially constrained TIPs. 6. Permit a 10-year fiscal constraint time horizon for purposes of the metropolitan long range transportation plan.

In practice, the problem with the Financially Constrained Plan is that it is too strictly applied, and has become more of a cash-flow financial management instrument.

Major Investment Studies

In October, 1993, FHWA issued revised regulations implementing the planning provisions of ISTEA. These revised regulations included a new concept—the major investment study or MIS, which was not specifically required in ISTEA itself.

The regulations required an MIS for any "major metropolitan transportation investment" where "Federal funds are potentially involved". The regulations defined a major investment as a "high-type highway or transit improvement of substantial cost that is expected to have a significant effect on capacity, traffic flow, level of service, or mode share at the transportation corridor or subarea level".

Two options were allowed for preparing an MIS. Under "Option 1 ", the MIS was prepared as a stand-alone study prior to the NEPA process. Under "Option 2", the MIS was combined with the EIS into a single document.

The two options for the MIS raised significant concerns:

- Option 1 MIS (prepare MIS, then EIS): When Option 1 was used, the "decisions" made in the MIS process were often discarded when the NEPA process began. In effect, it became necessary to start over again in the NEPA process, which caused the MIS process to lose credibility among agencies and the public.
- Option 2 MIS (prepare MIS and EIS together): While the Option 2 MIS avoided the problems with Option 1, it also provided less flexibility. The Option 2 MIS was, in fact, an expanded EIS; it did not provide a vehicle for conducting a corridor-level planning study before making a commitment to prepare a full EIS for a specific project.

In reaction to the experience with the MIS, Congress enacted Section 1308 of TEA–21 which directed U.S. DOT to "eliminate the major investment study . . . as a separate requirement and promulgate regulations to integrate such requirement, as appropriate, as part of the analysis required under the planning and NEPA processes for highway and transit projects.

Section 1308 also provided that "the scope of the applicability of such regulations shall be no broader than the scope of such section".

In May, 2000, FHWA and FTA issued a notice of proposed rulemaking (NPRM) for new statewide and metropolitan planning regulations. Pursuant to Section 1308 of TEA–21, the proposed regulations would have eliminated the MIS as a stand-alone requirement. However, the proposed regulations also would have created a new requirement with broader application.

In its comments on the NPRM, AASHTO strongly opposed the MIS integration provisions in the FHWA's proposed planning regulations. AASHTO raised several objections, including:

• The proposal created a new requirement that applied to all projects, not just major investments. Because the new requirement was broader in its applicability than the original MIS regulation, it directly contradicted Section 1308 of TEA–21. * The new requirement created a mandatory process, which had the potential to become extremely resource-intensive. * The new process did nothing to ensure that decisions made in the planning stage would be accepted in the NEPA process.

AASHTO's recommendation regarding the MIS issue when it is considered in the reauthorization of TEA–21 is that Congress direct U.S. DOT to eliminate the MIS requirement effective immediately, and not make elimination of the MIS contingent on the issuance of new regulations.

AASHTO also recommends that Congress authorize State DOTs and MPOs to develop optional procedures (with public transit operators, as appropriate) through which decisions reached in the statewide and metropolitan planning process regarding purpose-and-need and range of alternatives would be binding in the NEPA process.

Planning Timelines

With regard to State Long Range Transportation Plans, Congress should continue to provide flexibility to States as to content of Long Range Plans, performance measures and planning horizons so long as a minimum 20-year horizon is maintained.

TEA–21 required that each MPO develop a Metropolitan Long Range Transportation Plan with a minimum 20-year forecast period. Metropolitan planning provisions in TEA–21 establish general guidelines for State DOTs, MPOs and transit agencies to follow in updating MPO plans, which FHWA requires every 3 years.

However, in a 3-year update cycle, MPOs don't have adequate time to improve their data collection and modeling processes. Further, the 3 year update cycle makes it difficult to involve the public since the planning agency is always in a continuous update cycle. If the update cycle was changed to 5 years, MPOs would be able to strengthen the planning process by improving the data and updating their modeling tools.

To overcome the problems listed above, AASHTO advocates that Congress change the update cycle for Long Range Metropolitan Transportation Plans from 3 years to 5 years.

Land Use and Smart Growth

TEA–21 requires consideration of projects and strategies that will, among other things, "increase accessibility and mobility options" and "enhance the integration of the transportation system." These parallel considerations are often included in land use planning activities. TEA–21 correctly eliminated any specific reference to State-level responsibility for land use planning in recognition that States only rarely have authority to directly make land use decisions.

Land use has historically been considered to be a local government function. Most States, as a matter of State law or practice, defer most or all land use decision-making to local units of government. Land use reflects a number of local circumstances, and local officials should have the responsibility to determine land use for their particular area. Trying to legislate one particular approach to land use—a "one size fits all" approach—simply would not be workable from an interjurisdictional perspective.

Congress should ensure that Federal statutes continue to defer to local and State governments on whether and how to consider land use in the course of transportation planning.

With regard to Smart Growth, Wisconsin has "Smart Growth" legislation, and has worked cooperatively with local units of government and developed a "Transportation Guide" for the local communities to use in developing their comprehensive plans. This stresses the importance of planning for land use and transportation together once the community has determined its vision.

AASHTO has several Smart Growth related activities underway, including:

• Sponsoring meetings and working with State DOTs, U.S. DOT and other organizations on Context Sensitive Design. AASHTO supports Context Sensitive Design, and attention to the way streets and highways are routed or redesigned through liv-

ing areas to lessen any negative effects they may have on the livability of an area. AASHTO is developing a guide on context sensitive design, which is slated for publication later this year. * Through a grant from FHWA and EPA, AASHTO is sponsoring a Smart Growth competition to highlight new and innovative Smart Growth initiatives being tried around the country.

• AASHTO has launched an Environmental Stewardship initiative to assist State DOTs in capacity building efforts to deliver needed transportation projects in a manner that preserves and enhances our environment.

Under this Environmental Stewardship initiative, AASHTO is working with FHWA, other Federal agencies, and environmental organizations in the establishment of a Center for Environmental Excellence,

AASHTO is also sponsoring an Environmental Stewardship pilot program to again disseminate information about best practices in working with the environment.

Several State DOTs, such as New York, have incorporated environmental stewardship into all facets of their operations, whether planning and designing new facilities, or maintenance activities such as grass cutting.

Are the appropriate parties being included in the process?

Congress should continue the existing balance of decisionmaking authority between the MPO, the State and local officials. This would continue already proven arrangements that have worked well for a decade and been agreed to by transportation officials and professionals nationwide.

In particular, the current relationships in rural areas should remain unchanged. Rural transportation planning already is fully encompassed by the statewide planning provisions of 23 USC section 135, which have been institutionalized nationally since ISTEA. Indeed, in most States a comparable rural/statewide transportation planning process was in place before ISTEA.

Much has been said about the changes that TEA–21 made to consultation with rural officials. In fact, a review of the language in both statutes reveals that the net effect of the changes is that, with respect to nonmetropolitan areas, States are to consult not only with certain "elected officials", but also with affected local officials "with responsibility for transportation."

There is no question that there must be consultation, and we believe that in most States this is taking place. Where local officials are being left out of planning discussions, we believe that FHWA should consider some type of case-by-case action to ensure consultation. However, failure by one State or area to consult should not become the basis for imposing broad regulations that dictate how the States should consult with their local officials.

In Wisconsin, rural planning is a collaborative effort between the States, regional planning commissions and local government. This arrangement goes back to the 1960's. These parties coordinate their planning activities utilizing advisory committees, intergovernmental committees, guidance documents, association meetings, public involvement, etc. In addition, Wisconsin has a Local Roads and Streets Council composed of all levels of government: counties, towns, villages, cities and State. This council develops and evaluates local road data and develops policy initiatives based on that data as well as evaluates policy and program options on funding. Other States have similar arrangements for their local planning depending on their unique institutional and statutory authority.

Have the planning partners been given the proper roles and mandate?

In recognizing statutorily that the Federal-aid highway program is a "federally assisted State program", TEA–21 acknowledges two centuries of federalism. Implicit in this recognition is an appreciation of the central role that the States perform in the development of our surface transportation system, even as other jurisdictions and institutions—local government, MPOs, tribal governments and Federal agencies—have come to play important parts. The nation is well-served by the current balance of responsibility for the development of highway, transit and intermodal projects, and AASHTO recommends that Congress maintain this balance and reaffirm the leadership role and authority of the States as TEA–21 is reauthorized.

Congress should continue TEA–21's decisionmaking responsibilities, processes, and procedures for planning, programming and project selection. This means retaining the balance of decisionmaking between States and MPOs, and State and rural officials; retaining the current definitions of planning "consultation, cooperation and coordination," and meeting needs through the existing program structure, rather than through new set-asides.

Do planning organizations have adequate capacity, tools and resources to carry out their assigned role and responsibilities?

AASHTO is working closely with the Federal Highway Administration, the Federal Transit Administration, the Association of Metropolitan Planning Organizations, and the National Association of Regional Councils to develop and deploy various capacity building tools to assist transportation planners. Several initiatives are included in this activity, including a web site where transportation planning assistance can be disseminated.

In addition, AASHTO has been working closely with the Transportation Research Board (TRB) to continue to improve planning tools. There are on-going projects related to safety, freight planning, rural planning, public involvement, economic benefits, and innovative financing. There are additional needs for techniques to deal with capacity needs to support the nations' economy, accelerating the renewal of our highways, providing reliable travel times, and making improvements in highway safety. In fact, in these four areas, AASHTO is working cooperatively with FHWA to identify research needed to address these problems. These research proposals will be completed in time to be considered during reauthorization of TEA–21.

However, if there are increases in requirements through the Federal legislative or regulatory process, it will be difficult to meet them through the planning process. Currently, planning and research for States and their localities is supported by 2 per cent of certain Federal aid categories. If the overall Federal program grows, planning funds should be sufficient. But if the program does not grow, there will not be enough planning funds to keep up with new challenges let alone any new requirements. For years, Wisconsin has shared its planning funds with the MPOs, regional planning commissions and local government. This is becoming much more difficult. In addition, research at the national level is critically under funded.

Summary

As statewide and Metropolitan planning issues are considered in the reauthorization of TEA–21, it is important to recognize the differences among States and provide adequate flexibility. The reauthorization legislation needs to include flexibility that allows States and MPOs to adapt it to different parts of the country based on government structure, geography, population and a number of other important factors.

In addition to legislative changes, AASHTO is particularly concerned about any Federal planning regulations that may come forward after the reauthorization legislation is passed. AASHTO strongly believes that such regulations should be consistent with congressional intent.

Thank you for allowing me to present AASHTO's perspective on these issues. AASHTO is available to work with you and your staff on these important issues that will be considered in the reauthorization of TEA–21. I would be happy to answer any questions here, or in writing.

RESPONSES OF KENNETH LEONARD TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question. Do you feel that computer simulations, an example of which would be TRANSIMS, are (or could be) valuable in the planning process? Are, or could they be, effective in the examination of various planning options?

Response. A computer simulation approach to estimating and analyzing travel in a metropolitan area holds great potential for evaluating a number of issues currently of concern to policymakers at the Federal, State, metropolitan and local level. The principal development effort for a computer simulation approach has been through the TRANSIMS project under the sponsorship of the U.S. Department of Transportation and Environmental Protection Agency. Because TRANSIMS models the travel of individual travelers and vehicles as opposed to predicting aggregate travel for entire zones, it has the potential to more accurately estimate travel as well as to address a number of issues that current travel demand models are unable to address. These issues include, for example, analysis of travel by various segments of the population, differences in travel characteristics by time of day, the effects of a number of traffic operations and Intelligent Transportation System (ITS) measures, the effects of priority treatments for transit and/or high occupancy vehicles, as well as the effects of changes in the amount of transit or highway capacity provided. The potential value of TRANSIMS lies with its simulation which has significant advantages over the traditional 4-step traffic models. Transportation planners, in particular, have long sought the capability to simulate travel on roadway net-

works, but have only recently been given the software and hardware needed to apply simulation.

TRANSIMS gives planners the ability to see how traffic actually moves through the network, demonstrating how traffic responds to network and other conditions that affect traffic. It also provides information on how individual vehicles and groups of vehicles function in their surroundings. This capability is important because it permits the planner to work with the traffic engineer to understand and use simulation results to improve traffic flow conditions and thereby help both to better deal with actual conditions. The simulation in TRANSIMS also permits a better understanding of traffic congestion by forecasting when vehicle travel will be initiated, thereby demonstrating how congestion propagates.

Probably equally important is the information that simulation provides on the operating conditions of motor vehicles, thereby permitting better understanding of how travel patterns and traffic conditions affect motor vehicle engine performance and the resulting air quality in the vicinity of roadways. Second-by-second simulation of vehicle movements for every vehicle on the transportation system will allow for much more accurate estimates of vehicle emissions, taking into account vehicle acceleration, deceleration and idling characteristics, as well as cold start and evaporative characteristics after the vehicle has been turned off. This offers the potential for much more accurate and detailed analysis of the effects of proposed Transportation Control Measures for air quality.

Because of the level of complexity of the computer simulation approach used by TRANSIMS, the development of the model has proven to be more complicated and time consuming than originally anticipated. Until the model is operational and used in an actual metropolitan area (the first application is expected to be in Portland, Oregon), the full potential, benefits and costs of the model will not be known. Of specific concern is the amount of data that may be required to make the model an effective analysis tool in any particular metropolitan area. Because TRANSIMS is a radical departure from current travel demand modeling approaches, there will be special challenges in educating the transportation planning community in how to use it and in acquiring the necessary computer hardware to operate such a complex, computer resource intensive model. AASHTO is supportive of the continued development of TRANSIMS due to its potential as an analysis tool, but cautions that it is still too early to understand all the issues that are associated with its use throughout the transportation planning community.

RESPONSES OF KENNETH LEONARD TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. What would be the impact of a legislative mandate for greater consistency in the incorporation of local governments into the transportation decisionmaking process, as has been suggested by the National Association of Regional Councils?

Response. The States have greatly varied needs, resources and environments that call for flexibility in order to give each State the ability to adapt its process to its unique social, political, geographical, legislative and constitutional circumstances. Each State has developed its own process for consulting with local officials that reflects and conforms to these unique factors.

The AASHTO interim position on TEA–21 Reauthorization, in speaking to this issue, states:

Recognizing that the Federal-aid highway program is a "federally assisted State program," Congress should continue TEA–21's decisionmaking responsibilities, processes and procedures for transportation planning, programming and project selection. This means retaining the balance of decisionmaking between the States and MPOs, and States and rural officials; retaining the current definitions of planning "consultation, cooperation and coordination," and meeting needs through the existing program structure.

While preserving State leadership and authority in the development of transportation plans, programs and projects, the TEA–21 Reauthorization should also respect the roles of other jurisdictions, institutions and the public and their involvement in the transportation planning process.

Question 2. Is there a shortage of qualified transportation engineers and planners, and if so, how has it contributed to the challenges faced by the transportation planning process, and what can be done to solve this problem?

Response. According to a May, 2001 NCHRP report titled Managing Change in State Departments of Transportation, issued May 2001, "State departments of transportation face severe challenges in recruiting and maintaining their

workforces". State DOTs are looking for innovative ways to recruit and retain the necessary workforce.

State DOTs are facing shortages of not only transportation engineers and planners, but also of personnel who are able to use new technology.

The growing complexity of the transportation planning process makes it difficult for State DOTs to handle the growing range of issues that are considered. This complex transportation planning process that includes such challenging items as travel modeling, economic analysis, financial planning, public involvement and additional items make it difficult for State DOTs to recruit and train sufficient staff with the broad range of needed skill sets.

States DOTs are addressing this workforce issue by increasing their efforts in recruitment and retention. As a longer term solution, they are strengthening professional development programs and establishing succession programs and processes. In the shorter term, many State DOTs are using private consultants to help keep projects moving.

In Wisconsin, the department provides support to the university transportation center to promote the education of transportation professionals and regularly participates in university job fairs and class lectures promoting careers in transportation engineering and planning.

Again, I appreciate the opportunity to testify before your committee on May 15, and I am available should you or your staff have additional questions or need additional information.

STATEMENT OF DR. RONALD KIRBY, DIRECTOR OF TRANSPORTATION PLANNING, NATIONAL CAPITAL REGION, TRANSPORTATION PLANNING BOARD, METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

Mr. Chairman and members of the committee, I am Ronald Kirby, Director of Transportation Planning for the National Capital Region Transportation Planning Board, the Metropolitan Planning Organization for the Washington, DC region. I am appearing today at your invitation on behalf of the Association of Metropolitan Planning Organizations (AMPO) of which I am an active member, serving as vice chairman of its Management Committee and a member of its Policy Committee.

I want to thank you and the members of the committee for holding this series of hearings to review critical issues surrounding the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21).

This act and its predecessor, ISTEA, rightfully recognized the importance of planning a metropolitan transportation system and gave me and my colleagues at 340 other MPOs increased responsibility to develop effective strategic long-range plans and comprehensive, multi-modal transportation improvement programs. With the 2000 census we expect that an additional 61 MPOs will be established to serve newly designated urbanized areas, and that the geographic areas and populations served by existing MPOs will grow significantly.

While new responsibilities such as management and operations have been added to MPO requirements by TEA–21, the percentage of highway program funding for metropolitan planning has remained at the 1 percent level set in ISTEA. It is time to increase the takedown from the highway program and the amount allocated from the transit program. This will reflect a) the almost 20 percent increase in MPOs resulting from the 2000 census, b) the increasingly urbanized U. S. population coming under the rubric of existing MPOs, and c) the increased MPO responsibilities created by enhanced planning provisions and requirements. AMPO suggests the takedown be increased to 2 percent of the overall program.

I understand your interest is in exploring the lessons learned from the 10 years of experience with metropolitan planning since the enactment of ISTEA in 1991, the adequacy of the planning tools available, the adequacy of resources to perform metropolitan transportation planning, and whether the right groups have been at the table during the development of plans and programs. I would like to provide you with a few initial thoughts: we need to retain key provisions in the planning process, increase the resources for plans and projects, and venture into new areas to improve planning and implementation of our metropolitan transportation systems.

I classify the tools for planning in three categories: 1) tools that are working effectively and we should retain, 2) tools that work effectively and we should expand, and 3) new tools we need to continue effective planning.

First, we should retain tools that are working effectively. The requirement for a financially realistic plan and a fiscally constrained program is the most effective tool provided by ISTEA and TEA–21. This requirement eliminated "wish list" plans and programs which did not identify enough funds for implementation. This financial

constraint requirement gave credibility to the MPO plans and programs and presented the public with a realistic view of what can be delivered in the way of transportation projects and services. It is imperative that this requirement be retained.

Any dilution of the fiscal constraint requirement may find us over-promising transportation improvements and losing our credibility with our customers. Citizens and users of our metropolitan transportation systems who rightfully complain about congestion and unreliability in parts of our system will not countenance papering over the problem with wishes for projects that cannot be delivered.

In addition to financial constraint, two ancillary tools in TEA–21 should also be retained: 1) the requirement for cooperative revenue forecasting among MPOs, States and transit authorities and 2) the requirement for an annual listing of obligated projects to be prepared by the MPO.

Along with financial tools, the overall planning approach established in ISTEA and TEA–21 should be retained. The requirement that long range plans be strategic in nature with broad community goals and specific objectives places the transportation agenda in a broader context, encouraging the linkage between transportation, land use, the economy and the environment in a metropolitan area.

When this approach is combined with early and extensive involvement of the community, the MPO has a solid basis for developing its long-range plan and transportation improvement program. ISTEA and TEA–21 transformed the long range plan from a twenty-year listing of transportation projects to a blueprint for community development which indicates the appropriate contribution transportation investment can make to that development.

In the Washington metropolitan area, these ISTEA and TEA–21 tools have, in the words of one of our elected officials, "forced us to ask the right questions." Application of the financial constraint in the early–1990's resulted in a rather stressful prioritization of transportation improvements for inclusion in the long-range plan, and the initiation of a visioning process aimed at developing a broad consensus on regional transportation goals and addressing the critical funding needs we had identified. The Transportation and Community and System Preservation Program (TCSP) has allowed us to pursue previously unaddressed goals in our new vision regarding a system of regional greenways and circulation systems within regional activity centers, and to focus increased attention on these areas in the project selection process.

Second, we believe we should expand some of the existing tools that work effectively. Two tools have been effective and should be expanded: 1) ensuring that adequate planning resources are available to MPOs, and 2) making project funds available directly to MPOs.

As you may know, MPOs receive planning funds via a small percentage take-down from the Federal highway authorization and a line item amount from the transit authorization. ISTEA set the percentage for the highway program at 1 percent, a reasonable figure given the increased responsibilities asked of MPOs and the understanding that involving the public in transportation decisionmaking would require appropriate additional resources. With the increased urbanization of America, AMPO believes that it is time to increase the takedown to 2 percent to serve an increasing number of MPOs and a growing percentage of our population in existing MPO areas.

Regarding funds to build projects, ISTEA and TEA–21 for the first time put funds in the hands of local elected officials to assign to projects developed cooperatively through the MPO process. Each MPO with more than 200,000 in population receives a portion of the Surface Transportation Program (STP) funds allocated to its State to expend on specific projects. These funds can be programmed based on the MPOs' best judgment on the transportation needs of their metropolitan areas. The funds are made available by the States through "suballocation."

The availability of these funds not only provides funding for vital local projects, but also encourages local officials to get involved in the transportation decisionmaking for their region, since, as they say, there is "real money" on the table. Suballocation of STP funds has been an outstanding success for the one-third of the MPOs that have populations over 200,000, and needs to be expanded to the remaining two-thirds of smaller areas that still have pressing needs for their regions. AMPO suggests: 1) restoring the suballocation of the STP minimum guarantee funds and extending the suballocation of urbanized STP funds to all MPOs, and 2) suballocating CMAQ funds to MPOs in air quality non-attainment and maintenance areas.

Third, let us look at possible new tools to improve the effectiveness of metropolitan transportation planning.

In order to complement the financial constraint requirement and suballocation proposal, it would be helpful to require States to account annually for expenditures

of NHS and other programs. This would allow for a clear and comprehensive assessment of the effectiveness of plan implementation. In other words, "did we build what we planned?"

Once we have built facilities, and managed and operated the system, we should determine how effective we have been. MPOs need better data on the use of the metropolitan transportation system. AMPO suggests two tools to measure effectiveness: 1) invest resources in monitoring devices to track use of our transportation facilities, the so-called "Infostructure," and 2) encourage the development of a performance-based management and operation element within MPO plans and programs. To give local officials the greatest flexibility in applying solutions to our metropolitan transportation needs, we recommend that the law make clear that NHS, STP and CMAQ funds may and should be used for projects that manage and operate the system.

Another area of transportation planning, freight planning, needs some new tools. While consideration of freight is a planning factor, it is time to give MPOs greater capability to develop and apply solutions to freight needs. AMPO proposes that the reauthorization bill broaden the eligibility of freight project funding, provide incentives to attract private investment, and allow port access and gateways to be eligible for the "corridors and borders" program.

Finally, we feel new tools are needed to streamline project delivery and air quality conformity processes. The MPO planning process offers untapped opportunities to identify environmental issues and incorporate them into the process of defining project alternatives. To take advantage of these opportunities, we propose that the reauthorization bill 1) require that both Federal project-sponsoring and resource agencies participate in the MPO corridor planning process, 2) allow concurrent review processes, and 3) provide incentives for demonstrating innovative streamlining techniques.

Regarding air quality conformity requirements, we recommend that the law add two tools: 1) put the State air quality implementation plan (SIP) and metropolitan transportation conformity plans on the same timeframe, and 2) focus the conformity process on the metropolitan transportation plan, not the transportation improvement program (TIP). We will have more specific proposals regarding air quality conformity in the near future.

In summary, I would like to emphasize the importance of planning in producing effective transportation systems for our metropolitan areas. In the planning, designing, building and operation of transportation facilities the most important leadership must come in the planning phase. With a solid plan developed through consensus you may be assured that we will have a transportation system that works.

Thank you for your time and the opportunity to speak before this committee.

RESPONSES OF RON KIRBY TO ADDITIONAL QUESTION FROM SENATOR JEFFORDS

Question 1. Do you feel that computer simulations, an example of which would be TRANSIMS, are (or could be) valuable in the planning process? Are, or could they be, effective in the examination of various planning options?

Response. Computer simulations have been successfully applied in a variety of fields and industries, including transportation. One type of simulation—small area micro-simulation—has been used by transportation engineers for years to help study traffic across bridges, complex interchanges, toll plazas, etc. Computer hardware and software has reached the performance level that allows simulation technology to be applied on a larger scale: a city or even a large metropolitan area. TRANSIMS is a developmental effort in this class of transportation planning tools, aimed at simulating travel of every individual and every vehicle in a large metropolitan area. Once fully developed, simulations like TRANSIMS could allow transportation planners to build a significantly more precise model at the regional level. In the shorter term, TRAMSIMS could be applied on a more limited geographic scale to help with certain projects like new transit stations. Additionally, the visual component in TRANSIMS could be helpful to citizens and decisionmakers, such as local elected officials on MPO Boards, because it allows non-experts the opportunity to see various simulations.

RESPONSES OF RON KIRBY TO ADDITIONAL QUESTION FROM SENATOR SMITH

Question 1. How would you modify the conformity process to focus on results, instead of process?

Response. We believe the intent of the law dictating the conformity process focuses on results but that the true measure of success is found when a region is able

to attain the clean air standard. We feel that conformity is an important link between mobility and clean air. Additionally, we believe that the process can produce useful results if there is good communication and cooperation between all stakeholders. At this time, we defer on making specific recommendations for change to the process itself in hopes of providing more information in the fall after our policy committee has fully addressed this issue.

Question 2. What percent of an MPO's budget is typically spent on the conformity process?

Response. In Chicago, the Chicago Area Transportation Study (CATS) spends about 7.5 percent of a total budget of $4.7 million on conformity. A representative from the MPO stated that they have spent less on conformity over the years because they have "gotten better at it." In Dallas-Ft. Worth, the North Central Texas Council of Governments spends about 10 percent of a total $5 million budget, or $500,000, on conformity. In the Washington metropolitan region, we spend about 7.7 percent of a $7.8 million budget or $600,000.

Question 2a. What percent of an MPO's budget is typically spent on the transportation planning process? Please provide some examples for specific MPOs.

Response. MPOs are charged solely with transportation planning. The MPO spends 100 percent of its budget on this.

Question 3. What percent of current MPO budgets are covered by the State and local governments? What percent of the MPOs responsibilities relate to Federal transportation investment, and what percent of their work relates to State and local responsibilities?

Response. The standard for funding is 80 percent Federal with a 20 percent local match (a portion of this may be provided by the State as well as by the local governments). Local match may exceed 20 percent in some cases. Planning responsibilities mirror this.

Question 4. Is there a shortage of qualified transportation engineers and planners, and if so, how has it contributed to the challenges faced by the transportation planning process, and what can be done to solve this problem?

Response. We can only offer anecdotal information. According to Institute of Transportation Engineers:

The Federal Highway Administration has indicated that 40 percent of the State and local transportation workforce is between the ages of 45–64. In the next 5–15 years, 40–50 percent of all transportation workers will begin to retire. Graduate school enrollment in transportation programs is on a decline as is undergraduate enrollment in civil engineering. Although not exclusive sources of professionals to the workforce, they are significant.

For additional information on this, please contact Aliyah Horton, Senior Director of Government Affairs at (202) 289–0222.

STATEMENT OF PETER GREGORY, EXECUTIVE DIRECTOR, TWO RIVERS-OTTAUQUECHEE REGIONAL COMMISSION, WOODSTOCK, VERMONT, ON BEHALF OF THE NATIONAL ASSOCIATION OF REGIONAL COUNCILS (NARC)

Thank you Chairman Jeffords and members of the committee for the opportunity to testify before you today. My name is Peter Gregory; I am the Executive Director of the Two Rivers-Ottauquechee Regional Commission (TRORC), in Woodstock, Vermont. I am here today representing the National Association of Regional Councils (NARC), our members, and the local elected officials and citizens we represent. I am providing testimony on behalf of NARC on the importance of transportation planning to regional councils and Metropolitan Planning Organizations (MPOs). I would like to discuss the success of the Transportation Equity Act for the 21st Century, and changes necessary in its reauthorization to strengthen planning, the role of local elected officials, and specifically, how to better integrate rural areas into the process. The topic of transportation planning and the processes MPOs and councils use to achieve it is important to my commission, NARC, and all of my colleagues across the country. In these processes transportation systems are first developed and discussed so I am glad to see this issue is important to the committee as well.

The National Association of Regional Councils is a 32-year-old organization serving the interests of regional councils, and Metropolitan Planning Organizations. NARC is an umbrella organization comprised of planning commissions and development districts made up of large urban and small rural councils, and MPOs from across the country. NARC provides advocacy and technical assistance in and for environmental issues, economic and community development, emergency management,

and transportation. NARC emphasizes regional intergovernmental cooperation to resolve common problems in all of these important areas.

Regional councils and MPOs are created by compact and enabling legislation as consortia of local governments. As such, regional councils and MPOs represent local elected officials from cities, counties, townships, and villages. Their mission is regional planning and coordination across multiple jurisdictions. Regional Councils and MPOs deliver a wide-range of programs and services such as, economic development, first responder and 911, health care, infrastructure development, aging services, air and water quality, land-use planning, work force development, emergency management and homeland security, and transportation.

Among all of these programs, transportation is key to the continued prosperity and health of all regions across the country. Access to employment and recreation, and the movement of goods and services, drive regional economies and serves to bridge communities otherwise separated. An excellent example of regional coordination and service delivery is the Two Rivers-Ottauquechee Regional Commission (TRORC), which is one of 12 regional planning commissions in the State of Vermont. TRORC has planning responsibilities for 27 rural towns, most with populations of less than 1000 residents. TRORC performs emergency management, natural resource, land use and transportation planning across its jurisdictions.

Since 1992 when the Intermodal Surface Transportation Efficiency Act (ISTEA) was enacted, the State of Vermont has elected to obtain local input on transportation investment decisions by contracting with Vermont's regional planning commissions. Each regional planning commission's work is guided by a transportation advisory committee (TAC) comprised primarily of locally elected officials. These local officials provide the Vermont Agency of Transportation (VTrans) with a regional transportation plan and prioritized projects in all modes. In Vermont, local and regional transportation policy is developed locally and feeds into the statewide plan, thereby creating a seamless philosophy on transportation investment.

This comprehensive program to document local interests has served VTrans well since 1992. Successive Governors and Secretaries of the Vermont Agency of Transportation have all strongly supported the processes that regional planning commissions use to identify and support projects. In addition, the Vermont Legislature has demonstrated strong bi-partisan support for the inclusiveness of the process. They have understood that regional planning commissions are closer to the communities and bring a comprehensive and trusted approach to their constituents. This innovative approach to public participation has now been used by most of the agencies of State government as a cost effective means to obtain an accurate assessment of local desires. The regional planning commission relationship with the State of Vermont is strong and is serving Vermonters well. It has evolved and matured and has reacted to changing circumstances whether they be freight movement or homeland security.

As an example of this relationship and as enabled by ISTEA and TEA–21, Vermont took advantage of the opportunity to revisit highway design standards used by VTrans engineers. In the mid–1990's, Vermont adopted new, context sensitive standards that replaced the previously used AASHTO standards. Highway, bridge and pedestrian and bicycle facilities now attain their purpose and need while enhancing the built environment and protecting more historic, social and environmental resources. Vermont's regional planning commissions played the decisive role in ensuring adoption of these new standards.

Vermont's citizens have also benefited by the formal involvement by regional planning commissions in transportation planning. Through the 10-year period, the level of understanding by the general public in transportation issues has grown steadily and dramatically. This, in turn, enables more meaningful input for VTrans on project scope, and allows the public greater understanding as to the constraints that are faced when developing transportation infrastructure.

Vermont's regional planning commissions bring many unique talents to the process, not the least of which is the expertise in all the other disciplines that is needed when contemplating the rehabilitation or construction of infrastructure. Vermont's regional planning commissions all bring years of experience in computerized mapping which delineates everything from sewer infrastructure to wetlands and wildlife habitat. Integrating the extensive knowledge base we have with the locally elected officials' input enables projects to be designed and constructed substantially sooner than would have occurred in previous decades. This preserves the environment and saves tax dollars while meeting the mobility needs of the New England economy. Vermont is clearly a "best practice" in rural transportation planning.

Vermont's regional planning commissions need a consistent and predictable funding source to provide the services that we provide. Although they all have close working relationships with VTrans today, it is imperative that the process TRORC

has undertaken over the last 10 years does not falter due to changing economic or political situations.

Guaranteed funding for rural areas to carry out planning is essential. As in Vermont, councils need funding to plan the best transportation systems possible. NARC will ask Congress to provide States with meaningful incentives to move toward the Vermont example of seeking rural officials' involvement. NARC is proposing new funding streams in the next Bill, to make this a reality—including a Rural Set-Aside for planning and projects.

This committee can appreciate a system that works well. Vermont is an example of where ISTEA and TEA–21 were implemented successfully. This success, however, is not replicated in all regions across the country. Local elected officials, councils, and MPOs, in many cases and in many places, have less say in the transportation planning and decisionmaking process, then those in Vermont.

NARC proposes changes in TEA–21 to allow all States and regions to replicate the success of Vermont. The association asks Congress to smooth inconsistencies among States by adopting clear and concise law incorporating local governments into the transportation decisionmaking process. Local elected officials, cities, counties, and regions, should not be left out of the system because, at the Federal level, there are not clear voices sounding on their importance in the process. For example, in many rural areas across the country, there is no Federal statute that requires States to formally engage local elected officials in the planning process. NARC would like to see law and regulation requiring this process. Congress did ask the United States Department of Transportation to promulgate their proposed regulation on local official consultation. NARC asks this committee to reemphasize the importance of this regulation and urge the Department of Transportation, in the strongest sense possible, to move forward on its release.

NARC is urging Congress to consider all its partners, not just rural councils as important to building and maintaining the best transportation system in the world. NARC seeks more funding for MPOs, better coordination within State and Federal programs, and new and innovative programs aimed at alleviating urban transportation problems such as congestion, funding flexibility, and air quality. Congress should guarantee States the flexibility to spend funds and program projects based on their priorities and extend that same responsibility and authority to all local elected officials.

Air quality, planning coordination, and finance and fiscal constraint are of particular interest given new directions in air quality regulations, the need to better coordinate planning cycles, and fewer resources at the regional and local level. These new regulations will impact urban and rural areas in ways not yet understood. First and foremost, Congress should consider air quality conformity as a tool to achieve clean air quality goals.

The conformity process as currently legislated neither readily achieves air quality nor facilitates an easy solution. The current process opens regions to poorly defined legal challenges, faulty science, and consigns many of them to a bureaucratic quagmire. While conformity is well intended, and necessary, its application should be reexamined. Of no less importance to regions is the assurance of well-timed plans.

Both conformity and transportation plans should be timed together to achieve maximum results. Required plan updates, plan lifetimes, and conformity checks should be synchronized, and required less often. By doing these two things MPOs and regional councils can conserve planning resources and make plans more meaningful to the public and their elected officials. To ensure MPOs and regional councils have the ability to plan in the first place they need concise revenue forecasts and tight internal control of their resources.

Fiscal constraint on MPOs and councils is absolutely necessary, as long as revenue forecasts are precise and fiscal standards consistent. MPOs and regional councils are held to higher fiscal standards in their planning and programming processes then the States that fund them. Congress should require States to provide accurate revenue forecasts to MPOs and councils and engage them in calculating these forecasts as well.

NARC will also urge Congress throughout this and the coming year to consider greater emphasis on safety in rural and urban communities, a balanced and intermodal approach to Federal funding, comprehensive review and consideration of technology deployment, and greater consideration of freight movement as an essential part of the transportation planning process.

Of particular concern to NARC members and the citizens they represent are the tens of thousands of accidents and deaths on rural roads each year. Coupled with increasing safety concerns in urban areas, this presents a sobering picture of travel on America's roads. NARC is urging Congress to apply resources in new and innovative ways to lessen this tragedy.

NARC is urging Congress to consider ways to streamline the project delivery process, while ensuring the health of our natural environment. The ability to move projects quickly, especially those that will make our roads safer, is of key concern. Bound intimately with safety are new concerns for security.

Given the fact that many regional councils are currently involved in emergency management planning, NARC will also urge Congress to consider regional councils and MPOs as primary recipients of homeland and surface transportation security funding.

NARC would like to help all councils achieve the same success as those in Vermont, and in other places, through a balanced, intermodal, comprehensive, and locally and regionally led process of planning, programming, and project selection.

NARC will be happy to elaborate at any time and assist Congress in any way. Thank you, Mr. Chairman and committee members for allowing the National Association of Regional Councils time to present its views.

STATEMENT OF ANDREW C. COTUGNO, METRO PLANNING DIRECTOR, PORTLAND, OREGON

Mr. Chairman I want to thank you and the committee for holding this series of hearings on reauthorization of the Transportation Equity Act for the 21st Century (TEA–21) and inviting me to testify. I am Andy Cotugno, Planning Director for Metro, the regional government covering the 24 cities and three counties of the Portland, Oregon metropolitan area. Metro is the only directly elected regional government in the U.S. Metro has a home-rule charter approved by the voters, establishing a Metro "that undertakes, as its most important service, planning and policymaking to preserve and enhance the quality of life and the environment for ourselves and future generations." We also serve as the Metropolitan Planning Organization (MPO) under the Federal transportation planning statutes. Metro is an active member in our national organization located here in Washington, the Association of Metropolitan Planning Organizations (AMPO). I am pleased to be joined today by my colleague, Ron Kirby from the MPO for the Washington, DC. region.

The Portland region is often cited as the Smart Growth capital of the world. Whether that is true or not, Metro's programs have been closely scrutinized throughout their 23 year life. It is from that unique base of experience, transportation integrated with Smart Growth, that I offer these recommendations.

This morning, I would like to speak to you first on the principles of making the Smart Growth connection to transportation and then relate that to recommendations for how the next transportation authorization bill could recognize these principles. The linkage between Smart Growth and Transportation is about understanding how developing land use patterns impact the effectiveness of the transportation system and, in turn, how a new transportation project affects those development patterns. The key to the successful integration is to recognize what land use goals are being pursued and how a planned transportation project will either lead the region closer to the goals or conflict or undermine the goals.

Metro and the Portland region have implemented a number of integrated land use and transportation strategies through something we call the Region 2040 Growth Concept:

- We have had an urban growth boundary in place for 20+ years, which has effectively stopped the sprawling development pattern leapfrogging out onto farmland. As a result, all aspects of urban infrastructure, including roads, transit, sewer, water, schools, police stations, libraries and parks are focused within a compact urbanizing area, reducing the need for expensive extensions.
- We have used land use plans and zoning to reinforce a higher density development pattern in locations that can be well served by light rail and bus transit, producing six consecutive years of transit ridership increases.
- We have protected industrial areas and areas intended for intermodal freight terminals from conversion to big box retail, preserving this land and highway capacity for more important economic purposes. In this manner, key highway expansion projects are retained for their function to move freight rather than being overloaded with shoppers.
- We have adopted parking limitations, not just parking minimums to ensure new development does not overbuild parking.
- We have adopted a requirement for greater local street connectivity to ensure a system of cul-de-sacs does not simply shift local traffic onto the regional system.
- We have restricted development near streams and acquired open space to ensure a balance between growth and access to nature.

• We have adopted revised street design guidelines to ensure highways intended for through traffic are built to emphasize moving cars and trucks while streets in downtowns and neighborhoods support a strong pedestrian environment and access to transit.
• We have taken advantage of the flexibility provided by ISTEA and TEA–21 to target funds to a broad mix of highways, light rail, arterials, buses, bike trails, sidewalks, transportation demand management programs and transit-oriented development projects.
• We have put to good use funding made available through the New Starts Program to build a successful light rail system that helps to focus growth and has ridership 7 years ahead of forecast.
• We have leveraged the planning framework provided by the Federal requirement for a metropolitan planning organization into a broad-based intergovernmental program to coordinate regional land use and environmental protection plans.

In summary, we have used transportation investments to influence desired land use plans and we have used land use controls to produce a more effective transportation system. The premise of the Metro 2040 Growth Concept is that integrating our land use and transportation plans produces both better communities and better mobility.

With this Smart Growth framework, I would like to focus on three transportation programs that can serve as the framework for the Smart Growth direction in the next transportation bill:

1. Title 49, Section 5309—Major Capital Investment Grants for New Fixed Guideway Systems (Which I will refer to as the New Starts Program);
2. Title 23, Section 1118—National Corridor Planning and Development Program (which I will refer to as the National Trade Corridor Program); and
3. Section 1221—Transportation and Community and System Preservation Pilot Program (which I will refer to as the TCSP Program).

FTA NEW STARTS PROGRAM

All of these programs could follow the model established by the New Starts program. The New Starts Program has been a sustained program for over 25 years providing discretionary grants to construct light rail projects. Since these are expensive projects, local areas have a significant incentive to pursue 50—80 percent Federal funds. As a result, competition is high and many projects from all over the country are waiting in line. To manage the demand:

• Congress has set clear criteria to distinguish the most meritorious projects;
• The legislation provides for seed money to develop a project with the expectation that the best projects will be in line for construction funding;
• The Federal Transit Administration requires local areas to go through a rigorous process to prove the merits of their projects;
• New Start regions collaborate on what constitutes a good project and hold each other to a high standard;
• The Federal Transit Administration makes a recommendation of projects that are "Highly Recommended," "Recommended" or "Not Recommended" to Congress;
• With the approval of the congressional authorizing and appropriating committees, a multi-year funding contract is executed for the best projects subject to annual appropriations to fulfill this commitment.

This is a very successful program. It produces good projects that stand up to scrutiny. It is administered in a manner that results in selection of a limited number of good projects from a large competitive field. The funding is significant enough to hold local areas and the projects they seek to a high standard. The projects make a significant difference when they are built.

For the Portland region, the New Starts program has provided the means to build an essential part of the region's transportation infrastructure and, in the process, shape the growth of the region to be supportive of Smart Growth goals. It has had a profound impact on the ability of the region to reign in sprawl and hold tight it's Urban Growth Boundary, thereby eliminating the need to build public infrastructure in an ever-expanding urban area. It has helped produce a terrific downtown Portland and is now shaping the future of downtown Gresham, downtown Beaverton and downtown Hillsboro, as well as new communities sprouting up around light rail stations. And, because the Federal New Start funds make a significant contribution, it has been possible to leverage State and local funds into the projects that would not have been spent on the transportation system. In addition, decisions have been made to target various Federal formula funds into the New Start projects (through STP, CMAQ and FTA Section 5307).

B. FHWA NATIONAL TRADE CORRIDOR PROGRAM

If the New Starts Program is the transit component of a Smart Growth strategy, what is the equivalent for the Federal Highway Administration? You would think the complementary program would be the NHS system. It is a significant funding category available to all the States. It is intended for modernization and expansion of the most important part of the nation's highway system. However, the NHS system is so large and the eligible uses of these funds across this system are so varied, their use is not focused. In the case of Oregon, these funds are used primarily to rehabilitate the system that already exists. That's a prudent asset management decision to make but doesn't deal with the needs to expand and modernize that system in targeted areas of national economic importance.

The National Trade Corridor Program could follow the New Starts model and be the strategic Federal investment in the National Highway System. Through the National Trade Corridor Program, there can be a Smart Growth connection to building a strong economic base, not just livable, walkable neighborhoods. To do this, the "Borders" and "Corridor" funding categories should be separated because they are distinctly different. With that, the "Corridors" component should be revised to mirror the New Starts program but with a Freight and Trade emphasis, as follows:

- It should be authorized at a funding level sufficient to allow Congress and the FHWA to make multi-year funding commitments to significant construction projects. Like New Starts, that means $1+ billion per year, not the current $140 million per year (split with the Section 1119—Coordinated Border Infrastructure Program), allowing commitments to projects of $300–500 million.
- It can provide the funding for the seed money to develop projects, leading to a later request to fund construction (at the present, the National Corridors Program can only fund these studies or very small scale construction projects);
- Congress should set a high standard on how the funds are spent to ensure high quality projects are funded to produce the greatest impact on global economic competitiveness rather than spreading the funds across a list of projects of unknown merit.
- The Federal Highway Administration should ensure localities go through a rigorous process to establish the basis for their recommendation to Congress to "Highly Recommend," "Recommend" or "Not Recommend" projects for a multi-year funding contract.
- With the approval of the congressional authorizing and appropriating committees, a multi-year funding contract can be executed, subject to annual appropriations.
- Through this process and the high degree of national competition, State and local governments should be encouraged to leverage their NHS, Interstate–4R and STP funds, not to mention State and local funds into the project.

This approach would provide the means for implementing significant highway projects needed to move freight and support the nation's economy.

Let's look at a Portland case study as an example. Interstate 5 is a designated National Trade Corridor from Canada to Mexico through Washington, Oregon and California. The segment connecting Oregon and Washington in the Portland/Vancouver region is a significant bottleneck and the most congested corridor in the region. The I–5 bridges across the Columbia River are an antiquated pair of draw bridges (three lanes each northbound and southbound), the first one built in 1917, well before the Interstate system was imagined, and the second in 1958. These old bridges represent the critical bottleneck where access to the Ports of Portland and Vancouver provide U.S. connections to the Pacific Rim (the only west coast ports with a positive balance of international trade). This is the same corridor that accesses the intermodal terminals for the two transcontinental railroads (BN/SF and UP/SP). This is the same corridor that accesses the Portland International Airport to ship high value products such as the source of Intel's Pentium 4 chip. And, this is the same corridor where 80 percent of the region's truck terminals are located.

Finally, I–5 is located in a fragile social and environmental setting making construction of any improvements difficult. I–5 was built by displacing a 3–4 block wide swath through the low income/minority area of the region making further widening difficult. In addition, construction of any new bridge across the Columbia River will be regulated by the Endangered Species Act due to listing of salmon and steelhead as endangered. And to top it off, the 1917 bridge is on the National Register of Historic Places.

With the tremendous benefit of a $2 million "Borders and Corridors" grant from FHWA (thank you), we have now completed an extensive community-based process to develop a solution to the "bottleneck" and have succeeded in coming up with a fragile multi-modal consensus on how to proceed, including:

• Upgrading the existing bridge from 6 lanes to 10 lanes across the Columbia River at a cost of $1.2 billion +;
• Extension of the two existing light rail lines in Portland north to connect as a loop in Vancouver at a cost of $1.2 billion +;
• Implementation of aggressive measures to reduce demand, increase transit service and encourage the use of alternatives to auto commuting; and most revolutionary;
• An agreement to control land uses to avoid inducing more sprawl in response to a bigger freeway to simply result in a bigger traffic jam in the future.

So, you say, what is the problem. TEA–21 provides significant help through the NHS, Interstate–4R and Bridge programs that the States of Oregon and Washington can choose to commit to this corridor. Well, Oregon has prioritized these funds to take care of over 7,500 miles of existing highways statewide and expansion comes after taking care of the existing system. Washington State priorities are focused on its major population center of Seattle. This corridor is currently unfunded. But, because of it's critical trade characteristics it would be a good candidate for a revised "National Corridors Program" in the manner described.

Ironically, the LRT components of the plan have a better chance of being implemented through the New Starts program than the I–5 freeway components. The economic implications spread far beyond this corridor because freight that is shipped through the marine, rail, truck and air cargo terminals moves to and from points throughout the Pacific Northwest, the entire U.S. and the Pacific Rim.

C. FHWA TRANSPORTATION AND COMMUNITY AND SYSTEM PRESERVATION PILOT PROGRAM

Let's move to the third component: the Transportation and Community and System Preservation Pilot Program. If the New Starts Program is intended to build the backbone to move people in a Smart Growth context and the National Trade Corridor Program is the means to build significant highways for moving commerce, TCSP is the model for building strong communities around the transportation system. Whether it's Transit-Oriented Development around Light Rail or an Interchange Management Plan to avoid incompatible development from overloading a new interchange, the TCSP Program was designed to make the land use connection to the transportation system.

The program was conceived with all good intentions. It was founded on the principles of Smart Growth, based on the premise of building transportation projects that support good local and regional growth decisions. It was intended to support such concepts as urban growth boundaries, transit-oriented development, interchange land use management plans and green corridors separating metropolitan areas.

In the first year of TEA–21, FHWA did an admirable job of setting guidance for the program and selecting competitive projects (in fact, the Portland region is now finishing a TCSP grant to do the master planning for a major expansion of the region's urban growth boundary). However, since then, Congress has earmarked the funds to a potpourri of projects. In the most recent appropriations bill the program originally authorized at $25 million was earmarked with $250 million of projects. This program could benefit from the rigor of the New Starts model. And it could be the third pillar of the national program, not to build the major elements of the system, like light rail and freeways, but to build strong communities taking advantage of and supporting the major elements of the transportation system:

• The Federal Highway Administration, in partnership with the Federal Transit Administration should continue to develop guidance for projects to be funded through the TCSP Program. The initial effort to define the principles for selecting the projects was a good start and should continue to ensure funding is targeted to best support good land use decisions rather than ignore or undermine land use decisions.
• The Federal Highway Administration should publish information to highlight the characteristics of successful projects and disseminate these "Best Practices."
• Congress should increase the authorized level of the program to $250 million, comparable to the fiscal year 2003 appropriations.
• Congress should tighten up statutory language to ensure grants cannot be awarded unless they demonstrate a supportive land use benefit.
• Congress should require an evaluation of the merits of the proposed projects by the Federal Highway Administration and approve funding based upon a recommendation of "Highly Recommended," "Recommended" or "Not Recommended." This should be designed to ensure good projects are recommended for funding, al-

though in a more streamlined manner that the large multi-year contracts under the New Starts and National Trade Corridor Programs.

The theme for all three of these programs is the same. The Federal Government ensures localities go through a rigorous process, thereby justifying a substantial funding commitment to a project that really makes a difference. With this focused undertaking, other funding sources and programs also are leveraged.

In sum, I encourage you to consider what I call the three pillars of the Smart Growth connection to the next transportation bill: 1) New Starts to focus housing and jobs, 2) National Trade Corridors for global economic competitiveness and 3) TCSP to build strong communities around transportation.

Let me turn now to a few other issues:

1. Title 23, Section 104(f)—Metropolitan Planning Funds/Title 49, Section 5303—Transit Planning Funds: With the 2000 Census, there will be more MPOs created, potentially reducing the level of planning funds to existing MPOs.

To avoid this reduction, Federal Highway Planning funds should be increased from a 1 percent take-down on categorical funds to a 2 percent take-down. FTA Transit Planning funds should be increased from their FFY 2003 authorized level of $58.6 million consistent with the increase in MPO population.

2. Title 23, Section 133(d)(3)—Surface Transportation Program funds to Transportation Management Areas: A portion of STP funds is suballocated to MPOs designated Transportation Management Areas in excess of 200,000 population. Again, with the 2000 Census, there will be more TMAs formed and an increase in population in the existing TMAs. To recognize this, the formula for splitting STP funds between these TMAs and the balance of the State should be revised accordingly.

3. Clean Water Act—There has long been a connection between the Clean Air Act and transportation legislation. Planning and funding decisions between the two Federal acts are well integrated because vehicle emissions are a major contributor to air pollution problems.

In the same manner, the road, street and highway system is a major contributor of polluted stormwater runoff. As such, there could be a tighter connection to the Clean Water Act to ensure transportation projects can employ more environmentally friendly stormwater handling methods.

4. Endangered Species Act—State and local governments in the Northwest are working closely with the National Marine Fisheries Service to recover the salmon and steelhead listed as endangered. Past transportation projects have contributed to this listing by blocking access to important upstream habitat. There should be clear eligibility to use Federal transportation funds to retrofit previously installed culverts to restore access to this habitat.

RESPONSES OF ANDREW COTUGNO TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. Do you feel that computer simulations, an example of which would be TRANSIMS, are (or could be) valuable in the planning process? Are, or could they be, effective in the examination of various planning options?

Response. Computer simulation tools are a valuable asset to have in the planning process. Depending upon the degree of sophistication of these tools, transport and land use allocation models can be linked to provide a comprehensive analysis of regional growth strategies. Specifically, the allocation of population and employment is subject not only to the land availability, but also to the degree of accessibility provided by the transportation infrastructure. This capability is essential if the allocation is seen as a means to reduce travel demand and the corresponding expense to provide infrastructure.

A well-specified simulation tool can aid the decisionmaker in quantifying the travel impacts from localized urban design alternatives. For example, the consequences of developing a high-density mixed-use center around a light rail station can be quantified in terms of the effect on auto ownership, origin and destination patterns, and mode choice (including walk and bicycle) decisions.

Multi-modal accessibility is a key consideration in the development of a balanced transport system. Options must be available to minimize the reliance on single occupant vehicles. Simulation models are used to analyze the effectiveness of proposed system improvements. For example, the tools can be used to quantify new transit riders, vehicle-miles-traveled impacts, roadway delay, and air quality consequences for a particular project or system plan. The measured benefits can be compared to costs to provide assessment measures.

RESPONSES OF ANDREW COTUGNO TO ADDITIONAL QUESTIONS SENATOR SMITH

Question 1. In the current marketplace, what are the Federal obstacles to transit-oriented development?

Response. In the current marketplace there are actually very few Federal obstacles to transit-oriented development. In fact, Metro operates a transit-oriented development implementation program that has used Federal funds for TOD projects since 1998, the first of its kind in the United States. The Federal processes for TODs are not well known and are difficult, but Metro has several outstanding TODs completed. Other areas of the country have studied Metro's program and Maryland appears ready to launch a similar but more ambitious program. The Metro TOD Program was made possible through Section 5309 of TEA–21 (carried forward from Sec.3 (a)(1)(d) of the Transportation Act of 1978) and the Federal Transit Administration Joint Development policies issued March 14, 1997. Three other key elements of the FTA policy that significantly facilitate TODs are use of a "highest and best transit use" appraisal for real estate sale, the "Exception to the Common Grant Rule" for return of the revenue to subsequent eligible transit expenses, and the use of a two step process to meet requirements of the National Environmental Protection Act (NEPA). It is important that favorable use of Section 5309 including acquisition of real estate for TOD purposes based upon the standard "highest and best use" appraisal with subsequent sale to a TOD developer based upon a "highest and best transit use" appraisal and the exception to the common grant rule be continued in new legislation. Metro's current TOD Program operates under a ""programmatic environmental assessment" that allows it to evaluate potential TOD opportunities within any station area of the light rail transit system. Once a project is selected, a detailed NEPA analysis is conducted through a "documented categorical exclusion." This process allows the TOD Program to forge public private partnerships that can respect and function within the fast-paced environment of private sector real estate development, and this interpretation of NEPA must also be retained.

The main obstacles to TODs within the private sector include developers and builders who are unfamiliar with the product type, banking practices that do not recognize TOD as a standard financial product, and suburban real estate economics that favor land consumptive sprawl patterns over high quality, more compact, walkable environments. Obstacles that may exist within the public sector include local zoning codes that do not allow mixed-use project and minimum parking ratios that preclude developing projects at higher transit-supportive densities.

Despite these problems, facilitating TODs is good public policy. They reap a ten-fold increase in transit use and nearly 2 1/2 times increase in biking and walking compared to standard suburban development.

Improvements to FTA regulations could be made in the way TOD projects are analyzed. Current policy requires a "greater economic benefit to transit," relying on capitalized value of added transit fare box revenue as the measure of Federal financial investment in a TOD project. This should be broadened so that a TOD project simply be more cost effective in time saved/transit ridership gained than the transit system it is enhancing.

STATEMENT OF JUDITH ESPINOSA ON BEHALF OF THE SURFACE TRANSPORTATION POLICY PROJECT

Mr. Chairman, I am Judith Espinosa, Director of the Alliance for Transportation Research Institute at the University of New Mexico. I appear today on behalf of the Surface Transportation Policy Project (STPP) where I serve as a member of the Board of Directors. I would like to thank you, Mr. Chairman, and the members of this committee for inviting me to testify and for structuring your hearings so that you may hear from a diverse representation of views on reauthorization of TEA–21.

The STPP coalition has taken an active role in the debate on Federal transportation policy since its inception in 1990, helping provide policy support for what became ISTEA and later TEA–21.

As we begin the debate on the renewal of TEA–21, I wanted to describe briefly STPP's process for identifing specific recommendations to support further progress on a national transportation reform agenda. We have embarked on a broad national outreach effort, called the Alliance for a New Transportation Charter (ANTC), to support consensus proposals, based on input from hundreds of national, regional and local organizations as well as State and local elected leaders. To support this, our Charter focuses on seeking reforms in the following key areas: 1) enhancing health, safety and security; 2) conserving energy and enhancing the environment; 3) promoting social equity and livable communities; and 4) advancing economic pros-

perity. STPP's recommendations on reauthorization will reflect our Charter's focus areas and a broad perspective on improvements to current law as made by those groups and organizations that advocate the principles in the Charter. ISTEA/TEA–21

I would like to offer a few observations to guide this panel's efforts as you prepare to renew TEA–21 next year. First, the STPP coalition strongly believes that the basic structure of the TEA–21 law is fundamentally sound and should be preserved. It is our belief that transportation policy in America has been fundamentally reshaped as a result of the 1991 ISTEA law. If there is a single shortcoming, it is that the law has not been fully implemented. As a result, we do not see the Federal, State and local partnership developed to the point where it is promoting the full intent of ISTEA and TEA–21. In short, despite much progress, we have failed to fully capitalize on the many opportunities this law has intended to make available to our States, regions and communities. We see renewal of TEA–21 as another step in the continuum of the transportation reform process that will span longer than simply the last decade.

In December, STPP along with other key partners celebrated "Ten Years of Progress" at a special event where we had an opportunity to take stock of the many transportation changes that the ISTEA legislation fostered. In celebrating this record of progress, we were particularly pleased to recognize Senator Daniel Patrick Moynihan with a special award, named after the late Senator John H. Chafee. Senators Chafee and Moynihan were longstanding members of this panel whose efforts helped this panel, the Senate and the Congress move forward on a national transportation policy reform agenda.

What particularly impresses me, a person who has worked extensively with local and regional transportation advocates, is the depth of the public's awareness about the role of transportation infrastructure investment and how they see its power to influence their lives, their neighborhoods, and their communities within the context of their broader regions and States. ISTEA and TEA–21 have stimulated the public's appetite for transportation improvements that offer more choice and balance in their transportation options and that add value to their lives and to their communities. At the same time, I would note that implementation of the law has been a struggle in many places and it is certain that the law has not been implemented equitably across States and within areas of individual States. We believe that U.S. DOT and its modal agencies can now provide renewed leadership to ensure the public they are engaged in the full implementation of this law. States, MPOs and local governments must likewise renew their stewardship to improvements in implementation.

A Decade of Milestones

To frame some of my perspectives on the issues before the panel today—"Transportation Planning and Smart Growth"—I have highlighted some key policy developments of the last 10 years, suggesting areas for further review as this committee crafts legislation renewing TEA–21.

- ADA: ISTEA was crafted immediately following the enactment of the Americans with Disabilities Act. While we have not seen a level of progress in implementing this law relative to the transportation sector, we now know and have come to appreciate that efforts to address the mobility needs of persons with disabilities can simultaneously deliver broader societal benefits, be it increased emphasis on pedestrian safety benefiting children, seniors and the broader public or a stronger emphasis on bicycle/pedestrian infrastructure that anticipates the aging of our nation's population and the market push toward investment in existing places.
- Brownfields: When ISTEA was being developed, its authors recognized the potential of underdeveloped or underutilized lands in proximity to major highway, rail and port infrastructures and their desirability for reuse. No one could have anticipated the national debate that would follow on the reuse of vacant lands. This debate recently culminated in the enactment of Public Law 107–118. Mr. Chairman, Senator Chafee and others on this panel who played such an important role in moving this legislation forward after years of disagreement, we thank you. A broad national commitment to recycling America's land is an important policy thrust and we encourage you to look for additional ways in the TEA–21 renewal bill to prompt broader reuse—both planning and investment policies—of these many thousands of brownfields throughout the Nation. We see this focus on the reclamation of brownfields and others vacant lands as a significant new community development priority.
- Census: The 2000 Census challenges the upcoming debate on TEA–21 renewal in a number of ways. It underscores the need to accelerate our policy efforts to prepare for the aging of the nation's population. At a recent committee hearing, we

learned that the demographics of Florida, which were once thought to be unique to that State, will be found in other States in the near future. We also see that, as the Nation is getting older, there is also a boomlet of the very young, giving rise to initiatives, like Safe Routes to School and others, which focus transportation dollars on facility improvements to offer more protection for our most vulnerable. The new Census also shows us the changing racial composition of our cities, suburbs and rural areas as a result of immigration and other trends of the last decade. This calls attention to the need to further strengthen our efforts on environmental justice and Title VI of the Civil Rights Act. Finally, we continue to see changes in the population and land areas of our nation's urbanized areas. A recent DOT notice shows that there will 61 new MPOs, with many others whose boundaries are being redrawn and in other cases urbanized areas will be renamed. We see the new Census data as informing our policy reform discussions on TEA–21 renewal just as the 1990 Census helped support review of the Federal transportation law that became ISTEA in 1991. Specifically on the MPO issues, this new data should prompt us to review the range of issues surrounding the MPO structures of current law to modernize these agencies, reforms that were not pursued in TEA–21 or ISTEA. The 2000 Census, along with the many new challenges and expectations now before MPOs, necessitates a new look at how MPOs are funded, structured and supported.

- Clean Air: Like ADA, ISTEA followed the enactment of amendments to the Clean Air Act. At that time, the relationship between transportation sector investments and clean air objectives was not fully understood. Since that time, we have come to realize that attainment of clean air standards would prove more difficult than expected, even with the commitment of new resources under ISTEA and its Congestion Mitigation and Air Quality (CMAQ) program. We now understand that mobile sources would become more dominant, not less, as the key determinant for most regional efforts to achieve attainment with national standards. More recently, the Supreme Court's decision affirming EPA's stance on the need to move forward with new air standards further amplifies the need to preserve, and further expand our resource commitments here, be it an expanded CMAQ program or other means to further local efforts to achieve attainment of national air quality standards.
- Environmental Justice: Over the last 10 years, we have seen the emergence of a broad movement to examine the linkages between social justice and our public investment decisions. ISTEA with its emphasis on "early and continuous" public involvement, and its broader data collection and research efforts, opened up the public dialog on many social equity concerns which too often were overlooked or ill-informed in transportation decisionmaking. This is a significant area of public debate that continues to challenge our planning and other processes under TEA–21 to ensure that EJ concerns are addressed in a much more systematic manner. Research is needed, data systems must be updated and further capacity should be built at the State and MPO level if we are to effectively address the difficult challenges in this area. I am pleased to have been recently appointed by EPA Administrator Whitman to serve on the National Environmental Justice Advisory Council (NEJAC) to work with other interested parties to assist Federal agencies in efforts which relate to environmental justice. I would be pleased to provide any support to this committee's review of these issues that are very much a part of our national views on transportation equity.
- Metropolitan Economics: This committee previously has heard testimony from the mayors and others on the importance of the nation's metropolitan economies in driving the economic prosperity of this Nation. This is new data that wasn't available prior to ISTEA. We know that these areas account for a disproportionate share of U.S. economic output. These economic studies also project that the nation's 300+ metropolitan areas, largely represented by MPOs under the TEA–21 law, will warehouse virtually all of the key sectors—high technology and financial and business services—that will drive the nation's future economic output. As we look at the issues of planning and smart growth, improvements to TEA–21 are crucial in ensuring the broader health and vitality of these economic engines. Among the issues that we would ask the committee to examine is the relative funding commitment to these areas. For example, the current law provides certainty to only the largest MPOs, those serving areas of 200,000 or more in population and representing about 54 percent of the nation's population. And, they are only certain that about 6 cents of every dollar (i.e. STP suballocated funds) will be made available each year from TEA–21, a modest commitment to areas that collectively account for a substantial share of the nation's economic output, a large majority of all transit use, aviation passengers and port tonnage as well as critical elements of the nation's freight rail and passenger rail capacities. We suggest that increased local control over TEA–21 funds be seriously considered in the new law.

• Rural Economies: In contrast to metropolitan areas, we know that rural areas face a whole set of other challenges. In the last decade, we continue to see the erosion of rural economies despite many transportation infrastructure upgrades to State highway facilities. At the same time, these areas are impacted by the sustained urbanization of our metropolitan areas, which push outward and place enormous pressure on rural communities and land resources. More recently, we have seen new information that documents the significant safety needs of our rural road systems. We have looked at data that shows that there has been a sustained investment in rural areas within many States, investments that are generally disproportionate to the population of these areas. There is a need to rethink the investment patterns in our rural areas and look at alternatives, which will improve safety, promote sustained economic advancements, and give people choices for travel. Many State highway investments in these areas are pursued in the name of economic development or safety but many may simply be missing the mark.

We have seen great success with a relatively small investment that has been made in the National Scenic Byways Program. Here is a program that creates a strong linkage among rural communities along a large corridor, creating an opportunity to leverage other public resources and capturing new private sector investment in areas that would otherwise have been overlooked. We have seen how modest commitments of Transportation Enhancement funds have stimulated tourism and other economic activity through improvements to main streets, trails, historic train stations and other projects. Many of these same projects could be funded with State STP funds but, instead, are usually committed to other investments in State highway facilities.

There has been reluctance by many States to commit safety funds to areas where signage, markings and shoulders would make a difference at much less cost. In my State, our rural agencies, known as rural planning organizations or RPOs, have worked hard to plan and develop a transportation investment agenda for their areas utilizing a broad scope of public input. Their recommendations and plans are largely ignored by our State's transportation department or set aside as a low priority agenda. When these rural planning organizations are viewed as advisory only, true regional transportation planning becomes flawed. To have effective planning, there has to be a connection between resources and the local areas that are planning and seeking the improvements. In New Mexico, our RPOs plan projects but never will receive any resources to implement them.

Failure to implement TEA–21 and use its flexibilities, we are talking about the many opportunities that are lost when State transportation officials ignore the potential of these more modest projects and the impetus they can provide in stimulating rural economies. Likewise, U.S. DOT must become more aggressive in addressing rural transportation planning needs. Despite directives in TEA–21 to address rural planning issues, U.S. DOT regulations have yet to be issued.

• Stewardship Movement: Increasingly, we see that ISTEA's reforms have played a significant role in helping revive an interest in stewardship of our systems, with the public and State and local elected leaders engaged in trying to look at transportation in a more comprehensive manner. At its core, ISTEA's transportation planning process was the first effort at ensuring that transportation investments are considered in a multi-disciplinary manner, considering impacts on air quality, communities, energy use, and so on. As we approach TEA–21 renewal, this engagement of the public and elected leaders envisions a broader stewardship agenda, be it habitat protection, biodiversity, air and water quality, or the preservation of cultural, historic and land resources. We see this move toward stewardship as a very positive development, but we must ensure that the resource commitments are there to move it forward. Our coalition is now reviewing how an environmental stewardship initiative could support this broader vision.

• Taxpayer Engagement: ISTEA was designed to encourage a broader public discourse on transportation investment. This week The Washington Post is calling for reader ideas on "things that could be done quickly and cheaply to alleviate traffic congestion." We now see a level of engagement of the taxpayer in this debate which is unprecedented. Whether you accept the rubric of smart growth or smart planning, these issues resonate with taxpayers who are increasingly pressing public decisionmakers to get more return from their public investments, particularly return from existing investments. The public now understands that the outward development of their regions, and the road improvements that are needed to develop these outlying areas, are stressing public capital resources and diminishing what is available to places where most of them now live and work. In rural areas, there is a growing recognition that funds are generally available for major new State highway projects, but not for other transportation needs. The message from the public increasingly is that they want a better return on the use of their tax dollars, not just moving

money out to undeveloped or underdeveloped areas. This is real and is growing broadly throughout the Nation. The public's renewed appreciation of these issues is challenging our planning processes which historically have not accounted for an engaged public, many of whom may not always participate in each step of the process but certainly are increasingly aware of and vocal about the outcomes.

- Transit Use: The growth in transit use, particularly in later part of the ISTEA decade, reversed a multi-decade decline in public transportation. In fact, over the last 5 years, transit use has grown at about twice the rate of auto use (as measured by VMT), with transit trips today reaching levels not achieved since 1960. In the wake of ISTEA and its emphasis on local decisionmaking, we have seen a dramatic increase in demand for transit investment, particularly rail transit, in the nation's larger urban areas. When local areas are empowered to shape future investment plans for their regions, it is clear that local areas are often making different decisions and ones that emphasize broader transportation choices for their regions. There has been a virtual explosion in demand for rail transit, for example, since MPOs were empowered to share future transportation decisions for their regions.

It is interesting to note that of the top 50 metropolitan areas, which represent a substantial share of the nation's economy and population, 48 of these areas are planning new rail transit projects, expanding existing rail systems or constructing new rail systems. The emergence of rail transit and the broader push for increased transit investment overall is an important development as we look to renewal of TEA–21.

- Water Quality: During the last 10 years, we have a better understanding of the implications of the "Water Quality Act of 1987" and its emphasis to move beyond point sources to control of urban runoff through municipal and other stormwater discharges. Today, hundreds of communities hold permits, requiring water quality monitoring, best management practices and even structural improvements. We have assembled a substantial record that documents how highway runoff and other transportation-related uses are contributing to the degradation of our nation's water quality. When ISTEA was first enacted, stormwater regulatory efforts were in their infancy, which is certainly not the case today. We see this as a substantial new development that should be more fully considered as the TEA–21 renewal moves forward, both in the planning process and in the allocation of resources.
- Welfare Reform: The 1996 welfare reform legislation was particularly important in reminding transportation professionals and system operators that existing planning efforts did not fully account for the new demands of a large number of Americans who would be making the transition from welfare to work. In TEA–21, the Job Access and Reverse Commute (JARC) program followed immediately in the wake of the welfare reform legislation, helping transit and other providers fill the many gaps resulting from the spatial mismatch of workers and job centers. This program was also deployed to help workers in rural areas get to jobs in other parts of their region. This area will continue to challenge us to use JARC funds and find other resources under TEA–21 to further refine these strategies, be it adding routes where transit services are now offered, supporting new services in areas where services are unavailable, or incentives to plan and support the location of training and support services at key transit and transportation facilities. We see the renewal of the TANF law this year as one part of a broader effort to coordinate and establish new linkages between TEA–21 and TANF to further the transition of thousands of Americans from welfare to work.
- 9/11: Finally, I would note that we closed out the ISTEA decade with the catastrophic events of September 11. We are still grappling with the implications of this attack and its subsequent threats, with most of the Federal policy efforts focused on redesigning our aviation and port security capabilities. We do know that the surface transportation systems of New York and Washington, DC were diversified to a level that allowed them to absorb these shocks without further disruption to these major regional economies and the broader U.S. economy. In fact, New York and Washington are the top two rail transit systems in the Nation and are also linked to the nation's only high-speed passenger rail corridor. We see the need to carefully consider how we can use available transportation resources to further diversify our transportation systems. With this disruption to the nation's aviation system and subsequent realignments in service, there is a compelling case to be made for moving swiftly on expanding the nation's intercity passenger rail capacities, providing more economic stability over the longer term and providing intercity rail options to communities, some of which have lost or have reduced air service.

Specific Recommendations on Planning and Smart Growth

As I noted in the opening of my statement, STPP's coalition partners are now developing a detailed set of recommendations on TEA–21 renewal that we will share these with the committee at a later date. I do, however, offer several suggestions on areas where STPP has previously recommended action or where our coalition has identified initial recommendations.

- Can't Plan Without Good Data—STPP urges immediate action on a broader investment plans that will immediately move toward a modernization of our data sets, an effort that is crucial to effective State, regional and local planning efforts. We must move to upgrade key transportation surveys and others data systems to correct for limitations (i.e. exclusions of population groups, failure to account for pedestrian trips, etc.) that undermine effective policy choices at the State and local levels. Investment in this area should be frontloaded in the new bill, even in advance of new funding for research commitments. Research funding could be ramped up in later years after key data sets are improved.
- Can't Plan or Invest Effectively Without Funding Transparency—One of the real deficiencies of TEA–21 is the lack of transparency about where funds are invested, by project, program and place within the States. It frustrates the public's confidence in the system, it diminishes the value of other public and private sector investments, and erodes the partnership that was envisioned under ISTEA. In an era of the Internet, GIS mapping and GPS locators, we currently have a system in place that can't readily account for the expenditure this year of about $32 billion of the public's money. This is extraordinary by any measure. Like modernizing the data sets, it is also crucial that we modernize the reporting systems on the use of TEA–21 so that State and local funding decisions are fully accessible to all governmental partners and to the public.
- Can't Plan Without Certainty About the Budget—As noted earlier in my statement, the larger MPOs (i.e. those serving areas with a population of 200,000 or more) are the only substate agencies who have any certainty about annual funding, and it is only that portion of TEA–21 highway funds that are suballocated in the law, funding that nationwide represents about six cents of every dollar that is made available to the States. To put the Federal commitment to these areas in a local context, consider that local governments and their agencies are the largest single investors in transportation—air, transit and highways. The suballocated funds to the nation's largest MPOs, similarly, represent a small fraction of total local transportation spending. The level of commitment to these and other MPOs and rural areas is an area that should be examined more thoroughly in preparing legislation renewing TEA–21. If you want local elected officials, the private sector and the public more engaged in building a meaningful planning at the local level, there must be real resources on the table that are subject to the process. STPP believes that more resources should be moved from State decisionmakers to local areas, and we expect to provide further suggestions in this area when we submit our broader recommendations for TEA–21 renewal.

Under current law, MPOs serving areas of 50,000—200,000 have no idea from year to year what funds will be made available to their areas, a circumstance that is generally shared with rural areas of the States. Among the immediate reforms that would increase certainty to selected local areas is change how funds are delivered through the Congestion Mitigation and Air Quality program. We would urge that CMAQ funding be proportionately obligated and then suballocated (based on the formula that delivers funds to the States in the first instance) to non-attainment and maintenance areas so they can more effectively budget funding for air quality projects.

Among the existing budget tools in TEA–21, we strongly support the position of AMPO and others about the need to preserve the fiscal constraint provisions of current law. On a related issue, we were disappointed that there was no apparent commitment to implement current provisions on cooperative revenue forecasting which were intended to bring MPOs together with their State transportation departments and transit providers to develop shared estimates of future TEA–21 funding. This is about the enhancing the ability of the MPO to plan and budget beyond a 1-year horizon. By contrast, the funding guarantees of the TEA–21 delivered considerable funding certainty to the States, allowing State transportation departments to readily forecast their revenue flow over the 6-year period of the law.

- Can't Plan Without Capacity—We agree with suggestions that there should be a broader commitment to MPOs and capacity-building. Given the many developments directly affecting regional and local agencies—air and water quality, broader environmental stewardship, integration of air, rail and highway networks, smart growth, welfare reform, urban congestion, etc.—it is clear that additional Federal commitments are needed to help MPOs absorb the growing demands on these agen-

cies. However, we do suggest that as part of an expanded commitment to capacity-building at the MPO level, it be coupled with a more complete review of these structures to modernize their operations in light of the Census and other considerations.

On a related issue, STPP will be recommending a new initiative to focus financial and other resources to help develop broader State and MPO capacity for environmental stewardship. We are concerned that the continuing calls for environmental streamlining have overshadowed the real and substantial needs that now exist for capacity-building within State transportation departments and MPOs to reasonably address the many environmental challenges before them. We believe that investing in stewardship is where we should be focusing our attention if we are serious about improving the pace and quality of environmental reviews. It is our hope that we could share these recommendations with you at your upcoming hearing on this subject.

• Can't Plan Without Good Research—I had the opportunity to serve on TRB's Committee for the Surface Transportation Environmental Cooperative Research Program Advisory Board that was charged with developing a long-term strategy for environmental research. This panel's findings were just released in Special Report 268. I would like to excerpt from this report's recommendations about the state of our current research efforts. "The effectiveness of current transportation planning and decisionmaking methods and tools is limited by the fact that they are based in engineering principles, facility standards, and an emphasis on mobility defined as travel time and cost . . . Too often, planners and other interested parties become frustrated with the inadequacy of these old methods and tools for dealing with current problems." STPP is now developing a set of recommendations on the research agenda to further inform the committee's specific consideration of funding commitments to a broader research agenda. This excerpt simply illustrates the importance of solid research in supporting the many State and local planning efforts in addressing the operations and management challenges before communities, regions and States. I would also note that this panel concluded that a long-term, coordinated research strategy with sufficient funding is the only way of adequately preparing transportation policymakers to confront the substantial challenges of an increasing population and expanding economy.

• Can't Plan Effectively Without Anticipating New Challenges—There remain a whole set of new challenges before MPOs and State transportation planning officials. We see a very strong push from the public and elected leaders to address lessons learned as a result of 9/11. We think that means taking a fresh look at the potential of intercity passenger rail and to consider how transportation investment plans at the State and regional levels can accelerate efforts to move toward more balanced and integrated surface transportation systems.

Another example of a new challenge is the new research that documents the growing epidemic of obesity, particularly among America's youth, and other health concerns like rising rates of diabetes, which are particularly linked to lack of exercise and fitness. At the same time, we have developed a transportation infrastructure that too often frustrates pedestrian activities and even discourages unplanned pedestrian trips as we continue to design systems that focus on auto trips and auto dependency. This is an area where MPOs and State planning efforts need to lead by taking additional steps to help reengineer our transportation systems in ways that promote non-motorized travel, principally pedestrian activities, that can provide new avenues to combat these negative health trends over the longer term. * Can't Plan Smarter without the Tools—How to plan smarter is an area where the STPP coalition is focusing considerable attention as move toward renewal of TEA–21. In my testimony, I have identified several issues that link directly to a broader emphasis on smart growth. The expansion of suballocated funding would give local decisionmakers more control over transportation funds, moving resources closer to the officials who are in the best position to align land use decisions with transportation investments. A stronger emphasis on modernizing the data, research and transparency features of the law will contribute substantially to local planning efforts as local officials work to calibrate their transportation decisions with local land use plans. I talked about the increased emphasis on brownfield/vacant land reuse. I see this policy emphasis as a powerful ally in helping local areas grow smarter, by restoring sites where existing transportation and other infrastructures are already in place. Here is a case where more modest investments to improve existing facilities can directly benefit taxpayers, in contrast to greenfield development which relies on substantially more public investment to build-out new infrastructures. We particularly want to underscore our strong support for continuation of TEA–21's TCSP program. While we have been challenged by a rash of congressional earmarks, the original intent of the program is very sound and stimulated a broad range of

initiatives in local areas all across the country that is making a real difference in these communities in connecting transportation to other community priorities.

We know that there is a need to modernize the models that are used to support State and MPO planning efforts. A new idea is to look for ways to replace some of our modeling structures with visioning exercises that, through a broadly participatory process, allows communities to decide for themselves how they want to design their own communities and then how to construct transportation facilities that serve these goals. In Chicago, planners are already using a modified version of the SimCity computer game to look at development and transportation to simulate a different future. There are some modest investments that could be supported under TEA–21 that could facilitate such efforts.

A broader agenda on smart growth will be among the areas that the STPP coalition members will be bringing back to the committee as you continue your deliberations on TEA–21 renewal.

Closing Comments

Mr. Chairman, let me conclude by emphasizing that democracy means paying attention. ISTEA and TEA–21 provide the policy framework for developing transportation systems serve our nation's need for access and mobility, while also promoting community health, wealth and quality of life. But we must pay attention to the details, promoting the means that make our transportation agencies accountable, transparent and participatory.

I thank you, Mr. Chairman, and member of the committee for this opportunity to share the views of STPP on these important issues.

RESPONSES OF JUDITH ESPINOSA TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. Do you feel that computer simulations, an example of which would be TRANSIMS, are (or could be) valuable in the planning process? Are, or could they be, effective in the examination of various planning options?

Response. The short answer to these questions is, "yes". These computer simulations are a valuable part of the planning process and will become even more so in the future. There are many efforts to deploy these technologies, ranging from the more complicated systems such as TRANSIMS to the use of visioning software techniques that can dramatically strengthen the public's understanding of various transportation and development scenarios.

Let me explain further. As with all models and computer analysis tools, the data input and intended application are critical to the quality of the outcomes, as is the efficiency of the model itself. Therefore, if the data is not well developed or lacking in integrity, the outcome of the computer model is faulty and will not represent a true picture.

TRANSIMS is an example of a new model for analyzing travel patterns in large urban settings. However, as with many other travel models developed over the last 50 years, it does not include variables that are critical to analyzing how we travel and how that travel impacts our land use patterns and social and environmental needs. While we do not expect TRANSIMS to be broadly deployed given its cost and complexity, its use will help further inform and instruct transportation policymakers as we continue to develop, and refine these and other predictive models.

We would also note that some agencies have invested their efforts in fine-tuning traditional four-step models, showing some promising results, such as those in San Francisco County. But perhaps the most important application of modeling and simulations has been in the area of community design and decisionmaking. Such tools, which range from public involvement technologies (e.g. the Electronic Town Hall) to computer-based graphic simulation programs (e.g. Community Viz), can help facilitate the democratic process in community planning, enable people to visualize how proposed changes might affect their communities, and more accurately forecast fiscal, environmental, economic and social impacts. The predictive ability of this emerging set of technologies has enabled communities to develop better estimates for everything from traffic impacts to infrastructure costs. And, the ability to graphically depict potential changes makes it easier for the public to be engaged in making informed choices.

Overall, we see great potential in these technologies and would encourage this committee to examine ways to support such efforts where relatively modest investments now can result in substantial returns in the future, as communities, regions and States seek to foster broader public input into better informed transportation

planning efforts, helping the public more fully anticipate and understand the outcomes of the various options before them.

RESPONSES OF JUDITH ESPINOSA TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. Please explain how "smart growth" would address the increased traffic congestion from densification of urban and suburban areas.

Response. The weight of academic research reveals that denser development actually reduces traffic because compactness results in greater travel choices, including walking, cycling and transit. One recent study by the U.S. EPA found that dense "infill development" sites were projected to generate 48 to 61 percent less traffic than comparable sprawling "greenfield" sites. (Allen, E., Anderson, G., and Schroeer, W., "The Impacts of Infill vs. Greenfield Development: A Comparative Case Study Analysis," US EPA, Office of Policy, EPA Publication #231-R–99–005, September 2, 1999.) In another recent study of the benefits of location efficiency, a number of studies were reviewed, showing significant reductions in driving associated with higher residential density. In one of the studies of world's largest cities, it was noted that driving is reduced 30 percent every time density doubles. (John Holtzclaw, Robert Clear, Hank Dittmar, David Goldstein, and Peter Haas, "Location Efficiency: Neighborhood and Socio-Economic Characteristics Determine Auto Ownership and Use—Studies in Chicago, Los Angeles and San Francisco," Journal of Transportation Planning and Technology, Volume 25, 2002.)

While less of an academic review, but nonetheless part of the committee's record, is testimony by The U.S. Conference of Mayors on brownfields and related policy reforms. The statement of Elizabeth Mayor, J. Christian Bollwage, for the committee's February 27, 2001 hearing on S. 350, reviewed findings of the Conference's survey on brownfields. He states,"One of the very interesting findings came from survey respondents who were asked to quantify how many people their communities could absorb without adding appreciably to their existing infrastructure. 118 cities estimated they could support an additional 5.8 million people, a capacity that is nearly equivalent to the population of Los Angeles and Chicago. This capacity is more than 2 years of U.S. population growth." In this survey, a relatively small number of U.S. cities reported on their capacity to absorb additional population, with these cities indicating that their infrastructures could meet traffic and other effects of increased density. Among the cities in the sample were those where substantial population losses had occurred over the last several decades, and which have latent transportation and other capacities in place to handle much larger populations. It follows that increased traffic, and potentially even increased congestion associated with densification, is more about tapping the considerable capacity and infrastructure that now exists in the cities described by Mayor Bollwage and which are capable of handling larger populations.

Question 2. A recent report by the Transportation Research Board on long-term research needs states, "Research on transportation and the environment has only recently begun to explore in any significant depth the complex relationships among land development patterns, transportation investments, travel behavior and consequent environmental impacts." Please comment on the practicalities of implementing a ""smart growth"" program given our limited understanding of these relationships.

Response. I am a member of the Transportation Research Board's, Committee for the Surface Transportation Environmental Cooperative Research Program Advisory Board, which wrote the report that is quoted. That statement is certainly factual, but the Report further goes on to detail and cite research currently proceeding that explores and begins to explain these very relationships and issues of ""smart growth"." The Report from the TRB Advisory Committee further calls for a strong national research program that will support increased funding to public agencies, academic institutions, NGO's and others to bolster our knowledge and science of "smart growth," and the relationships between land use, transportation, travel, environment, and other social needs.

Many States and local governments have already instituted "smart growth" initiatives, plans and legislation to address how their communities grow in the 21st century. The State of Oregon, a representative from which was on the Transportation Planning and "smart growth" Panel, has certainly been a leader. But there are other examples of broad-based initiatives and many other targeted efforts among States and local governments. The many programs in States and in hundreds of communities to recycle brownfield sites are one example of a targeted effort, which at its core is about "smart growth." Growing interest in brownfields comes from environmental justice representatives in communities, such as, Atlanta, Chicago, Austin

and the San Francisco Bay Area. They continue to note that "smart growth" programs coupled with brownfields development and transportation access is key to community revitalization and job opportunities.

The public debate within urban centers, rural areas of the Nation, communities of color, suburban commuters, and business and industry has begun to inform policymakers. It is about how we, as a people, expect to grow and prosper through environmentally sound transportation choices and land use and planning initiatives that promote our quality of life. The TRB Advisory Board Report takes note of how transportation and environment initiatives are linked, and further expands by illustrating where we currently have gaps in knowledge, data collection, and planning tools to address our national "smart growth" needs in an environmentally sound, efficient and socially responsible fashion. I believe, along with local and State agencies and communities across this Nation, that a strong Federal role is needed in support of current "smart growth" initiatives and expansion of the research base. A well reasoned Federal approach to and support for a "smart growth" agenda will lead to better program planning and implementation and is a must if we are to compete in a technologically advanced global economy.

STATEMENT OF THOMAS M. DOWNS, PROFESSOR, UNIVERSITY OF MARYLAND, DIRECTOR, NATIONAL CENTER FOR SMART GROWTH, RESEARCH, EDUCATION AND TRAINING

Mr. Chairman and Members of the Environmental and Public Works Committee: It is a pleasure to appear before you this morning to address the role of the planning process and its linkages to transportation planning, land use planning, economic development and growth management.

I will lean heavily on the recent work of Dr. Susan Handy, a professor at the University of Texas, who is both an engineer and a planner.

Dr. Handy did a comprehensive review of all of the literature that has focused on the transportation and land use connections.

It turns out that there are few major studies at the national level that have looked at the connections between transportation and land use patterns. While we as a nation have spent hundreds of millions of dollars on developing better pot-hole material, better cement, and better bridge steel; we have spent almost nothing on the most important aspect of transportation—how it has changed the way we live and work.

Dr. Handy found that in a study in 1999 by Hartgen and Curly that regions without beltways grew faster and that population densities declined faster in regions with beltways. She also learned that a 1980 study by Payne and Maxie found beltways had no impact, positive or negative, on economic growth. This study also found that office and apartment development locates near a beltway, but at the expense of other parts of the region.

After Dr. Handy looked at beltways, she then examined the research on the effects of highway corridors. She found that a 1998 study by Hansen concluded that highway capacity expansion stimulates development activity, both residential and non-residential, in the expanded corridor. A 2002 study by Ten Siethol and Kockelman demonstrated dramatic increases in property valuations most proximate to the freeway corridor. A large review study by Boarnet and Houghwout in 2000 suggests that highways influence land prices, population, and employment changes near the project, and that the land use effects are likely at the expense of losses elsewhere. Dr. Handy's conclusions from these studies is "Building new highways will not increase the rate of growth, but will influence where in a region growth occurs and what kind of growth occurs. Not building highways will not necessarily prevent continued decentralization." The research seems to suggest that highway capacity expansion serves to move the economic chairs around a region, but does not create a new net growth in a regions economy.

Dr. Handy then looked at the issue of increasing highway capacity and induced demand (or build it and they will come). She found that there does seem to be some correlation between capacity expansion and vehicle miles of travel (VMT), but that the elasticities are lower than suggested by popular literature. She concludes that simply not building new highways will not significantly slow the growth in VMT.

The conclusions about highways impact on land use only serves to show us how little we know about the real outcomes of these large scale national investments. We, in part, do not know because we are not funding the research that would give us better answers.

On the transit side, Dr. Handy looked at the research on the effects of light rail transit (LRT) investments on land use and development. She found a TCRP report

in 1995 that shows that transit investments and services are incapable by themselves of bringing about significant and lasting land use and urban form changes. A 1996 study by Vesalli showed that transit system's impacts on land use are limited to rapidly growing regions with a healthy underlying demand for high—density development.

The research on transit impacts shows us what we all intuitively know, that outcomes really depend on the local governments land use decisions and on the health of the regional economy. The research suggests that the real accountability for outcomes in transit development rests squarely on local land use decisionmakers. A close look at the Washington region's success or failure in capturing the enormous Federal investment in METRO proves this point.

Lastly, Dr. Handy looks at assumptions that changing development patterns will effect travel behavior and she comes to the conclusion that "land use and design strategies may reduce automobile use a small amount", Kitamura, et al. 1997.

The conclusions of her review of research findings over the last 15 years is:

1. New highway capacity will influence where new growth goes, but not the overall growth within a region.
2. New highway capacity probably increases travel a little.
3. LRT can encourage density with the right help.
4. New Urbanist design strategies make it easier for those who want to drive less to do so.

Dr. Handy then asks why the data does not yield more, and answers that the interactions between transportation investments, land use patterns and travel patterns are much more complicated than we have assumed. We are not collecting data on those complex interactions in part because we have traditionally looked only at the movement of people and goods as the outcomes of transportation investments.

Dr. Handy suggests that we must be able to use increasingly sophisticated statistical techniques to handle the complex web of connections and the limitations of the data. She strongly suggests that we invest in better and more sophisticated data collection and that the focus after that should be on the translation of empirical results into planning and forecasting tools.

While Dr. Handy's work looks at the actual outcomes of investments in highways and transit within a region, there are several areas that are not reviewed , because the issues are mostly ignored.

The first area that has almost no data available is the relationship of regional health to transportation investment. If childhood asthma is increasing at catastrophic rates, is it related to air quality, VMT, or land use patterns; and if so, how? If the Nation is now in a spiral of obesity, is there a relationship to the type and quality of transportation investments in a region?

Recent research also suggests that auto mobility comes at a very high price for the poor, exceeding expenditures on health, education, and food. Do we know if these impacts on the poorest 25 percent of families varies by region, and do we know what strategies work to relieve the strain of that cost burden?

We can now ask even more ambitious questions. How do these health costs and family transportation costs effect the economic health of a region? We do not now know the answer, but it is clear we now have the tools to begin to understand those relationships, we just have to make the effort.

We have not, as a Nation, looked at the results of our investments. The creation of the Bureau of Transportation Statistics was supposed to help with research on data quality and integrity, as well as how to use the data in complex regional models. It is unclear how BTS lost its way, but it has, until recently, been either a hobby shop where research focused on what was of interest to the researcher; or it became a job shop for the Office of the Secretary, doing small scale projects. BTS is also limited by the fact that it receives most of its funding from FHWA.

Several suggestions to strengthen our understanding of the complex relations between transportation, land use, and behavior:

1. Take mandatory set asides out of Transit, Highway, and Aviation to fund an independent BTS.
2. Require BTS to not only report annually to the Congress on its funding agenda, but also its findings, with recommendations on the relationship of those findings to the regional planning and forecasting process.
3. Given the real and understandable Federal reluctance to engage in any local land use decisions, the next step in the accountability chain would be to take the introductory purpose statements of TEA–21 and place those objectives in the planning language section of the new bill. It would then provide a framework for developing accountability for outcomes at the regional level. Because there are no expec-

tations of outcome, beyond clean air, there is little we can do as a country to measure the results of our investments.

4. If there is going to be a research chapter in this reauthorization, do not let it be totally dominated by one mode or one profession. If we could establish, through research, better data, better models, and better frameworks for decisionmaking, we could become more accountable for the results of our transportation expenditures as a Nation.

5. Incorporate requirements into the planning process to address issues of health, pedestrian trips, and land use impacts. It is important to have the planning process address these areas, not to make judgments about the outcomes, but to make sure they are part of the factors considered in planning.

While this may seem a long digression there are several key points to be made in summary:

1. There is little real relationship between the transportation planning processes and its impact on land use and travel.

2. The planning process is primarily a way to move a capital program into the pipeline, and not a series of complex competing goals needing resolution.

3. Unless we begin to measure and compare actual outcomes of our investments, we will be exactly in this same spot for the next reauthorization.

4. Unless there are outcome requirements for the MPO planning process and some direct, non-modal funds to meet those requirements, MPO planning will not change.

5. We need to actually look at what we want as outcomes of our national investments in transportation. It looks increasingly like it should mean making it easier for Americans to make a wide variety of choices in transportation.

STATEMENT OF JOY WILSON, PRESIDENT AND CEO, NATIONAL STONE, SAND & GRAVEL ASSOCIATION

Good morning. I am Joy Wilson, president and chief executive officer of the National Stone, Sand and Gravel Association-NSSGA-located in Arlington, Virginia.

NSSGA represents the nation's aggregate industries-producers of crushed stone, sand and gravel, as well as suppliers of equipment and services to aggregate producers. Our 850 member companies turn out 90 percent of the crushed stone and 70 percent of the sand and gravel consumed annually in the United States. Nearly three billion tons of aggregate valued at approximately $14.5 billion were produced in this country in 2001, according to the U.S. Geological Survey (USGS). The aggregate industry workforce is made up of about 120,000 men and women across America.

Just to provide some perspective, there are 10,000 construction aggregate operations nationwide. Virtually every congressional district is home to a crushed stone, sand or gravel operation. Proximity to market is critical due to high transportation costs, so 70 percent of our nation's counties include an aggregate operation.

Construction aggregates are used primarily in asphalt and concrete. Ninety-four percent of asphalt pavement is aggregate; 80 percent of concrete is aggregate, whether used in pavement, buildings, dams, sewage treatment plants and the like. About 10 tons of aggregate per person are used annually in America. Every lane-mile of interstate consumes 38,000 tons of aggregate; about 400 tons of aggregate are used in construction of the average home.

While I appear this morning representing the aggregates industry, I also appear as a representative of the Partnership for Quality Growth that includes 13 labor and industry organizations that share a common interest and concern for the future of our country's transportation systems and infrastructure and how they relate to our national quality of life.

I know this is something we share with the members of the Environment and Public Works Committee, so we particularly appreciate Chairman Jefford's and Senator Smith's initiative in holding this hearing to examine the issues surrounding "Transportation Planning and Smart Growth."

Our industry-labor coalition has a significant interest in "smart growth"

Among other things, this diverse group adheres to the basic concept that Americans should continue to be allowed the freedom to live and travel where and when they please.

We also recognize that, as our population continues to grow, all planning-Federal or local-must accommodate that continued growth, plus the collateral increase in the transport of freight that will be needed to support that population.

We hope to insure that Federal policies respect as much planning power as possible in local communities to meet growth needs-especially with regard to transpor-

tation and other infrastructure improvements. Use of Federal transportation law to drive local planning decisions should be approached with extreme caution, lest local and State land use decisions become usurped by Federal determinations.

It is essential that local planners have the ability and flexibility to formulate their plans with a sound basis of knowledge about where and what the aggregate resources around them are. While those resources are plentiful across the United States, they vary in quantity and quality from location to location. It's important for planners to know if their local resources are suitable for multiple uses, including construction, erosion control, water quality protection and the like. And they must know how long their supply of the resource will be available.

Geological mapping is a key tool for planners in pinpointing resources. The placement of a school, a shopping mall or a hospital, for example, atop a rich aggregate deposit would indefinitely eliminate that deposit's beneficial use by the community.

That is another reason why our industry is attuned to discussions about land use planning and concerned about the potential impacts of the "smart growth" movement on Americans' mobility, our industry, on transportation planning and construction and on the reauthorization of TEA–21.

I will begin by discussing these points and then I will offer some observations on how we have an opportunity in the reauthorization process to promote "quality growth."

Let me define some terms.

"Quality growth," as defined by the Quality Growth Coalition, is planned growth that respects the fundamental freedom of Americans to choose where they live, their choice of housing and how they travel.

It promotes quality urban development and growth management by improving the entire transportation network-including additional road capacity, better management of traffic flow and more efficient public transit.

Defining "smart growth" is more challenging.

Generically, "smart growth" principles are motherhood and apple pie: preserving green spaces, easing traffic congestion, restoring sense of community, promoting regional growth strategies and nurturing a high quality of life.

Leaders in the major political parties and at all levels of government have embraced these basic principles.

However, others interpret "smart growth" to mean no expansion of suburban development; the imposition of urban growth boundaries; increased housing density; getting people away from individual car use; reduced emphasis on road improvement-especially road capacity-and disproportionate investment in rail and mass transit.

Others see a strong Federal land-use planning role to combat what some call unorganized spreading out, or "sprawl," prodding Americans to infill within urban areas.

We do not believe that the vast majority of Americans want restrictions on their freedom of mobility. And air pollution from mobile sources has declined so much that today, while still a concern, it's not even the primary source of air pollution in most areas of the United States.

Over the past 30 years we've seen more than more than a 30 percent increase in population, the number of licensed drivers increase by 64 percent, a 125 percent increase in vehicle miles traveled and 87 percent increase in licensed vehicles, according to the U.S. Department of Transportation.

Air pollution reductions from mobile sources have been dramatic. According to a January 2002 U.S. Department of Transportation report,

- Carbon monoxide is down 43 percent over this same 30-year period; volatile organic compounds are down 59 percent;
- Particulate matter is down 42 percent;
- NOx is holding nearly steady and
- Lead has been virtually eliminated from our air.

There are many interpretations of "smart growth," but we and our industry colleagues believe the focus should be on "quality growth."

After all, as one of the greatest friends of the environment this country has ever known-President Theodore Roosevelt-once said: "Conservation means development as much as it does protection."

We have facts and studies, and we must put the debate more fully in the sunshine-with decisionmakers at all levels of government.

We found that with two statewide ballot initiatives in Arizona and Colorado in 2000 that the citizens-once apprised of the true impacts of the "smart growth" initiatives-did not agree at all with such extreme measures that took away personal freedoms, property rights and ability to plan for future growth.

Both these ballot initiatives were defeated by majorities of more than 70 percent with the support of coalitions of business, labor and government.

Let's look in our own backyard. Many of you are familiar with the 1960's National Capitol Transportation Plan for the Washington area that called for 14 new roads, mass transit and high-occupancy vehicle lanes.

Well, we got Metro and the HOV lanes-but only one of the 14 roads. And look at our congestion now-second worst in the entire nation. Road capacity did not increase in parallel to population increases and the desire of people to make multiple stops on the way to and from work and throughout the day.

So, one impact of "smart growth" on transportation planning is the misunderstanding, or even misinterpretation of how much congestion relief mass transit can assume.

In fact, a growing body of evidence suggests that Americans will choose to drive and that government policies will not change their behavior.

In his book, *Commuting in America,* noted transportation expert Alan Pisarski observes that, over the past three decades and despite billions of dollars invested in alternatives to driving, every means of commuting, except lone drivers who can't use HOV lanes, has lost market share from 1980 levels.

Year 2000 census data released this past August showed the trend continuing and confirmed Pisarski's findings.

We are concerned about claims in the name of "smart growth," that putting what's tantamount to a moat around a city-an urban boundary-will maximize the use of our resources and prevent open spaces from being developed.

Matthew Kahn of Tufts University and others at the University of Illinois and the University of Southern California who've studied the phenomenon find growth in suburbs to be a pattern resulting essentially from increased prosperity.

Rocky Moretti of The Road Information Program recently unearthed a fascinating nugget of research that tells us much about human behavior.

What he found is that the human race has been "sprawling" for some time.

He located a city in Central America with an urban corridor connected to suburbs by series of roads. Research showed that, as the core of the city expanded and filled with commercial and other activity, inner city residents moved to the suburbs. The town is called Caracol and the movement to the suburbs predated the automobile by 1200 years. This suggests a strong human propensity to seek space when possible.

We agree with Alan Pisarski's recommendation that transportation policies should facilitate Americans' lifestyle choices, not thwart them.

Another factor where "smart growth" interacts with transportation planning is in the myth that proponents of better roads want to pave America over-and that if you build, widen or improve a road, more cars will be attracted to it as if it were a magnet. The data and surveys contradict this hyperbole.

We do not have a shortage of land, a shortage of farmland or a shortage of forests. What we have is a desire by most people to live in certain core areas, and those areas, not surprisingly, are densely populated-generally characterized by urban centers and suburban growth.

As the National Center for Policy Analysis in Dallas reports:

- Less than 5 percent of the nation's land is developed and three-quarters of the population lives on 3.5 percent of the land.
- Only about one-quarter of the farmland lost since 1945 is attributable to urbanization.
- Predictions of future farmland loss based on past trends are misleading because farmland loss has been moderating since the 1960's, falling from a 6.2 percent decline in farmland per decade in the 1960's to a 2.7 percent decline in the 1990's. Other factors, such as crop yield and market conditions, have had a greater impact.

And freedom of choice is the fundamental issue here. The freedom to choose where to live and how to travel to work, to recreation and to two working parents' unending errands.

Americans continue to choose to buy and drive cars, SUV's and trucks.

They choose lifestyles-including ordering goods by e-commerce-that put ever more trucks on the road to deliver consumer products to their stores and homes.

Their lifestyle choices have relegated commuting to a scant 20 percent-one-fifth-of all trips. America's highway travel is growing and will continue to grow in the future.

So, Americans are choosing to drive, but they're also choosing the suburbs over the cities.

Some indict government-sponsored infrastructure investments-like sewer and water lines and highways-for suburban migration. The logic goes, "stop the infra-

structure investments, stop the sprawl." But is that true? Studies have shown that Americans move from cities to suburbs because of prosperity. As we become more successful and prosperous, we want a better quality of life-and many find it by moving out of cities.

Public opinion polls further buttress these conclusions. When asked, Americans list quality public schools, affordable housing, good jobs and low traffic congestion as their top priorities in choosing where to live. Secondary priorities are open space and low-density.

And the principal factors used in deciding where to live aren't compatible with high-density living and limited highway capacity.

In a nationwide survey by National Association of Homebuilders in the late 1990's, 83 percent of respondents said they would prefer a detached, single family home in the suburbs over an equally priced urban townhouse near transit, even though the suburban home would entail longer distances to work and shopping.

Today, more than half of Americans live in suburbs. Forty percent of our jobs are located there, and more jobs are being created in suburban communities than anywhere else.

When the public's clear choice to drive and to live in the suburbs is suppressed, or if policy decisions try to change behavior by reducing or stopping highway investments, decisionmakers will allow traffic congestion to worsen.

With nearly all Americans choosing to drive, public policies that ignore that vast majority will fail.

In contrast, relieving traffic congestion will reap very real benefits to our communities and our quality of life.

Two years ago, NSSGA supported American Highway Users Alliance's definitive study on the benefits of congestion mitigation.

The study found that improving America's 167 worst traffic bottlenecks would produce dramatic safety, environmental, fuel economy and time-saving improvements over the next 20 years:

First, safety: * 290,000 fewer crashes, 141,000 fewer injuries, 1,100 fewer fatalities;

Second, environmental improvement:

- 45 percent reduction in carbon monoxide,
- 44 percent reduction in smog-causing volatile organic compounds,
- 71 percent less CO2, and

Finally, economic productivity:

- A reduction of 19 minutes for each vehicle driving through the bottlenecks.

Road investments enhance our freedom of mobility and democratized mobility for all Americans. With more than 90 percent of American households having access to automobiles, mobility reaches through all classes and incomes.

Road investments have made it possible for lower income workers to live in areas they can afford yet commute to higher paying jobs in areas where they cannot afford to live.

Road investments have increased the opportunity for more Americans to buy their dream homes and boosted leisure time.

Road investments create jobs. The U.S. Department of Transportation estimates that 42,100 total full-time jobs are created with every $1 billion that is invested in Federal-aid highways: 27,600 in highway construction and related industries and 14,500 that are induced in other industries as the 27,600 spend the wages they've earned. Highway dollars create construction jobs, which create supplier jobs, which create jobs for businesses that provide the goods and services they want.

Last but not least, road improvements reduce commute times. In its 2001 Urban Mobility Report, the Texas Transportation Institute (TTI) concluded that traffic congestion in 68 major cities wastes 4.5 billion commuter hours annually costing $78 billion in lost time and productivity.

The last time a rush hour was really an hour was in the late l960's. The rush hour grew into the "rush period" of 3 hours daily by 1982. And in 1999, the rush period was almost 6 hours (about 3 hours each way).

The TTI study also showed about 6.8 billion gallons of excess fuel is consumed annually in what they call a "congestion tax."

And pollution is reduced when you can reduce emissions from idling traffic to smooth-flowing traffic.

This leads me to my final point: how the reauthorization of TEA–21 can promote quality growth.

We are faced with challenge after challenge in our nation's courts to highway projects authorized by TEA–21 and approved through the local, State and Federal environmental permitting processes and are needed by commuters.

The challenges have come in the guise of protecting air quality under the Clean Air Act. But, occasionally, you find an admission by opponents that they just don't want these projects built in Atlanta, Sacramento, Baltimore, Salt Lake City or in other key urban areas because they fear the projects will enable growth.

The reauthorized highway bill must anticipate harassment litigation on projects prioritized by the States and approved by the Federal Government. These are projects that have passed through all the environmental hoops and local planning processes.

They're projects that communities want for capacity, for gridlock reduction, for relieving traffic congestion and for improving air quality and the quality of their lives. They're projects that can reduce the loss of life, time, money and fuel.

The Partnership for Quality Growth firmly believes that such anti-road litigation is one facet of "smart growth" that isn't and doesn't contribute to "quality."

We want to be positive about the contribution of sound planning to our quality of life. Some opponents would paint us as "anti-planning." But that's not true; let's look at planning recommendations our industries propose for local consideration at the community level:

- Well-designed suburban communities
- Flexible planning and zoning regulations
- Protection of key open space
- Comprehensive transportation systems with adequate road capacity
- Improved road design, and
- Preservation and redevelopment of previously occupied sites.

Over the past 30 years, our roads have increased capacity only by 6 percent when our population has grown by more than 30 percent.

And, our population is expected to grow by 100 million people by the year 2050.

TEA–21-the largest infrastructure bill ever passed by any Congress-is going to make a dent in that, but the need is so immense that the challenge for the next transportation bill is even more formidable.

Quality growth principles can help frame the debate during reauthorization. These principles are:

- Acknowledging our freedom to choose how to live and travel,
- Acknowledging that growth is good if managed properly,
- Sharing the benefits of improved mobility as broadly as possible-mobility is a major factor in the quality of our democracy,
- Advocating that decisions should be made locally and involve local citizens, and
- Believing that our policies should facilitate American culture and choices, not thwart them.

Investment and use of mass transit and public transportation—whether buses or rail—are necessary and important tools in our battle to solve congestion. But these tools need to be in some proportion to Americans' interest in using them, and should not be used as weapons against roads and vehicle use. HOV lanes, Heavy Vehicle or Dedicated Truck Lanes, and other gridlock-busting alternatives also must be examined to lift our nation out of congestion.

TEA–21 is being impacted by "no growth" litigation over highway projects, projects already approved through the local, State and Federal transportation, community and environmental processes.

The successor legislation must make and embody a critical philosophical choice-are we as a nation trying to dictate cultural change in America, or are we trying to serve and facilitate the freedom of movement that has characterized this nation from its beginning?

In embracing the beneficial planning goals of quality growth, the new legislation should support the local, State and Federal decisionmaking processes that, once completed, should not be subject to delay by interminable court battles due to legal loopholes.

Our industries are committed to ensuring that America continues to grow and that it will be quality growth.

Mr. Chairman, I respectfully wish to submit for the hearing record a copy of the Quality Growth Coalition's publication, Building Better Communities: A Toolkit for Quality Growth, which expands on some of the points I touched on today.

Thank you for your consideration.

STATEMENT OF RICHARD STOLZ, DEPUTY DIRECTOR OF PUBLIC POLICY, CENTER FOR COMMUNITY CHANGE

On behalf of the Center for Community Change and the Transportation Equity Network, I am pleased to submit testimony to the Senate Environment and Public Works Committee on the topic of Smart Growth and Transportation Planning. I commend the chairman and the committee on its decision to hold a hearing on this important topic.

The Center for Community Change is a 30-year old national non-profit organization deeply rooted in low-income and minority communities in both urban and rural areas. Our mission is to help grassroots organizations build and improve their capacity to effect the policies that impact the day-to-day lives of their membership.

The Transportation Equity Network (TEN) is a national coalition of grassroots organizations based in low-income and minority communities organizing to reform transportation policies at the local, regional, statewide and national level. TEN's membership includes faith-based networks of congregations, community organizing projects, community development corporations, social service organizations, civil rights groups, organizations of transit riders and other low-income people, and progressive transportation agencies. TEN groups are active in more than 30 States and TEN includes dozens of organizational members and affiliates.

In 1997—1998, the Center and TEN worked closely with Members of Congress and a coalition of allies in Washington, DC to include several provisions related cto transportation planning in the Transportation Equity Act for the 21st Century (TEA–21):

- A requirement that Metropolitan Planning Organizations (MPO) provide to the public an annual list of projects for which Federal funds have been obligated.
- A public involvement requirement in the statute in the MPO certification process.
- A provision that ensures that transit users are consulted in the statewide and metropolitan transportation planning process.
- The newly created Job Access and Reverse Commute competitive grant program.

As Congress renews TEA–21, the Center and TEN urge Congress to pay particular attention to the impact of transportation planning and investment on low-income and minority communities, and to establish strategies for using surface transportation legislation to support the revitalization of rural and urban communities and regional economies. The Center also reminds Congress that more work is needed to ensure that the nation's transportation planning system is fully accountable and transparent to taxpayers.

Sprawl is neither Class nor Race Neutral, and the same can be said for Smart Growth

From the perspective of low-income and minority communities, particularly in metropolitan urban areas, sprawl has a particularly pernicious and deleterious impact. A growing body of research, and an emerging consensus among researchers and advocates, asserts that in metropolitan areas, the relationship between the concentrated poverty of central city communities and the relative affluence of suburban enclaves is not coincidental.

According to John A. Powell of the Institute on Race and Poverty at the University of Minnesota, "Sprawl and regional fragmentation on the one hand, and concentrated poverty and social inequity on the other hand, are flip sides of the same dynamic."[1] The same factors that push and pull families away from urban centers and to the suburbs trap the families left behind. Those able to leave have the human and financial capital to do so. They leave for better jobs, better schools and they invest their financial capital in property likely to increase in value. Those left behind must deal with struggling schools, less human capital and fewer financial resources.

Powell goes on to explain that the Federal Government defines concentrated poverty as a census tract with 40 percent or greater of its residents living below the poverty level. This is significant because joblessness, blight, crime, and other circumstances destructive to families characterize concentrated poverty. Central city communities, which are more likely to hold areas of concentrated poverty, therefore carry the burden of having to address more social problems, which serve to push out more families that can afford to leave. As a result, these communities often lack the tax base necessary to address the social ills that plague them.

[1]"How Sprawl Makes Us Poor" by John A. Powell in The Albuquerque Journal, March 22, 2002.

There is a further layer to concentrated poverty—race. Of those living in concentrated poverty, more than half are African American (note that African Americans make up only 12 percent of the national population), and a quarter are Hispanic. While the reasons behind the stark residential race and class segregation in America's metropolitan regions are complex, the reality is unavoidable. Paul Jargowski, as he writes in Poverty and Place: Ghettos, Barrios, and the American City, is on solid ground when he explains that "neighborhood poverty is not primarily the product of the people who live there or a ghetto culture that discourages upward mobility, but the predictable result of the economic status of minority communities and the degree to which minorities are residentially segregated from whites and from each other by income."[2] Sprawl both contributes to and facilitates this residential segregation.

Since sprawl and its counterpart, concentrated poverty, must be analyzed in tandem in order to more fully understand the impact of willy nilly suburban growth, it stands to reason that Smart Growth also has a counterpart: equal access to economic opportunity. The Transportation Equity Network believes that any effort undertaken in the name of Smart Growth that fails to address concentrated poverty and does not advance equal access to economic opportunity is inadequate. For example, Smart Growth strategies that encourage economic development in central city communities should be mindful on the impact of such development on the availability of affordable housing. And strategies that seek to protect environmental treasures on the edges of suburban growth should also be mindful of the need to improve access to economic opportunity in areas of concentrated poverty.

The Role of Transportation Planning

In metropolitan regions across the country, experience has shown that suburban development often follows road and highway construction. As Dr. Susan Handy of the University of Texas concluded in 1999 (also quoted in testimony by Tom Downs from the University of Maryland) "Building new highways will not increase the rate of growth [in metropolitan regions], but will influence where in a region growth occurs and what kind of growth occurs." While she goes on to say that not building highways will not necessarily prevent decentralization, her conclusion does suggest that growth follows highway development, and may do so at the expense of other areas within a metropolitan region.

In the Intermodal Surface Transportation Efficiency Act (ISTEA) Congress laid the groundwork for significant reform in the transportation planning process by establishing the metropolitan planning process. As such, Metropolitan Planning Organizations, which are often the only governmental entities in a particular place with regional jurisdiction, can play a very significant role with respect to Smart Growth. Furthermore, because transportation investments play such a large role in determining the nature of growth in metropolitan regions, the choices made by MPOs have lasting impacts on the growth patterns of metropolitan regions.

In 1999, the issue of Smart Growth and equal access to economic opportunity came to a head in northwest Indiana. That was when a coalition of African-American, White and Latino congregations named the Interfaith Federation publicly challenged the planning practices of the Northwest Indiana Regional Planning Commission (NIRPC) on both moral and legal grounds.

Northwest Indiana, which includes the cities of Gary, Hammond and East Chicago, is one of the most racially segregated metropolitan regions in the country. It is also a region characterized by both sprawl and concentrated poverty. Gary, Hammond and East Chicago have all three experienced declines in population following the collapse of the manufacturing and steel industries over the last three decades. These cities are largely low-income, have relatively high property taxes, and share symptoms of urban decay, including failing schools and high rates of unemployment. Around these cities lies an extensive network of suburban communities of varying degrees of affluence, and they grow in affluence the further away they get.

The Interfaith Federation complained that NIRPC had contributed to the decline of the region's central cities by placing undue emphasis on the construction and expansion of roads and highways, while neglecting the needs of residents living in areas of concentrated poverty. All three cities are located in the northern half of Lake County, Indiana. Over the last decade, the region's job growth has taken place in the southern half of Lake County. The transit-dependent residents of Gary, Hammond, and East Chicago had no way of accessing areas of high job growth in south county by public transportation.

While some may contend that the Interfaith Federation had challenged NIRPC on grounds that were beyond the MPO's control, it was certainly clear that NIRPC had

[2]Poverty and Place: Ghettos, Barrios and the American City. Paul Jargowski. 1997.

entirely neglected the region's neediest residents and had failed its neediest jurisdictions. In response to the Interfaith Federation's concerns, NIRPC contended that it had done nothing wrong. The Interfaith Federation, undeterred, pointed to several regulations and provisions of Federal law that the MPO had ignored. The Federal Highway Administration and the Federal Transit Administration, after lengthy deliberation, concurred with the Interfaith Federation, and conditionally certified NIRPC's planning process. The FHWA also provided NIRPC with a discretionary grant to help it better plan for the needs of low-income and minority communities under its jurisdiction.

Examining Transportation Equity and Inequity

Though ISTEA and TEA–21 both represent enormous improvements in the national transportation planning landscape compared to what existed before, from the perspective of low-income and minority communities, ISTEA and TEA–21 represent a mixed bag.

A case in point is Miami, Florida. In the late 1960's portions of unincorporated Dade County were vibrant African American communities with strong local economies and solid middle class families. The State tragically steam-rolled these communities at the end of that decade when the State built Interstate 95 right through many of these neighborhoods. Not only were families and business displaced, but also over the ensuing decades declining property values and other symptoms of social decay took hold. This is a story not unique to Miami-Dade County. Similar stories can be found in Montgomery, Alabama; Los Angeles, California; Atlanta, Georgia, and other cities across the country.

In the 1990's the State further stripped these communities of their dignity by widening the I–95 corridor to within feet of people's homes and erecting wire meshed fencing to protect these households from highway noise and traffic. Residents endured years of house-rattling noise, cars rolling into their back yards, shrapnel from exploding tires and fear, and constant phone calls to State transportation and locally elected officials led to no improvements.

Finally in 2001, an organization of local residents named Neighborhoods in Action (NIA) organized to get the attention of the State's regional Department of Transportation office. Only after NIA invoked the term "environmental justice" did the DOT act in a responsive manner. In a matter of months, the State of Florida constructed a mitigation wall to protect residents of unincorporated Miami-Dade County from both noise and physical harm.

Ironically, NIA discovered at about that time that the mitigation wall had been written into the MPO's TIP for years, but had simply been skipped over every year. They also discovered that similar sound walls had long since been built along I–95 to protect other more affluent communities. Though in the end the structure of ISTEA and TEA–21 helped to encourage the State DOT to do the right thing, clearly the State had not made the needs of these communities a priority.

But this is not an a-typical situation. Robert Bullard and Glenn Johnson of the Environmental Justice Resource Center (EJRC) have written extensively of the impact of transportation planning that fails to consider the needs of low-income and minority communities.

For instance, the EJRC reports that the pedestrian fatality rate for people of color is higher than that for whites. One explanation for the difference in rates is the difference in walking patterns among different racial groups. For example, African Americans walk 82 percent more than whites, while Hispanics walk 58 percent more than non-Hispanic whites (US Department of Transportation, 1997).

Also consider that asthma, which is a leading cause of disability among children in the United States, is more likely to strike inner city, and therefore, minority children. The hospitalization rate due to asthma is three to four times higher among black children than white children. Pollution from automobiles, and the proximity of roads and congestion to low-income communities is believed to be a factor in asthma prevalence among minority children.

But transportation inequity is not only about race, though race is a significant factor. In Driven To Spend, a report released by the Surface Transportation Policy Project and the Center for Neighborhood Technology in 2000, researchers found that transportation (the cost of an automobile, its maintenance and other costs) often rivaled the cost of housing for low-income families. The report also found that the greater degree of sprawl in a metropolitan area, the greater the cost of owning and maintaining an automobile.

Then there are those households that lack automobiles. According to the 2000 census, more than 10 percent of the American public does not own an automobile, and are dependent on transit or other sources of transportation besides a personal automobile to get around. This number is likely to increase as the nation's population

continues to age, and more and more of us eventually succumb to various physical and mental disabilities and impairments.

Transportation equity, in contrast, is about ensuring that all communities enjoy access to economic opportunity, and that no community is unfairly burdened with negative economic and environmental impacts. Transportation equity is also about ensuring that planning processes are fully transparent, accountable and accessible to the general public. Congress should strive to ensure that every Federal dollar spent on transportation carries with it the principle of transportation equity.

Access to Jobs: What We Learned from Welfare Reform

Transportation is a daily struggle for many Americans. This challenge is particular acute for low-income people and working families that lack access to safe, reliable and timely public transportation and cannot afford private car ownership. The low wage labor market is often unforgiving for hard-working breadwinners unable to get to work on time, if at all. For families on welfare who face federally imposed work requirements and time limits, the inability to get to jobs due to transportation, could render these families ineligible for public assistance as well as leave them unemployed.[3]

An example of an innovative Job Access and Reverse Commute (JARC) program is in Columbus, Ohio. The project was driven by a coalition of churches called Building Responsibility Equality And Dignity (BREAD), which realized early on the potential of the JARC program enacted in TEA–21.

BREAD partnered with the Central Ohio Transit Authority and the Mid-Ohio Regional Planning Commission, the city of Columbus, the Federal Transit Administration, and the county welfare office to establish a new transit hub in a low-income community in Columbus that is home to a large public housing project. The transit hub, which drew funds from a number of sources, featured express bus service to areas of high job growth in the suburbs, including feeder bus service that could take riders closer to their work sites. The transit hub itself also co-located child care services and job referral and training support services so that it could simultaneously meet the multiple needs of this community.

As demonstrated by the Columbus example, one of the JARC program's most innovative features is its emphasis on collaboration among various stakeholders, including transportation, welfare, and housing agencies and the affected community.

Although most low-income people may want cars, the reality of car-ownership can undermine the aspirations of families seeking to make a better life for themselves and their children. For many poor families trying to work their way out of poverty, car ownership is expensive and does little to generate equity over time, and the cost of owning a car can place other important wealth-generating assets, like homes, out of reach. But if a family is without a reliable vehicle and beyond the range of mass transportation—whether publicly or privately operated—that family will be economically, socially and culturally isolated. In rural communities, the circumstances are even worse. Forty percent of rural counties lack public transit, and 36 percent of all rural residents are considered transit dependent.[4]

Residents of large cities often forget that in smaller communities public transportation systems tend to be less well funded and receive fewer planning resources. But even in large cities, bus service may not accommodate the needs of second or third shift workers, or be able to accommodate the multiple trips mothers may need to take to get their children to childcare on the way to work.

Considering Metropolitan Planning Organizations

The Center for Community Change and the Transportation Equity Network have developed a great deal of experience working with and in some instances pressuring MPOs to reform their planning practices. Over the last 6 years, the Center has gathered a good deal of information about MPOs. The nearly 400 MPOs across the Nation represent a very mixed bag of both good and bad practice. Certainly, experience has shown that though MPOs—as all layers of government—often request less oversight from the Federal Government, some oversight is inevitably necessary. The transportation planning process is one example of where lack of accountability and standard minimum expectations has harmed the public interest.

In 1998, Congress enacted several provisions in TEA–21 related to the metropolitan transportation planning process. The Transportation Equity Network focused on three:

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[3]This material is covered in greater detail in Policy Brief: Transportation and Access to Jobs. Center for Community Change & STPP. 2002. [Draft]

[4]Status of Rural Public Transportation. Federal Transit Administration. 2000–2001

1) The first was an annual listing of projects for which Federal funds had been obligated in the prior year. The intent of this provision is to increase the degree of transparency in the transportation planning process by creating a tool by which the public can ascertain how Federal funds are spent in their metropolitan region, and thereby determine funding patterns in metropolitan regions over time. A survey conducted of a diverse sample of MPOs found that 5 years after the law was enacted:

- Approximately 80 percent of MPOs surveyed had an annual list of projects;
- Many MPOs were still having difficulty gathering data on project obligations because a) States were not willingly sharing the data; or b) non-compatible data collection or coding systems within States made this a very time consuming process;
- Some MPOs felt that additional information would make the list a more useful planning tool.

The survey and experience has also revealed that MPOs vary significantly with respect to capacity. Many MPOs lack necessary staffing resources and expertise in various kinds of data collection. Furthermore, many MPOs had staff who were unaware of various TEA–21 requirements, including the annual listing of projects.

Having said that, there are a number of items that would make the annual list of projects a more effective planning tool. The first would be to geographically code projects in both the TIP and the annual list; this would allow these projects to be readily mapped using Geographic Information Systems (GIS) technology. The second would be to include more project data, including the point at which the project is in the project development and construction process. The list should also be more clearly marked within the TIP, or separated from the TIP as a distinct document so that it might be more visible and easy to find.

2) The second provision added the term "transit user" to the list of stakeholder groups that must be consulted in the metropolitan and statewide transportation planning process.

Over the last 5 years, the Center has examined the public involvement programs of a broad range of MPOs. In too many instances, the MPO has been found lacking.

- During a certification review conducted by the Federal Highway Administration and the Federal Transit Administration in 2001, the Montgomery, Alabama MPO deliberately misled Federal officials and the public by claiming that it had a Citizen Advisory Council (CAC). In fact, while the MPO had a provision for a CAC on the books, it had never convened one. While Federal law does not mandate CACs, the FTA and FHWA do consider them a recommended planning practice. Months later, after the MPO did convene a CAC, the MPO refused to provide it with any resources making it impossible for the CAC to conduct business.
- When community representatives from Jackson, Mississippi approached their MPO in person to request a copy of their TIP, several MPO officials refused to provide it.[5] Similarly, when residents of Baton Rouge, Louisiana approached their State DOT to request a copy of the State Transportation Improvement Program, DOT officials unblinkingly informed them that there was no such document.

These are three particularly egregious examples of how MPOs, as well as States, have failed to take the public involvement provisions of TEA–21 seriously. On the other hand, many MPOs are very responsive to requests for information, and have invested a great deal of time in building public trust in their planning activities.

- The Birmingham, Alabama Metropolitan Planning Organization is admired by communities across the South for the role it has established for its Citizen Advisory Council, and its efforts to provide the public with opportunities to participate in alternative transportation analyses. The MPO also has a Public Involvement Plan, another FHWA/FTA recommended practice, with which it may be held accountable by the CAC and the general public.

Over the last several years, the Center and TEN have learned that MPOs tend to have better public involvement processes when a strong community presence is there willing to agitate them to improve. Experience has also shown that early and broad-based community outreach and public involvement can ease the transportation planning process, and greatly improve it, over both the short and long term.

3) A third provision established a statutory requirement for public involvement in the certification process, by which the FHWA and FTA review the planning processes of MPOs.

Though this provision applies to metropolitan planning, in some ways it provides some insight into the role of the FHWA and FTA in the metropolitan planning process. In the certification process, the FHWA and FTA are required to examine an MPO's planning practices every 3 years to determine whether or not the MPO is appropriately addressing planning factors and requirements in Federal regulations,

[5]Getting on Track. Center for Community Change. 2000.

TEA–21, civil rights law, air quality requirements, and other Federal law. As a digression, the Center and TEN have found a number of shortcomings at both FTA and FHWA.

- In 1999 the Center for Community Change submitted a Freedom of Information Act request to the FTA to provide recently filed certification reports. At the time, there was no central depository for certification reports at FTA or FHWA. Neither agency had any way of standardizing how it approached implementation of the various planning requirements in TEA–21. Nor could FTA and FHWA make any effort to assess its own effectiveness with respect to implementing this provision of Federal law.
- The FTA and FHWA, for their own part, tend to be rather obscure institutions. Advocacy organizations, researchers and community residents seeking information on the status of projects, trends in State funding behavior, levels of unobligated balances, and other information are likely to be given reams of hard copy print outs of indecipherable tables. As such, unless an outsider—let alone a DOT employee—intends to spend an inordinate amount of time pouring through numbers, there is no reasonable way to accurately compare the behavior of a State with other States, and it is often overly taxing to even make simple judgments on how much money States have spent on particular projects. That same researcher may or may not have an easier time gathering similar data at the State level, where some data collection systems almost seem designed to create confusion and obscure accountability.

With respect to the certification process, there are a number of factors that can be improved in order to improve FHWA and FTA performance, as well as MPO planning performance.

- MPOs are consistently uncertain about what they should be expected to do to conduct an appropriate examination of social equity or environmental justice impact on low-income and minority communities. The FHWA and FTA allow a great deal of ambiguity, and as a result have no set standard against which to judge effective planning with respect to low-income and minority communities. This has led to greater tension between transportation planners and community residents frustrated with moving targets and confusing messages.
- Since FHWA and FTA are primarily responsible for conducting certification reviews, there should be a minimum expectation laid upon FHWA and FTA for what should be considered an appropriate public involvement process in certification reviews. Such consistency will serve to improve public confidence in the metropolitan transportation planning process and serve to model best practices for MPOs.

4) In addition to these issues, there are governance-related questions that need clarification in Federal law.

- The relationship between tribal governments and State DOTs and MPOs. In all circumstances, tribal governments should be treated as sovereign entities, but they should also be consulted early and often in all decisionmaking processes that may impact on their land, population or infrastructure.
- The matter of one person-one vote. It seems unreasonable that in some metropolitan areas, a community 1/10th the size of the largest city in a metropolitan region has voting power equal to the largest city. While some MPOs have implemented a number of schemes to weight voting power, the Federal Government should clarify the principle that larger jurisdictions should have more say in the transportation planning process.

Environmental Justice

The principle of environmental justice is vitally important in Federal transportation law and transportation planning. Environmental justice, which is grounded in Federal Civil Rights Law, is important not only because it establishes a coherent vision that seeks to protect low-income and minority communities from environmental harms, but also because it fully acknowledges the role of income as well as race in unjust planning practices. Furthermore, environmental justice does not simply apply to public involvement processes. The goal of environmental justice, as articulated by the Center and by TEN, is the commitment that those communities that have suffered most will soon get the resources they need to revitalize themselves. Environmental Justice must be seen as a tool or criteria by which planning agencies prioritize the importance of projects or the need to re-examine them.

Recommendations

The Center for Community Change and the Transportation Equity Network urge the committee to consider the following recommendations. A more detailed set of legislative proposals is forthcoming. In the interim, the following are intended to create dialog.

1) Public Involvement

- Congress should set aside a fund for community involvement by grassroots organization stakeholders in the transportation planning process. These resources would help pay for the cost of programs for MPOs and States to train interested parties in the transportation planning process, and would be re-granted to community-based organizations to support community outreach efforts. Such a fund would help MPOs and States meet their public involvement and environmental justice obligations.
- Congress should earmark some funds for a planning initiative to create a "Best of the Best" reserve fund. FHWA and FTA would use such a fund to provide financial incentives for innovative and effective community outreach.
- Congress should establish a minimum set of expectations for all MPOs and States with respect to their public involvement practices. For example, all MPOs should have a Citizen Advisory Council, a Public Involvement Plan, and a requirement that comments formally submitted by interested parties must be fully addressed by MPOs or States prior to the publishing of key decision documents. The latter is a process already utilized by the Atlanta Regional Council and commonly used in public comment processes related to important public documents at both the Federal, State and local level.

2) Research, Data & Accountability

- MPOs should be required to maintain demographic profiles (ace, rage, income) of the metropolitan planning area. This information would be used to identify locations of socioeconomic groups, including low-income and minority populations. These profiles should be used to develop base maps and other planning and modeling tools to assess the impact of current transportation services and programs on low-income and minority communities.
- Congress should establish a multi-year process by which surveys, data gathering tools and other measurement tools will be modified to more accurately reflect the populations that both use and are impacted by various kinds of transportation investments. Similarly, Congress should require a greater degree of consistency across data sets held at both the local, metropolitan, State and Federal levels to ensure better coordination among layers of government. Furthermore, all projects in new TIPs, Annual Lists and related documents should be geographically coded to facilitate GIS mapping.
- Congress should exercise its role as the steward of Federal resources by strengthening public accountability in the transportation planning process. While the drive to streamline transportation planning and project delivery processes may be difficult to resist, regionally significant and controversial transportation projects must be justified against economic and environmental criteria in a thorough manner.

3) Smart Growth & Access to Economic Opportunity

- Congress should create a new Transit Oriented Development & Economic Revitalization Incentive Fund that provides local communities with a monetary incentive for locating mixed-income housing, business, and retail developments near public transportation centers.
- Congress should create various incentives for encouraging cooperation—shared data, coordinated planning, and project implementation—among transportation agencies, welfare agencies, work force investment boards, and housing agencies to most effectively meet the needs of low-income families.
- Congress should establish goals, performance measures, and benchmarks for employment transportation in the metropolitan and statewide transportation planning processes with public input. There should also be stronger mechanisms for accountability and transparency to evaluate the responsiveness of State DOTs to community input and these economic objectives.

In conclusion, I hope that the committee will find these comments to be helpful as it develops its own proposals for reauthorization. Though the issues confronting low-income and minority communities are often not seen as transportation issues per se, such prejudices are inaccurate. Research and experience place poverty and race clearly at the center, rather than the margins, of transportation planning and project delivery. On behalf of the Transportation Equity Network, I urge the committee to view transportation reauthorization in this light.

REAUTHORIZATION OF TEA–21

TUESDAY, JULY 30, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 9:32 a.m. in room 406, Senate Dirksen Building, Hon. James M. Jeffords [chairman of the committee] presiding.

TRANSPORTATION AND AIR QUALITY

Present: Senators Jeffords, Clinton, Carper, Inhofe, Bond, Voinovich, Smith, and Chafee.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. The hearing will come to order.

Good morning, everyone, and welcome to our hearing on transportation and air quality. In particular, I want to thank our witnesses, many of whom have traveled great distances to lend a hand as we consider renewal of the Nation's surface transportation program. Today's topic, transportation and air quality, is particularly appropriate for the Committee on Environment and Public Works. Since 1837, this committee has guided Federal investments to enhance the Nation. In early history, as the committee on Public Buildings and Grounds, featured stewardship of the growing Federal city of Washington, DC. In 1956, the then Committee on Public Works reported the Federal Aid Highway Act, creating the modern interstate highway system in 1963. The committee took on the challenge of air and water pollution control. And in 1977, the committee was given responsibility for wildlife resources and given its current full name.

In 1991, the members of the committee were the driving force behind the Intermodal Surface Transportation Efficiency Act, ISTEA, which brought a new approach to transportation. With completion of the interstate highway system, our focus shifted toward integration of the various modes of transportation: highway, transit, aviation and rail. ISTEA also brought greater attention to transportation's influence on our communities and the lives of our citizens. We recognized investment in transportation is not an end in itself, it is a means to an end. I was a member of the committee in 1991. I believed then and I believe today that the needs and ends that we seek should be a strong community, healthy communities, strong economy, healthy communities and a clean environment. And clean air is essential to each of these aspects.

Over the past year, this committee has spent considerable time on air pollution. We have focused on emissions from stationary sources, power plants in particular. This included marking up the Clean Air Power Act, a bill which significantly reduces emissions of sulfur dioxide, nitrogen oxides, mercury and carbon dioxide. I am pleased that the Administration has finally, after much delay, sent us up a three pollutant bill. Unfortunately, it is much too late in the Congress for it to be considered. From a quick review, it appears that the legislation provides too little in the way of reductions and they come much too late.

The bill also ignores the dire warnings in the Administration's own report about global warming, which is caused in part by U.S. power plant emissions of carbon dioxide. Last August, the committee held a general hearing on the impact of the emissions from the transportation sector on public health and the environment. We found that statutory and regulatory limits on individual mobile sources and technology improvements will reduce both total emission of conventional pollutants from the sector. But we also found that transportation will continue to be a significant source of our non-attainment problem, not to mention a major contributor to air urban toxics exposure and to global warming.

Today, we will hear more testimony about the progress that has been made to control air pollution from transportation. We will hear the good news that today's motor vehicles are cleaner burning than earlier models, so that each car or truck pollutes less. But we will hear that Americans are driving so much more, that many of the technology gains have been offset.

We will hear that the low emitting transportation control measures encouraged in our most polluted cities and regions have so far produced modest results. As cars get cleaner, some will suggest that investment in transit or bicycle lanes or more workable and developmental patterns may not be worthwhile. But we know that a pedestrian or a transit rider generates far less pollution per passenger mile than a motorist in even the cleanest of today's cars.

We will hear that the process used to manage transportation pollution conformity is not always the most efficient. Achieving the twin goals of clean air and improved mobility is complicated and relies on the coordination of many people and resources. It takes cooperation and sound information.

In summary, we will hear that our campaign to clean up the transportation sector is well underway, but has a long way to go. And as we renew the overall surface transportation program, we can and should refine air quality linkage to build success and make improvements. Today's hearing is the eighth in our reauthorization series. We began in January, and we'll wrap up later this fall. Through these hearings, we have explored a wide range of topics, but with a consistent theme. We have called upon experts from around the Nation to share the lessons they have learned over the past 10 years, and we have asked them to cite any changing conditions that they foresee. They set upon lessons learned and changing conditions.

We have sought fresh ideas for improving our current national transportation program. We have assembled a fine panel of witnesses today, and I look forward to their insights. Our first panel

will represent the Administration. I am pleased to welcome Administrator Mary Peters of the Federal Highway Administration and Assistant Administrator, Jeffrey Holmstead, of the U.S. Environmental Protection Agency.

Our second panel brings perspectives from around the Nation. First and foremost, I am delighted to be joined this morning by Scott Johnstone, the Secretary of the Agency of Natural Resources from the State of Vermont. Welcome, Scott. We'll be getting to you later, an I'm guessing it will be a bit cooler in the Green Mountain State than it is here, and hope you can survive.

Also on our second panel is the Honorable Ron Harris, County Judge from Collin County, Texas. Ron serves on the board of the North Central Texas Council of Governments and the Metropolitan Planning organization of the Dallas-Fort Worth. He is also the chair of the North Texas Clean Air Steering Committee. And Lynn Terry is the Deputy Executive Officer of the California Air Resources Board. Lynn will tell us about recent developments in the Golden State.

James Stephenson wears many hats. He is President of the Yancy Brothers Company, a construction equipment supplier. He is also on the board of the Georgia Regional Transportation Authority in the Atlanta area. Today James represents the American Road and Transportation Builders Association, on whose board he also sits. And finally, Michael Replogle is with us here today. Michael is the Transportation Director for the non-profit group, Environmental Defense Fund, and a frequent witness before the committees of Congress.

I want to welcome all the witnesses, and I now turn to Senator Smith.

OPENING STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Senator SMITH. Thank you very much, Mr. Chairman, and good morning, Ms. Peters and Mr. Holmstead. Good to have you here.

This is an especially significant hearing, because we're the only committee that has jurisdiction over both the Clean Air Act and the Transportation authorization bill. With over 10 years of experience of implementing the so-called ISTEA and TEA–21, and related Clean Air Act amendments of 1990, I think we have to take a hard look at how well the transportation conformity program is working to improve air quality, indeed, is it working to improve air quality.

In New Hampshire, the southern and the sea coast areas are designated non-attainment for ozone, and the region has background ambient air quality problems primarily from out of State sources, not our own State. The region's 3 year conformity update is due in October of this year, and on this Friday, the Federal and State agencies will be meeting to discuss how to avoid a conformity lapse and the funding penalties associated with it. Their discussion will be about data and models concerning those funding penalties and penalty lapses, but they're not going to be about transportation projects. They cannot significantly change the air quality model's emission projections with changes to transportation projects. But they can change the emission projections with adjustments to the data for vehicle fleet mix and truck percentages.

I'm frankly baffled that New Hampshire's highway funds could be diverted and projects delayed, not as a penalty for failing to properly consider the air quality impacts of transportation projects, but as a result of data flaws in an air quality model that is attempting to predict a precise emission level 20 years into the future. And like many areas of the country, the air quality in southern New Hampshire is getting better, the congestion is getting worse, and the conformity program threatens to further delay badly needed highway projects. It doesn't seem to make sense to me.

There are a couple of major issues with transportation conformity that need to be addressed in the reauthorization of TEA–21, whatever we wind up calling it, Mr. Chairman. First, we must address the CMAQ program funding levels and the apportionment formulas. Second, we need to take a hard look at the air quality benefits and cost effectiveness of transportation control measures, TCMs, aimed at reducing vehicle travel. When the Senate debated the 1990 Clean Air Act amendments, expectations were very high that transportation controls were cost effective in a simple way to make large reductions in vehicle emissions. One reason for the role of these transportation control measures in the conformity program is that historically, the growth in the amount of vehicle travel was anticipated to offset much of the gains from EPA vehicle emission standards.

More recently, vehicle travel is having a smaller and smaller impact on emissions, however, believe it or not. I would call your attention to the chart behind Senators Bond and Inhofe. And the impact of cleaner cars and trucks on future vehicle emissions is shown by the EPA data on chart one. It's significant because current projections show that the emission levels continue to decline, which is the blue and the green line, yet vehicle miles traveled continue to increase. So in spite of the fact that we're traveling more, we're still putting less and less pollutants in the air. As you can see, by the year 2040, it drops substantially.

So this steep decline in NOX and VOC emissions suggests that the impact of vehicle travel on emissions is substantially less than it was in the 1970's and 1990's, through that period from 1970 to 1990. In TEA–21, Congress expressed its strong support for the CMAQ program, increasing budget authority from $1 billion to $1.6 billion. At the same time, congressional debate raised questions concerning the efficacy of the program.

This study came to several conclusions regarding CMAQ and the cost effectiveness of transportation control measures. First, the report concluded that CMAQ was an extremely popular program and should be continued potentially at an increased level of funding. Second, emission reduction from TCMs are generally small and more expensive than the technological advances. Last, technology and regulations, like new vehicle emission and fuel standards in vehicle scrappage programs generally have been more successful than most CMAQ strategies relying on changes in travel behavior.

So as TEA–21 reauthorization proceeds, we're going to need to talk a lot more and understand the effectiveness and cost effectiveness and role of TCMs and conformity in meeting these transportation and clean air goals.

Finally, transportation and air quality officials have raised concerns that conformity is becoming increasingly process driven and that as a result, clean air is becoming a secondary factor. Drive the process, and clean air is a secondary factor. Moreover, there are ambiguities in the statute and regulations being resolved in the litigation which increasingly indicates a lack of clarity that Congress should address, Mr. Chairman.

But I want to thank, in conclusion, 15 cities that responded to your and my request for information on their experiences with the conformity program. These responses are very helpful, and I would just ask unanimous consent that those responses be made part of the record.

Thank you, Mr. Chairman.

Senator JEFFORDS. They will be made so.

[The prepared statement of Senator Smith and the information referred to follows:]

STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Thank you, Mr. Chairman, and welcome to our Administration witnesses, Mary Peters and Jeff Holmstead. This hearing is especially significant because this is the only Congressional committee that has jurisdiction over both the Clean Air Act and the transportation authorization bill.

With over 10 years of experience implementing ISTEA, TEA–21 and the related Clean Air Act Amendments of 1990, I think we need to take a hard look at how well the transportation conformity program is working to improve air quality.

In New Hampshire the southern and seacoast areas are designated non-attainment for ozone. The region has background ambient air quality problems primarily from out of state sources.

The region's 3-year conformity update is due in October of this year, and on this Friday, the Federal and state agencies will be meeting to discuss how to avoid a conformity lapse and the funding penalties associated with it.

Their discussion will be about data and models, not about transportation projects. They cannot significantly change the air quality model's emission projections with changes to transportation projects. They can, however, change the emission projections with adjustments to the data for vehicle fleet mix and truck percentages.

I'm baffled that my state's highway funds could be diverted and projects delayed—not as a penalty for failing to properly consider the air quality impacts of transportation projects, but as a result of data flaws in an air quality model that is attempting to predict a precise emission level 20 years into the future.

Like many areas of the country, the air quality in southern New Hampshire is getting better, the congestion is getting worse, and the conformity program threatens to further delay badly needed highway projects.

There are a couple of major issues with transportation conformity that need to be addressed in reauthorization of TEA–21. First, we must address the CMAQ program funding levels and apportionment formula. Second, we need to take a hard look at the air quality benefits and cost effectiveness of transportation control measures (TCMs) aimed at reducing vehicle travel.

When the Senate was debating the 1990 CAA amendments, expectations were very high that transportation controls were a cost-effective and simple way to make large reduction in vehicle emissions.

One reason for the role of TCMs in the conformity program is that historically the growth in the amount of vehicle travel was anticipated to offset much of the gains from EPA vehicle emission standards.

More recently, vehicle travel is having a smaller and smaller impact on emissions.

—The impact of cleaner cars and trucks on future vehicle emissions is shown by the EPA data on Chart 1.

—This chart is significant because current projections show that emission levels continue to decline, even as VMT (vehicle miles traveled) increase.

The steep decline in NOx and VOC emissions suggests that the impact of vehicle travel on emissions is substantially less than it was in the 1970's–1990's. In TEA–21, Congress expressed its strong support for the CMAQ (SEE-MACK) program, increasing budget authority from $1 billion per year to $1.6 billion per year. At the

same time, however, the Congressional debates raised questions concerning the program's efficacy.

In response, Congress directed the National Academy of Sciences' Transportation Research Board (TRB) to evaluate the program's benefits and cost-effectiveness. This study came to several conclusions regarding the CMAQ program and the cost-effectiveness of transportation control measures. First, the report concluded that CMAQ was an extremely popular program and should be continued, potentially at an increased level of funding. Second, emission reductions from TCMs are "generally small" and more expensive than technological approaches.

Lastly, technology and regulations like new-vehicle emission and fuel standards and vehicle scrappage programs "generally have been more successful than most CMAQ strategies relying on changes in travel behavior."

As the TEA–21 reauthorization proceeds, further discussion is needed to better understand the effectiveness, cost-effectiveness and role of TCMs and conformity in meeting our transportation and clean air goals.

Another concern to be addressed is the need for more information and tools to deal with particulate matter (PM 2.5) pollution, and to prepare for the new PM 2.5 NAAQS. While it is known that PM2.5 represents a serious health risk, and that most transportation related PM 2.5 emissions come from diesel engines, more information and research is needed on the effectiveness and cost-effectiveness for different PM 2.5 control strategies.

Finally, transportation and air quality officials have raised concerns that conformity is becoming increasingly process driven, and that the result, cleaner air, is becoming a secondary factor. Moreover, there are ambiguities in the statute and regulations being resolved in litigation, which increasingly indicates a lack of clarity that Congress should address.

Let me conclude by thanking the 15 cities that responded to the chairman's and my request for information on their experiences with the conformity program. Your responses are very helpful and will certainly help inform the reauthorization process. I ask unanimous consent to include these responses in the record of this hearing.

ATLANTA REGIONAL COMMISSION

40 COURTLAND STREET, NE

ATLANTA, GEORGIA 30303

(By Tracy Clymer)

Updated: June 25, 2002

Conformity History for the Atlanta Non-Attainment Region

November 15, 1993—Georgia Environmental Protection Division (EPD) submits 15 percent Rate of Progress (ROP) Plan to Environmental Protection Agency (EPA) for approval. Provides for at least 15 percent reductions of VOC from 1990–1996.

November 15, 1994—EPD submits 9 percent ROP Plan to EPA for approval. Provides for at least a 3 percent per year reduction of NOx for 1997, 1998 and 1999.

June 28, 1995—Atlanta Regional Commission (ARC) adopts conforming 2010 Regional Transportation Plan (RTP) and Fiscal Year (FY) 1996–2001 Transportation Improvement Program (TIP)—six-year TIP, two 3-year tiers. Conformity based on VOC budget established in the 15 percent ROP Plan. ARC Resolution 18–95.

August 7, 1995—United States Department of Transportation (USDOT) conformity determination for 2010 RTP and fiscal year 1996–2001 TIP.

June 17, 1996—EPD submits revisions to the 15 percent ROP Plan and 9 percent ROP Plan. NOx budget established, 214.77 tpd.

Note: ARC was unable to develop a fiscal year 1997–1999 TIP that conformed to the NOx emission budget established in the 9 percent ROP Plan. Fiscal year 1997–1999 TIP was 21.93 tpd over budget.

September 25, 1996—ARC amends the fiscal year 1996–2001 TIP. ARC Resolution 22–96.

June 25, 1997—ARC amends the fiscal year 1996–2001 TIP. ARC Resolution 17–97.

Note: Amendments were limited to projects considered exempt from transportation conformity requirements.

December 30, 1997—ARC adopts Interim TIP (ITIP), fiscal year 1998–2000 with contingencies (several project removals). ARC Resolution 32–97.

January 17, 1998—Conformity lapse begins due to failure to redetermine conformity of RTP within 18 months of the State's most recent State Implementation Plan (SIP) revision that establishes Motor Vehicle Emission Budgets (MVEB), as required by 93.104(e) of transportation conformity rule.

Note: fiscal year 1996–2001 TIP, approved in August 1995 by USDOT, valid for 2 years. TIP was to expire in August 1997. However, on February 21, 1997 the Federal Highway Administration (FHWA) Georgia Division office extended the expiration of the TIP until December 31, 1997, due to previous extenuating circumstances of the 1996 Olympic Games (which concluded in early August 1996) and contingent upon ARC having a new, conforming RTP by December 31, 1997. As of December 1997, ARC was not expected to have a conforming RTP until April 1998, at the earliest. On December 22, 1997, FHWA and Federal Transit Administration (FTA) again extended expiration of the TIP, upon request of headquarters and in consultation with EPA, until January 17, 1998.

January 28, 1998—ARC adopts fiscal year 1998–2000 ITIP, contingencies met. ARC Resolution 2–98.

April 22, 1998—ARC amends fiscal year 1998–2000 ITIP. ARC Resolution 12–98.

July 22, 1998—ARC adopts Interim 2020 RTP and ITIP amended to add fiscal year 2001, fiscal year 1999–2001. ARC Resolution 25–98.

December 2, 1998—fiscal year 1999–2001 ITIP amended. ARC Resolution 38–98.

January 20, 1999—Georgians for Transportation Alternatives (GTA) v. Shackelford[1] filed. Plaintiffs challenge decisions made to adopt, approve or fund certain highway projects on the grounds that decisions violate Clean Air Act (CAA) provisions, the Transportation Equity Act for the 21st Century (TEA–21), the National Environmental Policy Act, and the Administrative Procedure Act.

March 18, 1999—9 percent ROP Plan Approved (64 FR 13348).

April 26, 1999—15 percent ROP Plan Approved (64 FR 20186).

June 18, 1999—GTA v. Shackelford settled. Settlement agreement requires extensive Peer Review of transportation modeling process within 90 days of Board adoption of conforming TIP and RTP.

June 23, 1999—ARC adopts fiscal year 2000–2002 ITIP. ARC Resolution 17–99.

1999—Development/refinement of new draft plan for 2025 RTP and fiscal year 2001–2003 TIP.

October 27, 1999—ARC amends fiscal year 2000–2002 ITIP. ARC Resolution 25–99.

October 28, 1999—EPD submits Attainment SIP to EPA for approval. MVEB established, NOx = 224.13 tpd, VOC = 132.21 tpd.

February 28, 2000—MVEB adequacy announced in Federal Register (65 FR 10490).

March 22, 2000—ARC adopts conforming 2025 RTP and fiscal year 2001–2003 TIP. Conformity based on MVEB established in Attainment SIP submittal.

April 28, 2000—Petition for Review filed by GTA, et al[2]. with USEPA in US Court of Appeals for the Eleventh Circuit. Petitioners seek review of MVEB adequacy determination.

June 8, 2000—Petition to EPA for Reconsideration of MVEB Adequacy Determination filed by Southern Environmental Law Center (SELC) on behalf of GTA et. al[3].

June 14–16, 2000—Peer Review of ARC transportation modeling process. Peer Review found transportation and emission models "state of the practice."

June 29, 2000—Final written request to EPA for a stay of the MVEB adequacy determination, pending review by 11th Circuit Court.

July 5, 2000—60-day notice of intent to sue sent by SELC to EPA Administrator.

July 10, 2000—EPA counsel denies stay.

July 11, 2000—Motion to Stay on Expedited Basis, pending Courts ruling on merits of April 28 Petition, filed by GTA et. al.[4] in 11th Circuit Court of Appeals. Peti-

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[1]Plaintiffs: GTA, Georgia Conservancy, and Sierra Club. Defendants: Wayne Shacklford—Commissioner of Georgia Department of Transportation (GDOT), GDOT, Secretary USDOT, FHWA Administrator, FTA Administrator, Georgia Division FHWA and FTA Regional Administrators, ARC.

[2]Petitioners: GTA, Sierra Club, Southern Organizing Committee for Economic and Social Justice and Georgia Coalition for the People's Agenda. Respondent: USEPA.

[3]GTA, Sierra Club, Southern Organizing Committee for Economic and Social Justice, Georgia Coalition for the People's Agenda and Environmental Defense.

[4]Petitioners: GTA, Sierra Club, Southern Organizing Committee for Economic and Social Justice and Georgia Coalition for the People's Agenda. Respondent: USEPA. Intervening Respondent: Georgia EPD.

tioners request that the order state the MVEB may not be used by USDOT for purposes of transportation conformity or TIP approval/implementation.

July 18, 2000—Motion to Stay granted by 11th Circuit Court of Appeals, pending the Court's decision on the merits of the petition. Expedited schedule issued for further proceedings.

July 18, 2000—EPA concurs with positive conformity determination.

July 25, 2000—USDOT makes positive conformity determination for 2025 RTP and fiscal year 2001–2003 TIP.

Note: Because the MVEB established in the October 1999 SIP submittal could not be used due to litigation, the positive conformity determination was based on the MVEB established in the 9 percent ROP Plan (last legally approved budgets).

August 8, 2000—EPD requests that EPA rescind the positive adequacy determination.

August 10, 2000—Motion for Voluntary Remand filed by EPA in 11th Circuit Court of Appeals. EPA requests that the Court remand the matter back to the Agency so that the positive MVEB adequacy determination could be withdrawn. EPA argues that the MVEB adequacy determination is no longer relevant for any purpose considering the conformity determination was made using previously established budgets.

August 24, 2000—Motion for Voluntary Remand refused by 11th Circuit Court of Appeals.

August 30, 2000—US Court of Appeals for the District of Columbia decides that implementation of NOx SIP Call cannot be required before May 31, 2004

December 21, 2000—EPD sends letter to EPA withdrawing MVEB contained in the October 28, 1999 SIP submittal. EPD asks EPA to not consider budgets further until State concludes work needed to submit a revised budget (speed study, updated registration data, etc).

December 22, 2000—Joint motion (EPD/EPA) filed with 11th Circuit Court to stay further proceedings for review of MVEB adequacy determination. Motion based on agreement that MVEB established in October 28, 1999 SIP submittal are no longer appropriate for purposes of making a transportation conformity decision. Joint motion also requests permission for EPA to withdraw finding of adequacy.

January 12, 2001—11th Circuit Court grants EPA motion to withdraw adequacy determination.

January 26, 2001—MVEB adequacy determination withdrawn by EPA. Withdrawal based upon EPD's request that EPA not consider budgets until further work is completed for budget revisions and NOx SIP Call Implementation delay until 2004. (66 FR 7904)

January 17, 2001—Sierra Club et. al.[5] file suit in US District Court of Northern District of Georgia against EPA Administrator for failure to reclassify Atlanta from "serious" to "severe". BUMP-UP SUIT. Petitioners seek to require that EPA perform mandatory finding as to whether Atlanta attained the ozone standard by Nov 15, 1999 under Section 181/182 of the CAA.

February 13, 2001—Sierra Club et. al. v. ARC et. al.[6] filed in US District Court of Northern District of Georgia. Suit seeks declaratory judgment based on alleged violations of CAA conformity requirements, violations of TEA–21 Transportation Law, and public participation requirements for the 2025 RTP and fiscal year 2001–2003 TIP. In addition to declaratory relief, plaintiffs enjoin advancement of 2025 RTP and fiscal year 2001–2003 TIP.

April 5, 2001—Sierra Club et. al. request preliminary injunction to stop advancement of any projects in the 2025 RTP or fiscal year 2001–2003 TIP until Federal lawsuit is heard.

May 28, 2001—Declaration of Michael A. Repogle for plaintiffs

May 29, 2001—Declaration of Robert A Johnston for plaintiffs

June 5 and June 6, 2001—Injunction Hearing

June 15, 2001—Judge Beverly Martin, U.S. District Judge, denies request for injunction. Directs parties to file preliminary planning report and scheduling order.

July 25, 2001—Request for Production of Documents and Interrogatories from plaintiffs.

July 31, 2001—Sierra Club et.al. file Motion for Partial Summary Judgement

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[5]Plaintiffs: Sierra Club, Southern Organizing Committee for Economic and Social Justice, Georgia Coalition for the People's Agenda and Environmental Defense. Defendant: EPA Administrator.

[6]Plaintiffs: Sierra Club, Southern Organizing Committee for Economic and Social Justice, Georgia Coalition for the People's Agenda and Environmental Defense. Defendants: ARC, GDOT, Georgia State Transportation Board, UDOT, FHWA, FTA, and directors of these agencies.

August 27, 2001—Defendants object to Request for Production of Documents and Interrogatories.

January 8, 2002—USEPA publishes approval of MVEBs submitted with July 17, 2001 SIP submittal in FR (67 FR 887).

January 18, 2002—Judge Beverly Martin rules in favor of defendants for February 2001 lawsuit. She finds that State and Federal agencies did not violate the Clean Air Act when they approved the 2025 RTP and fiscal year 2001–2003 TIP in 2000. (Sierra Club v. Atlanta Regional Commission, N.D. Ga., No. 1:01-CV–0428, 1/18/02).

January 23, 2002—MVEBs become effective.

March 1, 2002—Petitioners (see case below) submitted to EPA a written request for a stay of MVEB adequacy determination.

March 7, 2002—Sierra Club et. al v. USEPA[7] filed in 11th Circuit Court of Appeals. MVEB CHALLENGE. Petitioners ask that the Court vacate the Final Rule approving the MVEBs submitted with the July 17, 2001 SIP submittal. Argument based on extension policy to 2004. Petitioner's also file Petition for Review and accompanying Motion to Stay on an Expedited Basis.

March 13, 2002—Affadavit of Charles Krautler, ARC re: Petitioners Petition for Review and accompanying Motion to Stay on an Expedited Basis filed in 11th Circuit Court.

March 14, 2002—Response of the State of Georgia in Opposition to Petioners' Motion for Stay on an Expedited Basis and Cross-Motion by the State to Stay all Further Proceedings filed in 11th Circuit Court.

March 14, 2002—Respondent's (EPA) Opposition to Petitioners' Motion for Stay and Cross-Motion for a Stay of the Proceeding filed in 11th Circuit Court.

April 17, 2002—11th Circuit Court grants Motion for Stay of MVEB.

May 7, 2002—USEPA Approval and Promulgation of Georgia 1-Hour Ozone Attainment Demonstration, Motor Vehicle Emissions Budgets,
Reasonably Available Control Measures, Contingency Measures and
Attainment Date Extension (67 FR 30574)

Note: Trigger clock was halted 21 days—from date of MVEB stay (April 17) to date of SIP approval (May 7).

Note: In May 2002, EPA also filed a Motion to Dismiss as Moot in regards to the Bump-Up lawsuit; the argument being that the approval of the Atlanta Attainment SIP authorized the extension of the attainment date from 1999 to 2004. More specifically, under Section 307 of the CAA the US District Court does not have jurisdiction to review EPA SIP determinations, only Circuit Court of Appeals have this authority. Sierra Club has requested that the District Court retain jurisdiction over this case in the event that the 11th Circuit Court overturns EPA's approval of the SIP (assuming that a petition challenging EPA's approval of the SIP will be filed, on an expedited basis, between June 18 and July 8, 2002 with the 11th Circuit Court-see comment below).

May 22, 2002—Petition for Review of the MVEB dismissed—clerk's dismissal only (EPA's Motion to Dismiss as Moot never docketed). Case already dismissed for want of prosecution as a result of Sierra Club failure to file abstracts of the administrative record.

June ? 2002—11th Circuit Court reinstates the MVEB lawsuit, orders EPA to file brief on the merits of the case by June 26, 2002. EPA will refile its Motion to Dismiss as Moot.

Note: The MVEB stay is back in place as a result of 11th Circuit Court reinstating the MVEB lawsuit. The MVEB cannot be used for conformity analysis until the stay is lifted.

June 7, 2002—Sierra Club asks EPA Regional Administrator to withdraw or stay EPA's SIP approval.

June 13, 2002—Regional Administrator denies request to stay or withdraw EPA's SIP approval. EPA, therefore, expects that a petition challenging EPA's approval of the SIP will be filed, with Motion for an Expedited Stay, between June 18 and July 8, 2002 (challenge must be filed within 60 days of publication of approval of the SIP in the Federal Register, deadline is July 8). Petition will challenge the extension of the attainment date to 2004.

June 26, 2002—SELC for Southern Organizing Committee, Georgia Coalition for Peoples Agenda vs EPA. Petition filed for Review of EPA's Approval of the Georgia Attainment SIP. Motion filed for Expedited Stay of EPA's Approval with 11th Circuit Court

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[7]Plaintiffs: Sierra Club, Southern Organizing Committee for Economic and Social Justice, Georgia Committee for the People's Agenda and Environmental Defense. Defendant: USEPA.

July 2, 2002—Sierra et al vs ARC, GDOT, USDOT. Appeal of 2/28/02 Final Judgment. Oral arguments to be rescheduled after August with 11th Circuit Court.

July 2, 2002—Sierra vs EPA. DC Court vacated (removed approval of) revised SIPs for DC area. Basis of argument—EPA not authorized to approve revised SIPs that extend area's attainment date.

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS,
Arlington, TX, July 30, 2002.

The Honorable JIM JEFFORDS, *Chairman*
Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510–6175

DEAR CHAIRMAN JEFFORDS: This letter is in response to a request made by the Committee on Environment and Public Works of the U.S. Senate, dated July 3, 2002, regarding our experience with the Clean Air Act conformity program and transportation control measures, and the impact these have had on our transportation and air quality efforts. Attached you will find responses to the series of specific questions that were transmitted to us.

We appreciate the opportunity to provide input on the reauthorization of the Transportation Equity Act for the 21st Century process. If I can be of further assistance on this subject matter, I can be reached at (817) 695–9240.

Sincerely,

MICHAEL MORRIS, P.E.,
Director of Transportation

DIFFERENCE IN TIMING OF SCHEDULES

Question. Describe how the different schedules for the SIP, TIP, conformity, etc. and the impacts of data changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans. Provide a time-line or narrative description of your various schedules.

Response. The differences of the schedules for the SIP, TIP, Metropolitan Transportation Plan (MTP), and Conformity are varied and can come without warning. For the Dallas-Fort Worth Metropolitan Planning Organization (MPO), the MTP is usually prepared every 3 years, consistent with Federal rules. However, SIP or TIP influences could trigger a new MTP out of sequence. As a result, a new conformity analysis is required. As highlighted in Table 1, the MPO decided a MTP Update was required in 2001 (less than a year after receiving Federal approval on a similar effort) to ensure a 3-year MTP cycle due to a SIP schedule that would establish new motor vehicle emission budgets (MVEBs) and conformity.

A new TIP is developed every year due to the number of transportation projects being planned. This is above the typical 2-year cycle. As a result, a new conformity analysis is required. However, due to Tier II regulatory language contained in our applicable SIP, the region is unable to perform a necessary conformity analysis on the TIP in 2003, therefore our TIP schedule, and associative conformity analysis, changed to make TIP modifications prior and after our freeze (see Table 1).

TABLE 1: DALLAS-FORT WORTH METROPOLITAN PLANNING ORGANIZATION

TRANSPORTATION PLANNING DOCUMENT SCHEDULES

Current Schedules

Year	SIP (as needed or attainment date)	MTP (every 3 years)	TIP (every 2 years)	Conformity (used to measure SIP, TIP and MTP)
1997		X	X	X
1998			X	X
1999	X		X	X
2000		X		X
2001		*X	X	X
2002			X	X
2003				
2004	X	X	X	X
2005			X	X
2006				

TABLE 1: DALLAS-FORT WORTH METROPOLITAN PLANNING ORGANIZATION—Continued

TRANSPORTATION PLANNING DOCUMENT SCHEDULES

Current Schedules

Year	SIP (as needed or attainment date)	MTP (every 3 years)	TIP (every 2 years)	Conformity (used to measure SIP, TIP and MTP)
2007		X	X	X

MTP Update required to ensure 3-year cycle maintained as result of new SIP 2004

These conflicting schedules hinder a region's ability to appropriately implement policies, programs, and projects in a Plan or TIP as planning documents continue to be the focus. In addition, differences in timing of schedules and premature adjustments to schedules impede development of an out year strategic milestone calendar, sending confusion to our regional partners and resource agencies as they try to incorporate their planning activities to these Federal obligations.

Question. What impact have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities?

Response. The timely implementation of transportation projects and programs are of high priority. Therefore, to avoid impacts, schedules of the TIP and MTP are often adjusted, within the limits allowed by regulations, to ensure that projects and programs that are ready for implementation can proceed. However, SIP-related requirements are often out of sync with the TIP and MTP and have the potential to cause TIP and MTP modification freezes due to the inability to perform an air quality conformity analysis. This could cause recommended projects from being able to proceed because they may be inconsistent with TIP or MTP. Unnecessary delays could cause construction costs to increase and have a negative impact on air quality if projects cannot be implemented as expected. Generally, more time is spent on replanning already approved plans than working on the implementation of specific projects. Greater focus on mobility and air quality project delivery is necessary.

Question. What has been your experience coordinating your SIP and conformity processes with SIP submittals or updates?

Response. Keeping in mind the varying schedules with SIPs and conformity associated to a MTP and TIP, experiences in coordinating among these elements have been a challenging process in the Dallas-Fort Worth Metropolitan Area. This can be attributed to coordinating a MTP that has a 3-year update cycle, a TIP that has a 2-year update cycle, and a SIP submittal process influenced by real-time observed air quality data.

As experienced in the DFW area, a SIP submittal can introduce regulatory language that would require changing air quality conformity schedules of a MTP and TIP. An example is the Environmental Protection Agency's (EPA) position with regards to use of Tier II automobile standards in the MOBILE5 emission factor model. This situation required the region to take a step back in its implementation of policies, programs, and projects and reissue multiple planning activities.

MOBILE6 VERSUS MOBILE5 PROJECTIONS

Question. Compare and contrast your MOBILE5 and MOBILE6 emission projections.

Response. In the fall of 2001, the EPA sponsored a study to evaluate the differences of MOBILE5 and MOBILE6 using local data from the Dallas-Fort Worth region. Although a final report has not yet been published, draft reports indicate an increase in MOBILE6 projected Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx) of up to 50 percent over MOBILE5. After approximately 2008, projected emissions are similar between MOBILE6 and MOBILE5. This significant trend continues to occur into the future where we see MOBILE6 emissions well below those of MOBILE5 emissions. These trends are consistent with national research performed on MOBILE6 versus MOBILE5.

Question. How does the increase in near term emissions (through 2010) from MOBILE6 affect your conformity status?

Due to the significant differences in near term emissions between the two emission factor models, it would be extremely difficult for a region to pass a conformity analysis using MOBILE6 against SIP motor vehicle emissions budgets previously developed with MOBILE5. Since this is an obvious analysis mismatch, the Dallas-Fort Worth nonattainment area has planned its schedules accordingly to avoid such an evaluation (as noted in the Differences in Timing of Schedules responses above). The proper method, which is included in our mid-course review, is to recalibrate the air chemistry model with the new MOBILE6 emission software and reforecast the

emissions permitted in a demonstration of attainment (i.e., higher emission do not necessarily mean a SIP or conformity analysis would not be successful.)

Question. How will your air quality planning process take the new MOBILE6 into account, and will the SIP be updated before or after the new MOBILE6 projections?

Response. As part of the Dallas-Fort Worth SIP submittal in April 2000, a mid-course SIP review is committed to EPA by May 2004. Within this process, MOBILE6 emission projections will be incorporated into an air chemistry model through new on-road mobile source emission inventories. This modeling process will establish MOBILE6 derived motor vehicle emissions budgets for the nonattainment area for use in an air quality conformity analysis scheduled in 2004.

Question. Will the new 8-hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

Response. As an example, if more on-road mobile emission reductions are necessary to ultimately meet the 8-hour standard, then it could be assumed the resulting motor vehicle emissions budgets will decrease. More information will be available through a comprehensive emissions analysis following final rules. A different mix of controls may be necessary to meet an 8-hour standard, which are not well understood today (e.g. role of VOC emissions.)

ADDITIONAL VEHICLE EMISSION CONTROLS

Question. What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection and maintenance, reformulated fuels, diesel retrofit, TCMs?

Response. Having just completed a comprehensive and technical review of on-road mobile control strategies for the Dallas-Fort Worth SIP, there is no other existing control strategy to significantly reduce vehicle emissions that could be feasibly implemented in the region. As we continue to seek or develop additional controls, we keep in mind the main elements of on-road mobile emissions; cold starts, pre 10 a.m. emissions, hard acceleration, excessive idling, high emitting vehicles, diesel engines, low speeds, excessive speeds. Another approach to reduce vehicular emissions is to advance already existing Federal gasoline, diesel, and engine standards earlier than required. One has to remember that Dallas-Fort Worth is already implementing an aggressive high-emitting vehicle program, freeway management curriculum for fire and police, vehicle speed reduction with enforcement, and sustainable development projects.

Question. Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6?

Response. One cannot conclusively state that the above-mentioned measures would counter all the potential increases in emissions projected in MOBILE6, since the model is yet to be tested under Dallas-Fort Worth specific conditions and the appropriate methodology is to recalibrate the air chemistry models to determine needed emission budgets.

ROLE OF TRANSPORTATION CONTROL MEASURES

Question. What role do TCM's plan in helping to meet attainment? Please list the TCMs and CMAQ projects in your plan, and the associated "off" or "on" model emission reduction credits for each.

Response. Conformity could not be certified without CMAQ funds and Transportation Control Measures (TCMs). TCMs, along with other pollution reduction strategies, have assisted the Dallas-Fort Worth region in working toward attainment by continually reducing the number of ozone exceedance days recorded in the region from 15 in 1995 to 2 in 2001. Currently, the Dallas-Fort Worth region is under a conforming MTP that includes Intersection Improvements, Rail Projects, Bicycle and Pedestrian Facilities, High Occupancy Vehicle Lanes, Vanpools, Park and Ride Lots, and Grade Separations. Table 2 outlines the emission reduction estimates associated with each TCM category. Most TCMs in the plan are funded through the CMAQ Program. Although not classified as TCMs, additional strategies utilizing CMAQ funds and included in the region's SIP include clean vehicles, Intelligent Transportation Systems, vehicle retirement, sustainable development, and traffic signal improvements.

Table 2

Transportation Control Measures	Commitments	Emission Reduction Estimates (lbs/day)					
		Volatile Organic Compounds			Nitrogen Oxides		
		2007	2015	2025	2007	2015	2025
Intersection Improvements	775 Locations	2,306	1,450	1,293	4,635	2,420	2,150
Grade Separations (1)	15 Locations	—	—	—	—	—	—
HOV Lanes (1)	76 Miles	—	—	—	—	—	—
Park-n-Ride Lots (2)	8,236 Spaces	94	60	54	190	100	87
Pedestrian/Bicycle Facilities	710 Miles	1,140	727	649	2,290	1,202	1,046
Rail (1)	96.9 Miles	—	—	—	—	—	—
Vanpool	547 Vanpools	341	217	194	685	360	313
TOTAL (lbs/day)		3,881	2,454	2,190	7,800	4,082	3,596
TOTAL (tons/day)		1.94	1.23	1.10	3.90	2.04	1.80

(1) Emission reduction benefits have been included directly in the Dallas/Fort Worth Regional Travel Model (DFWRTM).
(2) Emission reduction benefits are both post-processed and included directly in the DFWRTM.

Question. What percentage of total emission reductions do they represent?

Response. TCMs amount to approximately 5 percent of on-road NOx emission reductions in 2007 and 4 percent of on-road VOC emission reductions. Without CMAQ funding, conformity could not have been certified.

Question. Are there CMAQ projects in your plan for which you have not applied any on or off model emissions reductions?

Response. No. All CMAQ projects have identified emission reduction credits as requested by the Texas Department of Transportation for a CMAQ Annual Report. It should be noted that the CMAQ program has encouraged a great deal of planning and funding creativity due to different regulations impacting CMAQ and the Surface Transportation Program. This creativity has shaped air quality policies, programs, and projects for the benefit of reaching attainment and better quality of life for each citizen. Without innovative programming, a less aggressive air quality program would have resulted.

IMPACTS OF CONFORMITY LAPSE

Question. If your area has experienced a conformity lapse, describe the effect this has had on transportation and air quality planning, funding process, preconstruction, and construction.

Response. The Dallas-Fort Worth region has not experienced a conformity lapse.

Question. When projects were reactivated, after U.S. DOT approved your conformity determination, what impact did this have on funding, project completion dates, personnel, renegotiation of contracts, updating old information, etc.

Response. This question does not apply to the Dallas-Fort Worth region.

Question. What impact did the March 1999 U.S. Court of Appeals decision to eliminate the EPA "grandfather" provision from the conformity regulations have on your transportation investments?

Response. The March 1999 U.S. Court of Appeals decision did not have any noticeable impact on transportation investments in the Dallas-Fort Worth region.

ROLE OF MOTOR VEHICLE EMISSION ESTIMATES AND MODELS

Question. How has conformity analysis helped improve the quality of estimates of motor vehicle emissions for SIPs to better protect public health?

Response. The procedure for estimating on-road mobile emissions is consistent for both the SIP and the Air Quality Conformity Analysis. However, conducting a conformity analysis on a more frequent time scale allows for the use of latest planning assumptions and tools to better quantify vehicle emissions. Many parameters involved in the quantification of emissions change over time such as roadway and transit networks, vehicle mix, and demographic data. As a result, new emission estimates are actually created with each conformity analysis. In addition, the effectiveness of control strategies, including TCMs are evaluated based upon implementation schedule and before/after studies. The regular study of a region's dynamics and the consequential effect on emissions better prepare an agency when it is time to develop a new SIP. Better knowledge of vehicle emission estimates ultimately leads to better protection of public health. This replanning effect is offset by less time actually implementing aggressive air quality strategies.

Question. How accurate and consistent have estimates of regional motor vehicle emissions been when compared with each other over time and with actual experience?

Response. Regional on-road motor vehicle emissions estimates in the Dallas-Fort Worth nonattainment area have been consistently following a decreasing trend due to the region implementing many control strategies over the past 10 years. Specifically, significant emissions reductions are attributed to inspection and maintenance, reformulated fuels, transportation control measures, continual advances in vehicle technology, and associated vehicle fleet turnover. Table 3 lists the official on-road mobile emission estimates for the Dallas-Fort Worth ozone nonattainment area.

TABLE 3

Dallas-Fort Worth Ozone Nonattainment Area
Motor Vehicle Emission Estimates

YEAR	VOC (tpd)	NOx (tpd)
1990	306.60	293.03
1996	235.00	NOx Waiver
1999	125.25	NOx Waiver
2007	75.34	149.72

Question. How have official estimates of motor vehicle emissions in your metropolitan region changed over the past 10–20 years and how well have they tracked actual emissions in years past?

Response. The overall decrease in modeled motor vehicle estimates compare well with monitor data from 1990 to 2001. During this time period, the extents to which the monitors violate the 1-hour ozone standard have steadily decreased indicating a concurrent decrease in precursor pollutants released into the atmosphere. In comparison to observed monitored data, the highest number of exceedances recorded at any given monitor over a 3-year averaging period has decreased from 12 exceedances in the 1994 to 1996 timeframe to 3 exceedances in the 1999 to 2001 timeframe.

ROLE OF TRANSPORTATION MODELS

Question. Has conformity analysis been supported by adequate regional transportation analysis models that accurately reflect how changes in highway capacity affect total travel and air pollution emissions?

Response. Yes and no. Transportation analysis models in use today were originally developed for macroscale level planning, not micro-scale level planning required in air chemistry modeling. Issues include time-of-day, speeds, functional classification, vehicle miles of travel, etc. For more information on concerns regarding existing transportation analysis models and recommendations for future models, please refer to a report published by the National Research Council; Modeling Mobile Source Emissions, 2000, National Academy of Science. However, transportation models are more accurate than emission models (e.g., MOBILE5 vs. MOBILE6) and air chemistry models (e.g., for 20 years urban areas were told to reduce VOC emissions instead of NOx emissions.)

Question. How well have your region's travel models tracked actual experience with growth in vehicle miles of travel (VMT)?

Response. The Dallas-Fort Worth Regional Travel Demand Model tracks vehicle miles of travel very well. The roadway travel model calibration and validation process are major steps prior to the forecasting process to ensure the travel model replicates observed human travel behavior in the region adequately. In the Dallas-Fort Worth region, models project 20 years backward before they are asked to project 20 years forward.

Question. Please include an indication of how sensitive your/these models are to effects of induced traffic.

Response. The travel model is sensitive to the effects of induced traffic. It depends on your definition of induced travel. Induced travel includes population and employment relocation, and trip length increases with freeway investments. This travel model does this. Route choice and time of day travel is not classified as induced travel although most models successfully address this. The better question is how well does EPA forecast emissions and air quality models forecast ambient ozone levels accurately. A review of the previously cited NAS document is suggested.

DENVER REGIONAL COUNCIL OF GOVERNMENTS,
July 24, 2002.

Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510–6175

DEAR MR. CHAIRMAN: Thank you for the opportunity to provide for your consideration our experience with the Clean Air Act conformity program and transportation control measures and the impact these have had on our transportation planning efforts. We are pleased to hear that the committee will evaluate the conformity program as part of the reauthorization of TEA–21.

As the Metropolitan Planning Organization (MPO) for the Denver region, the Denver Regional Council of Governments (DRCOG) has had extensive experience with the conformity requirements of the Clean Air Act. In response to your letter we have attached a document, "Denver, Colorado Conformity Case Study," which addresses in some detail the seven issue areas you identified, including an assessment of the impact on our ability to perform our responsibilities under TEA–21.

Our overall characterization of the conformity program is that it is an important and largely successful Federal program that could be improved both with the addition of some flexibility that would allow transportation and air quality agencies to adapt the requirements to local circumstances and with some funding to better enable transportation and air quality agencies to meet this mandate.

Our experience in Denver in particular points out the need for some flexibility in the State Implementation Plan (SIP) process to allow for updating mobile source budgets to incorporate current information and models and to achieve consistency between the transportation and air quality planning processes and resulting documents. Similarly, consistency between the transportation and air quality planning processes and documents, both in the timing of the schedules for their adoption and amendment and in the timeframes used in the transportation and air quality analyses, would greatly assist our efforts to meet the national goals of clean air and efficient transportation.

Our other recommendations regarding the conformity program relate to our experience with the conformity analysis process. The process for determining conformity is very complex and time consuming. We have had to assign significant funding and staff resources from other projects to perform the mandated conformity analyses. It would be very helpful if reauthorization would provide resources for conformity determination efforts.

The law also should provide some flexibility in the use of the transportation models for conformity determinations to better account for the inherent limitations of these models. The regional transportation analysis models only produce relative levels of impacts but under the existing conformity program have been required to provide "hard" estimates that become legally binding. It makes more-sense to us that the law allow the use of estimates in ranges, rather than absolute numbers. Also, further study of the amount of "induced travel demand" is necessary to better account for it in the transportation modeling process. This could be a useful addition to the transportation modeling process provided agreement could be reached as to how to account for it.

The attached document provides additional detail and background for these policy recommendations, as well as summarizing cur experience withh the other issue areas you have identified. We hope that you find our experience and recommendations useful in your efforts to improve the conformity program and its role in achieving the national priorities of clean air and efficient transportation. If you would like further information, please do not hesitate to contact Jeff May at 303–480–6746 or mailto:jmay@drcog.org.

Sincerely,

KARIN MCGOWAN,
Director, Policy and Legislative Division.

DENVER COLORADO CONFORMITY CASE STUDY

(Submitted by The Denver Regional Council of Governments on July 23, 2002)

This paper is organized according to the issues identified in the above referenced letter and questionnaire.

Difference in Timing of Schedules

The difference in timing of schedules for adopting and amending transportation and air quality plans and for adopting conformity findings has created a situation where transportation and air quality agencies have had to expend an enormous amount of resources to coordinate the inconsistent federally mandated schedules.

The air quality planning process and the transportation planning process in the Denver region have accommodated conflicting Federal requirements in terms of schedules for the State implementation process (SIP), Regional Transportation Plan (RTP), Transportation Improvement Program (TIP), and conformity requirements. Over the last 12 years, the process has worked only because of cooperative and collaborative efforts by the Regional Air Quality Council (RAQC), which is the lead air quality agency for the Denver area, the Air Pollution Control Division (APCD) of the Colorado Department of Health and Public Environment, the regional office of the United States Environmental Protection Agency (EPA), local project implementation agencies, including the Colorado Department of Transportation (CDOT) and the Denver Regional Council of Governments (DRCOG) as Metropolitan Planning Organization (MPO). The SIP documents for Denver are now all maintenance plans, which have been developed by the air quality planning agencies and approved or found adequate by the USEPA. Both the RAQC and the APCD as well as the EPA regional office have been very cognizant of the impact of the adoption of their documents on the transportation planning process and have modified their schedules for development and adoption of air quality planning documents so as not to negatively impact the transportation planning process.

In addition, local efforts have had to overcome inconsistent federally mandated timeframes. Even though Federal regulations only call for short term analysis of air quality problems, the RAQC developed a non-regulatory long-range air quality plan (Blue Print for Clean Air) which bridges the gap between the federally SIP mandated 3–10 year planning horizon on SIP documents, and the federally mandated longer range, 6 to 20 year planning timeframe of the transportation planning process documents. In addition the development of each mobile source budget has been accompanied by an informal review of long-range impacts to ensure that the Transportation Planning Process in conformity determinations can logically meet the proposed budget.

The problems encountered in the Denver area could be reduced by providing more flexibility in the SIP process for updating mobile source budgets, using more current information and models than was available when these SIP documents were prepared, and also by creating consistency between the analysis timelines for all the various documents in the air quality and transportation planning process.

The lack of congruity between the transportation and air quality schedules has had impacts on the cost of investments in highway and safety projects. At one point early in the conformity process, the Denver region was unable to proceed with new capacity projects for approximately 18 months, during which time only projects exempt from the conformity process were moved forward. During the 1-year period in which we could not move forward with new capacity projects, the Colorado construction costs index increased approximately 4 percent percent.

The conformity process has had a larger impact on transportation funded air quality projects and activities. The process has reinforced the need for transportation projects that aid in finding conformity. An example of these projects are PM–10 programs which use local, State and Federal highway funds for street de-icing and anti-icing programs and street sweeping.

The Transportation Planning Process works cooperatively with the Air Quality Planning process to develop logical air quality emissions budgets that protect public health and allow necessary transportation projects to proceed.

Experience in the Denver region has led us not to include many items as Transportation Control Measures (TCM's) in the SIP-documents. The combination of logical budgets and few legally mandated TCMs has allowed the region to process ten conformity findings in the last 12 years. Only in 1993 was the Transportation Planning Process unable to find conformity and a list of projects was adopted rather than a Transportation Improvement Program. Our inability to meet the emission budgets in 1993 was resolved by the Air Quality Planning process agreeing to make changes to the vehicle inspection and maintenance program sufficient to reduce mobile source emissions below the adopted budget and allow a conformity finding.

MOBILE6 Versus MOBILE5 Projections

There is a need for recognition in the Air Quality Planning Process of the impacts of applying Mobile6 projections in the conformity determination as compared to Mobile5 projections. The emissions budgets adopted through the Air Quality Plan-

ning Process will have to be changed to ensure conformity of the RTP in the new 2030 horizon year.

Mobile6 significantly changes estimated emissions from those estimated using Mobile5. The most significant problem for the Denver region is in terms of carbon monoxide. Our current budget is 800 tons per day. Using Mobile5 we have met this budget for all years out to our long-range planning horizon of 2025. In contrast Mobile6 emissions exceed the current budget in all future horizon years. In 2010 Mobile6 estimates approximately 1200 tons per day, 400 tons higher than the existing budget. Note that the Mobile6 rate of decrease in emissions over time is greater than that projected by Mobile5 out to all horizon years. This will greatly simplify our ability to demonstrate that a higher CO budget can be allowed while still protecting the CO National Ambient Air Quality standard (NAAQS). For other pollutants such as VOC and NOx associated with ozone and NOx associated with PM10, this problem will not exist. The emissions are less than the current budgets in all future horizon years out to 2025. In all cases the Mobile6 rate of decrease in emissions is greater than that found in Mobile5 for all horizon years.

The carbon monoxide budget will have to be changed in order for Denver to find conformity using Mobile6. This includes the budget not only through 2010 but through all horizon years. The Air Quality Planning process, with assistance from DRCOG and CDOT is moving to implement Mobile6. This will necessitate legal actions to change the budget that are currently planning for mid 2003. This should allow conformity processes to move forward for adoption of our 2030 RTP and the related sub-documents. These conformity findings are expected late in 2003 and in 2004.

It is unknown whether the new 8 hour ozone standard will lead to an increase or decrease in vehicle emissions budget. The Denver region has been very close to the standard, but has not yet violated the NAAQS. If a violation of the NAAQS occurs, the Air Quality and Transportation Planning processes will have to deal with the development of new vehicle emissions budgets.

Additional Vehicle Emission Controls

Denver currently has a centralized I&M 240 program in place. It has been proposed to replace some of the centralized operation with a clean screen remote device-sensing program. The negative impact of a clean screen program versus a centralized program has already been accounted for in the maintenance plan. Implementation of clean screen is unsure, as State legislative authority has not yet been obtained.

The Denver area led the way nationally in terms of oxygenated fuel programs aimed at carbon monoxide emission reduction in wintertime. During the summer, local refineries and dealers voluntarily change fuel specifications to reduce the danger of an ozone violation. It seems unlikely that additional vehicle emission controls which can be implemented independently within the State of Colorado would be sufficient to offset the increase in emissions projected under Mobile6 for carbon monoxide.

Role of Transportation Control Measures

Adopted Transportation Control Measures play a part in attainment demonstration. Today there is only one outstanding Transportation Control Measure (TCM) not fully implemented. That project is the construction of a light rail line in the southeast (I–25) corridor. This project is included in the RTP and funded in the TIP. It has a Full Funding Grant Agreement and is projected to be completed in 2007. Credit for this is taken as an 'on' model emission reduction. As such, the emission reduction is not separately calculated.

The effect is CMAQ projects funded through the TIP are included in the air quality conformity documentation. These emission reduction credits are calculated 'off' model, with the exception of a few transit projects that are included 'on' model. The 'off' credits are not used in the conformity finding directly, but instead are considered a safety margin in meeting the emissions budgets. In past conformity findings the emission credits for such 'off' model projects have typically been on the order of 3 to 5 percent of total emissions.

Impacts of Conformity Lapse

Immediately after the adoption of ISTEA, and the promulgation of conformity regulations and guidelines, the Denver region was unable to show conformity for approximately 18 months. During this time period in 1993, the Denver region adopted a list of projects (LOP) in place of a TIP. During this period of time only safety and other exempt projects could proceed forward. Other projects could not move forward if they resulted in additional highway capacity. During this year the Colorado con-

struction index went up 3.6 percent. The project completion dates were pushed back by approximately 1 year because of this delay.

The impact of the March 1999 U.S. Court of Appeals decision to eliminate the EPA "grandfather" provisions from the conformity regulations was to increase the level of uncertainty concerning the Denver region's ability to implement projects. No longer could implementing agencies assume that a project could move forward after a certain point in the planning and implementation process. This may have led to early implementation of preliminary phases of projects to get them underway and effectively grandfathered for implementation.

Role of Motor Vehicle Emission Estimates and Models

The Air Quality conformity analysis is heavily dependant upon accurate and precise estimates of motor vehicle emissions. The effect of this has been to increase the resources dedicated to development of motor vehicle emissions estimates. The emission estimates have much improved through the agency coordination and interagency cross checking of data and information. As the Federal Government did not provide additional resources for the conformity process, the dollar and manpower resources use in this analysis had to be taken from other planning efforts.

The factor that has led to the largest changes in estimates of regional motor vehicle emissions has been changes in the MOBILE models. As each generation of mobile model has been released, the estimates of emissions increased or decreased, often significantly (See Mobile5 vs. Mobile6 discussion earlier). In addition trends through time have changed with various Mobile models having more pessimistic or more optimistic views of the future. That said, the tie between emissions estimates and base year air quality monitored data, has led to comparatively accurate estimates of the air quality situation over the last 10 years. As projected the Denver region has met and protected the NAAQS for public health. Monitored air quality has tended to be better than modeled air quality, but this is to be expected as the model situation was meant to represent a worse case situation.

Role of Transportation Models

The regional transportation analysis models were originally developed as planning tools. The tools were meant to project such items such as number of lanes that will be needed, transit patronage on future rapid transit lines, and the impact of major land uses on transportation. These models are now being used to develop legally binding estimates of motor vehicle emissions. The effect was to lead the environmental community to nationally question such items as how changes in highway capacity effect total travel and hence air pollution emissions. In the Denver area this resulted in changes to the highway assignment algorithm to (1) estimate 10 time periods of the day to more accurately develop air pollution estimates, and to (2) effectively match highway demand and capacity provided. It also led to a direct tie between highway speeds used in the distribution phase of the model and those estimated at the end of the model, to accurately reflect the effect of congestion on trip making.

The region's travel models' estimates of VMT have been checked through the Carbon Monoxide Monitoring Program, which was mandated by the 1991 Clean Act Amendment. This monitoring program continued for approximately 5 years and recorded deviations of approximately 1 to 4 percent in estimated vs. actual VMT.

Induced travel demand is a controversial subject over which there continues to be much debate as to its magnitude and cause. The Denver Travel Demand Model accounts for the following portions of induced traffic. First congested speeds are used in the trip distribution model. The Denver Model has a mode share model that moves travelers in highway traffic off of congested facilities and onto alternative modes such as rapid transit lines or available carpool lanes. Testing indicates that the Denver model estimates these model features lead to changes in VMT as large as 10 percent. This difference is between extreme cases of combined land use and transportation strategies contrasting centralized growth and disbursed growth and their impact on congestion. The Denver model uses steep traffic diversion curves to simulate the impact of congested roadways. This means that the introduction of additional lanes in areas where the highway network is near saturation, results in those lines being fully utilized through additional VMT that effectively represents induced demand.

TO: U.S. Senate, Committee on Environment and Public Works
FROM: Metropolitan Planning Organization of the Houston Galveston Area Houston-Galveston Area Council of Governments

1) Differences in Timing of Schedules

There are a variety of problems resulting from the various schedules of the State Implementation Plan (SIP), Transportation Improvement Plan (TIP), and conformity, etc. The Clean Air Act requires a conformity demonstration once every 3 years, yet numerous other triggers render this requirement irrelevant, for all practical purposes. Under the Environmental Protection Agency's (EPA) rules, nonattainment areas must demonstrate conformity each time EPA proposes or approves an initial SIP submittal, each time the EPA modifies a control measure that impacts the motor vehicle emissions budget (MVEB), and each time a transportation control measure is added, modified, or deleted. Conformity demonstrations are also needed each time the metropolitan planning organization needs to add or modify a project in its transportation plan (since a road or transit project cannot move forward unless it is specifically included in a conforming transportation plan). This overabundance of conformity triggers means that planning organizations are frequently performing conformity demonstrations, with limited corresponding benefit.

• Question: Describe how the different schedules for the SIP, TIP, conformity, etc. and the impacts of data changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans.

Response. An "initial" SIP has been submitted to the EPA from the State of Texas for the Houston-Galveston Area approximately every 12 to 18 months for the past 5 years. An initial SIP submittal contains a MVEB requiring new conformity analyses and documentation. These frequent submissions have caused H-GAC to spend a considerable amount of time over the past 5 years conducting analyses and preparing conformity documentation.. The time and resources required to prepare detailed conformity determinations has come at the expense of planning and implementing new transportation and air quality strategies. The latest conformity finding received Federal approval in May 2002. In order to complete this finding, work was suspended on the more fundamental re-evaluation of the region's transportation plan due to the time and resource constraints of conformity. Many of the new areas of investigation intended to further reduce vehicle emissions (including major expansion of high capacity transit corridors and exploration of more travel efficient land use development) were delayed.

• Question: What impact have these schedules had on investments in highway and highway and safety projects, construction costs, and air quality projects and activities.

Response. For the most part, the region has managed to move its transportation and air quality improvements forward under the current conformity regime. However, as discussed in other sections, the current conformity process has taken away from the time that is needed to update the metropolitan transportaion plan (MTP), delayed some projects due to a conformity lapse, and adversely impacted resources needed to plan and implement air quality projects.

• Question: What has been your experience coordinating your SIP and conformity processes with SIP submittals and updates?

The development of the SIP, Metropolitan Transportation Plan (MTP) and TIP are seldom in alignment. The SIP process is conducted on an independent schedule (with the timing of actions often dictated by the EPA or the courts) without regard to the timing of MTP or TIP development. For example, the Houston-Galveston nonattainment area is now working to develop its new MTP based on soon-to-be completed corridor studies. Because the State does not plan to incorporate the EPA required MOBILE6 emissions budget until late 2003 or 2004, the region's Transportation Policy Council (MPO governing body) may not be able to formallyact on locally preferred alternatives developed in these corridor studies, due to the MOBILE6 conformity black-out period. The MOBILE6 blackout refers to the period of time that MPOs have to use MOBILE5, 1 year post-release of the new model or January 29, 2003. However, States have 2 years from the release of the new model to develop a new MVEB creating a 1-year window where MPOs may not be able to develop a new plan and required conformity demonstration.

These coordination and scheduling issues could be addressed, in part, through more formally required coordination processes between the States and MPOs.

2) MOBILE6 Versus MOBILE5 Projections

• Question: Compare and contrast your MOBILE5 and MOBILE6 emission projections.

Response. For this section, we are using the Houston-Galveston area (HGA) attainment date of 2007 as the point of comparison for MOBILE5b and MOBILE6. The HGA 2007 MVEB using MOBILE5b was adjusted downward when the NOx budget was set to 156.6 tpd. The adjustments to the modeled results were due to off-model calculations beyond the capabilities of MOBILE5, as well as to programs such as the Voluntary Emissions Reductions Program (VMEPs). Please note that none of the numbers in Table 1 reflect the impacts of the VMEPs. The VOC budget was set at 79.5 tons per day.

• Table 1 is a comparison of the MOBILE5b results used by the Texas Natural Resource Conservation Commission (TNRCC) to establish the motor vehicle emissions budget for the attainment year 2007 and the results produced by MOBILE6 using the same regulatory programs. The change in vehicle miles traveled (VMT) is the result of more recent planning data, rather than a change in the MOBILE model. Although there is some consistency in the overall total budgets between MOBILE5 and MOBILE6, there is a significant difference in where the emissions are being generated. MOBILE6 more accurately reflects diesel emissions and better incorporates engine and fuel improvements which result in lower emissions from light-duty vehicles than MOBILE5.

Table 1: Impacts of MOBILE6 on the HGA Attainment Year 2007

Model	VMT	VOC (tpd)	NOx (tpd)
MOBILE5b	129362378	74.24	167.12
MOBILE6	133274706	82.94	140.17

• Question: How does the increase in near term emissions (through 2010) from MOBILE6 affect your conformity status?

Response. The focus of the current HGA SIP is on reducing NOx emissions. MOBILE6 leads to lower calculated NOx emissions when compared to MOBILE5b, in spite of a 3 percent increase in VMT. The new emissions model facilitates meeting the NOx budget in 2007. The same cannot be said for the VOC emissions. Although the VMT is 3 percent higher, VOC emissions are roughly 8 percent higher. The current 2007 VOC budget is 79.5 tpd. This number, like the NOx number, is based on MOBILE5b modeling and off-model calculations. Using the MOBILE6 model and the measures currently in the SIP, the HGA could not make the established MOBILE5b VOC budget for the attainment date 2007.

• Question: How will your air quality planning process take the new MOBILE6 into account and will the SIP be updated before or after the new MOBILE6 projections?

Currently the State is planning to do a major, mid-course revision to the SIP in 2004. It plans to incorporate MOBILE6 into this revision. This schedule for an updated SIP with a new budget using MOBILE6 is not consistent with the current schedule for updating the MTP.

• Question: Will the new 8-hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

Response. At this time H-GAC is unaware of any analysis done on the 8-hour standard or budget for the HGA. The assumption is that the budget will be lower than under the 1-hour standard. Modeling has not yet been conducted to verify this statement.

3) Additional Vehicle Emission Controls

• Question: What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection maintenance, reformulated fuels, diesel retrofit, TCM?

Response. In the HGA, the on-road mobile sector currently has been required to reduce emissions in a greater proportion than the sector contributes in comparison to other nonattainment areas. The on-road mobile portion of the emissions inventory is under great pressure as a result of the region being a severe nonattainment area for ozone, uncertainties regarding precursor contributions from NOx and VOCs in the photochemical model, and additional issues related to the emissions inventory. . The HGA has employed every conceivable on-road emission reduction strategy currently available, except for no-drive days.

• Question: Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6?

Response. As mentioned above, the focus of the HGA SIP has been on NOx reductions. The biggest problems anticipated in the utilization of MOBILE6 are as follows:

- Light duty vehicles will yield less NOx emission reductions under MOBILE6 than MOBILE5, making current emission reduction strategies (those that target light-duty vehicles), exceedingly more expensive for limited emission reduction benefits.
- Measures that target the reduction of VMT under the current plan may have congestion mitigation benefits but limited NOx emission reduction benefits.
- Efforts and programming plans for emission reduction strategies may change in priority and focus under MOBILE6, creating uncertainties in implementing the programs.

4) Role of Transportation Control Measures

- TCMs play a very small role in helping to meet HGA's attainment. The total reductions from the HGA TCMs under MOBILE5 are slightly more than 1 tpd for NOx with roughly 2 tpd for VOC. Using MOBILE6, the HGA TCM reductions for NOx emissions are less than 1 tpd and are roughly 1 tpd for VOCs. TCMs represent 0.1 percent of the SIP's total reductions. The region is implementing a number of transportation projects that address congestion and also have air quality benefits, but have not been formally committed as TCMs. The cost through TIP year 2004 for these TCMs and other related projects is in the hundreds of millions of dollars. A summary of TCM commitments for the region is listed below.

Signalization	52.2 miles
High Occupancy Vehicle lanes	18.2 miles
	225 vans
Park and ride lots	15,098 spaces
Arterial Traffic Management System	343.48 miles
Computerized Traffic Management System	387.37 miles
Bicycle lanes	435.998 miles
Accident investigationsites	3.2 miles

5) Impacts of Conformity Lapse

From November 1999 until June 2000, the Houston-Galveston region experienced a conformity lapse due to the time required to evaluate its MTP against a new budget for NOx. This lapse delayed design and right-of-way acquisition for several significant transportation projects, including the widening and reconstruction of US 59 South and Interstate 10 West. The lapse occurred because of a change in the interpretation of a post-NOx waiver SIP submittal from a 'revision' to an 'initial' SIP with an MVEB. The MVEB was submitted a month after the SIP and had been interpreted by the conformity consultation committee as a revision. EPA staff made an interpretation that the budget was an "initial" submittal in the Rate of Progress SIP submission by the State of Texas to the EPA. Notification of this interpretation was not received in time for the MPO staff to conduct a new conformity determination prior to the November lapse deadline.

6) Role of Motor Vehicle Emissions Estimates and Models

- Question: How has conformity analysis helped improve the quality of estimates of motor vehicle emissions for SIPs to better protect public health?

Response. Both the development of MVEBs and transportation conformity require a level of detail and precision that is inconsistent with real world experience, and the capabilities of travel demand estimation and mobile emission models. However, the on-road emissions estimates are probably the best evaluated portion of the total emissions inventory. Due to the requirements of ozone models, much more data has been collected and evaluated to determine hourly VMT, vehicle speed, vehicle type and age distribution. The value of this information to public health must be tempered by the fact that other significant portions of the ozone forming emissions inventory are poorly measured, particularly emissions for aircraft and most off-road and marine vehicles. The EPA's new MOBILE6 emissions model suggests that heavy-duty trucks play a disproportionate role in NOx emissions production. The analysis and measurement of freight travel is traditionally one of the weakest areas of urban travel forecasting. HGAC has attempted to develop specific data for truck origins and destinations for major generators, such as its ports and airports.

• Question: How accurate and consistent have estimates of regional motor vehicle emissions been when compared with each other over time and with actual experience?

Response. Although the primary travel inputs to motor vehicle emissions estimates (vehicle miles of travel, vehicle speed and vehicle mix) have been relatively consistent over time, the estimate of motor vehicle emissions has been radically altered by revisions to EPA's mobile source models and modeling procedures for control strategies such as vehicle inspection/maintenance programs. Because of the revisions to EPA's MOBILE models, it is unlikely that any area's emissions estimates from the early 1990's for 2005 or 2007 would resemble those made today.

• Question: How have official estimates of motor vehicle emissions in your metropolitan region changed over the past 10–20 years and how well have they tracked actual emissions in years past?

Response. They have increased mostly because of changes between MOBILE models. On-road emissions have increased on a gram/mile basis with the release of each model since MOBILE4 (VOC nearly doubled between MOBILE4.1 and MOBILE5a-h). Economic cycles also play a major role in changing on-road budgets, since fleet ages change rapidly in strong economic cycles.

7) Roles of Transportation Models

Adequate regional transportation analysis models have supported the conformity analysis. These models accurately reflect how changes in highway capacity affect total travel, travel speeds, travel paths and resultant air pollution emissions (to the extent the EPA emissions models have revised emissions rates, the emissions estimates may vary).

The region's travel models have tracked reasonably well the growth in VMT. As compared to forecasts made in the late 1980's or early 1990's, the sustained economic growth of the 1990's has required upward revisions in future year population and employment estimates, which subsequently have increased future year travel estimates.

The regional travel models are sensitive to traffic changes that are induced by changes in travel patterns in the region.

Recommendations

Transportation conformity determinations should only be required once every 5 years. Currently, full transportation conformity determinations are required each time the EPA or the State proposes or approves an initial SIP, each time the EPA or State modifies a control measure that impacts the motor vehicle emissions budget, and each time a transportation control measure is added, modified, or deleted. Conformity determinations are also currently required if the planning organization needs to add to or revise a transportation project in the transportation plan (since road and transit projects cannot generally proceed unless they are specifically included in the plan).

Amend TEA–21 to require MTP, TIP, and SIP updates not less than every 5 years with the transportation conformity rule applying after each 5-year SIP update requirement is met. If a more frequent update of the TIP is needed, as is often the case today, this would be allowed using the same assumptions used in the most recent transportation plan and SIP.

The newly released MOBILE6 emissions factor model further exacerbates this situation. MOBILE6 has not been used at all in SIP development and there is no requirement to update SIPs using MOBILE6 prior to using it for conformity determinations. Regardless, transportation conformity determinations must use this model within 24 months.

Planning organizations should have the ability to add or modify a road or transit project and TCMs (to some degree) without the need for a full conformity demonstration. Currently, planning organizations must go through a full conformity analysis to make minor changes. This exercise is unnecessary and a waste of valuable local, State, and Federal resources.

Encourage TCM substitution without a SIP revision, so long as equivalent emission reductions are forthcoming from other measures. Such a substitution would not trigger a new conformity determination. A model for such a process might be the Emission Budget Adequacy process used by the U. S. EPA, if expanded to address outdated, but currently approved, SIP budgets.

METRO AND OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY,
Portland, OR 97232–2736, July 23, 2002.

Committee on Environment and Public Works,
U.S. Senate,
Washington, DC. 20510–6175.

DEAR MR. CHAIRMAN: The following are Metro and Oregon Department of Environmental Quality (DEQ) responses to the conformity case study questions raised in the July 3,2002 letter from the Senate Committee on Environment and Public Works:

Differences in Timing of Schedules

Question: Describe how the different schedules for the SIP, TIP, Conformity, etc. and the impacts of data changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans. Provide a timeline or narrative description of your various schedules.

Response: The SIP mobile source element is updated infrequently. The last SIP included the "Maintenance Plans for CO and Ozone" and was acknowledged by the State EQC in 1996. It will not have to be updated until 2006. The MTIP is updated every 2 years and occasionally is amended such that it requires a conformity determination. The RTP is updated every 3 years, and includes a conformity determination. The major issue we deal with regarding timing is trying to align, to the degree possible, any required conformity actions. To the extent that the action occurs on schedule, we are experienced enough that we can adequately manage conformity determinations. It does become problematic (time consuming and expensive) when we conform our long-range plan 6 months prior to a TIP conformity, which can occur due to schedules, project needs.

Question: What impacts have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities.

Response: Required conformity has caused slight three to 4 month delays in projects, which may or may not affect project cost and schedule (dependent on construction season, interest rates that apply to bond financing, etc). The schedules have no impact on project selection.

Question: What has been your experience coordinating your SIP and conformity processes with SIP submittals or updates?

Response: Since the Clean Air Act Amendments of 1990 and ISTEA, requiring air quality conformity in its current state, we have had only a single SIP submittal and update. It followed the completion of our 1995 long-range plan and the associated travel networks and forecasts were used both for the SIP and long-range plan. In other words, our timing was fortunate and we were able to use "off the shelf" analysis for SIP conformity.

MOBILE6 versus MOBILE5 Projections

Question: Compare and contrast your MOBILE5 and MOBILE6 emission projections.

Response: Metro has not used MOBILE6 for any conformity estimates to date. To this point, Metro has only used MOBILE6.2 for estimating emission rates for air toxics work. Furthermore, we have added detail to the stratifications of emission rate categories such as county-specific vehicle fleet age characteristics, separated emission rates by roadway functional class, updates to fuel type, ambient temperatures, and I/M programs. Therefore, even if we had MOBILE6 emission rates (or resulting total motor vehicle emissions) for CO, NOx, and VOC, we would not be able to make apples to apples comparisons between the results without rerunning MOBILE5 with the updated stratifications. Oregon DEQ has not determined exactly how they will be applying the new Mobile 6 model, but initial runs appear to be consistent with what EPA anticipated. More specifically, Mobile 6 emissions to be higher than Mobile 5 emission prior to 2005 (approximately) then progressively lower thereafter.

Question: How does the increase in near term emissions (through 2010) from MOBILE6 affect your conformity status?

Response: Metro has not done any conformity work using MOBILE6, thus we have no basis to make an evaluation of how it affects our conformity status. However, Oregon DEQ expects that increased emissions in the near term should not jeopardize conformity if the last Mobile 5 conformity determination is timed occur near the end of the 2 year phase in period for Mobile 6.

Question: How will your air quality planning process take the new MOBILE6 into account, and will the SIP be updated before or after the new MOBILE6 projections?

Response: The Portland Metropolitan area is still working with budgets that were established using MOBILE5. The Oregon Department of Environmental Quality is

planning to update the budgets using MOBILE6 sometime later this year. At that time, Metro will begin using MOBILE6 for subsequent conformity work. Portland's Carbon Monoxide and Ozone maintenance plans must be reworked and resubmitted to EPA by the end of 2004. Those plans will include new, lower emission budgets based on Mobile 6, but those budgets are not likely to take effect until approximately 2006.

Question: Will the new 8-hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

Response: The new 8-hour ozone standard will probably not affect the motor vehicle emissions budgets by much.

Additional Vehicle Emission Controls

Question: What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection and maintenance, reformulated fuels, diesel retrofit, TCMs?

Response: Additional existing controls that could be implemented include diesel retrofits and elimination of an emissions allowance set aside for industrial growth.

Question: Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6?

Response: The available controls would probably not be adequate to avert a conformity crisis if we had to immediately demonstrate conformity using Mobile 6.

Role of Transportation Control Measures

Question: What role do TCMs play in helping to meet attainment? Please list the TCMs and CMAQ projects in your plan, and the associated "off" or "on" model emissions reductions credits for each.

Response: The Metro 240 Growth Concept. Metro has adopted integrated land use and transportation system plans that modeling predicts will decrease reliance on single occupant vehicle travel. A 5.0 percent VMT reduction credit is associated with inclusion of Metro's code-based Growth Concept enforcement mechanisms in the Maintenance Plan (code provisions related to Requirements for "Accommodation of Growth"; "Regional Parking" ratios (minimum and maximum permitted amounts); and "Retail in Employment and Industrial Areas"). The actual emissions reductions vary by pollutant and year but in 2010, a 5 percent VMT reduction equated to HC, NOx and VOC reductions of approximately 6.4, 5.4 and 6.6 percent, respectively.

- DEQ Employee Commute Options (ECO) Rule. Employers of 50 persons or more must submit plans showing mechanisms for achieving 10 percent VMT reductions from employees. The credit was originally pegged at a 1.0 percent reduction of emission in 2010 but was reduced to 0.5 percent based on realized mode shift indicated in annual surveys administered by ECO program staff.

Question: What percentage of total emission reductions to they represent?

Response: The region must provide annual transit system service increases averaging 1.5 percent annually, and an equal increase of service in the Downtown core. There is no emission credit associated with this requirement. Additionally, the South/North Light Rail Concept, or an equivalent transit system enhancement must be operational by 2007. (The Westside MAX extension was completed, as required.)

The region must add no less than 28.0 miles of regionally significant bikeways by 2006. Reasonable progress on this task is defined as funding no less then 5.0 miles of improvements each biennium. There is no emissions credit associated with this requirement.

The region must add no less than 9.0 miles of regionally significant pedestrian facilities by 2006. Reasonable progress on this task is defined as funding no less then 1.5 miles of improvements each biennium. There is no emissions credit associated with this requirement.

Question: Are there CMAQ projects in your plan for which you have not applied any on or off model emissions reductions?

Response: CMAQ funds have been used to meet the funding based TCMs noted above, though other sources have also been used and not all CMAQ funds have been dedicated to these purposes. No on or off model credit is taken for any CMAQ funded projects, although emissions reductions attributable to CMAQ projects are calculated to demonstrate CMAQ program eligibility.

Impacts of Conformity Lapse

Question: If your areas has experiences a conformity lapse, describe the effect this has had on transportation and air quality planning, funding process, preconstruction and construction.

Response: Our area has not experienced a lapse.

Role of Motor Vehicle Emission Estimates and Models

Question: How has conformity analysis helped improve the quality of estimates of motor vehicle emissions for SIPs to better project public health?

Response: Conformity analysis requirements have caused Metro to implement a more rigorous process (programs to continually implement demand model improvements and strive to ensure that functions used for speed estimation reflect observed data) by which VMT, speed, and resulting motor vehicle emissions are estimated. Conformity requirements have not affected the way motor vehicle emissions factors are generated for SIPs.

Question: How accurate and consistent have estimates of regional motor vehicle emissions been when compared with each other over time and with actual experience?

Response: Regional motor vehicle emissions seem to be valid, reliable and consistent. The following table illustrates the historical profile and consistency of emissions estimates of recent conformity runs:

TIP Conformity Emissions Estimates—Historical Summary

	1990 Budget (est. 1995)	1990	1998	2000
CO (000's lbs)	1812	1795	814	828
VOC (tons)	92	88	41	42
NOx (tons)	75	64.5	52.3	51

Question: How have official estimates of motor vehicle emissions in your metropolitan region changed over the past 10–20 years, and how well have they tracked actual emissions in years past?

Response: Estimates of motor vehicle emissions have generally decreased as Federal and State regulations have become progressively more stringent. Because we do not monitor mobile source emissions separately from other sources, there is no way to accurately compare projected emissions with actual emissions. A subjective impression, however is that the two are not inconsistent. The following tables illustrate the consistency of future year model projections for emissions estimates of recent conformity runs:

TIP Conformity Emissions Estimates—2010 Model Year

	2010 Budget (est. 1995)	2000	2002
CO (000's lbs)	760	645	644
VOC (tons)	40	32	32
NOx (tons)	52	50.9	50.9

TIP Conformity Emissions Estimates—2020 Model Year

	2020 Budget (est. 1995)	1999	2000	2002
CO (000's lbs)	842	740	728	713
VOC (tons)	40	37.6	37	36
NOx (tons)	59	58.7	58.2	57.6

Metro does not have the data to demonstrate the comparisons between modeled and actual observed emissions.

Role of Transportation Models

Question: Has conformity analysis been supported by adequate regional transportation analysis models that accurately reflect how changes in highway capacity affect total travel and air pollution emissions?

Response: Metro's transportation demand modeling process includes many features that take into account changes in, among many other things, highway capacity and its effects on total travel and air pollution emissions.

- Metro's demand model is multi-modal. This means that any changes in highway capacity which result in changes in travel time, relative to other modal at-

tributes, affects the choice of both destination and mode of transportation. For example, adding a new lane on a freeway improves travel time through that corridor. All else being equal, the auto mode becomes relatively more desirable than other modes. In addition, the improvement in accessibility to areas served by that freeway attracts more trips to those areas.

- The model is sensitive to the urban environment. The mix of households and employment opportunities influence the choice of destination and mode.
- We use the EMME/2 software for assignment of trips onto the highway network. It uses an equilibrium capacity restrained assignment algorithm to determine path choice for trips. An iterative process is used to reach equilibrium travel times among path choices between TAZ (Transportation Analysis Zone) pairs.
- In addition, we maintain a comprehensive region-wide count data base for validation and calibration purposes to ensure that the model is producing accurate and reasonable outputs.

Question: How well have your region's travel models tracked actual experience with growth in vehicle miles of travel (VMT)?

Response: The following shows how VMT estimated using Metro's travel demand model has tracked actual growth in VMT between 1985 and 2000.

Region's Model Estimated VMT vs. Regional HPMS Derived (''actual'') VMT

	Model*		HPMS	
	Urbanized Area	Total Modeling Region	Urbanized Area	Total Region**
1985	14,922,127	n/a	14,140,000	n/a
1990	17,970,876	19,282,419	17,970,000	22,400,000
1994	n/a	24,685,960	n/a	26,500,000
2000	n/a	28,485,076	n/a	31,500,000

* Model does not include truck trips or external trips
** HPMS Total Region is the Portland-Vancouver, OR-WA Urbanized Area (UZA 27)

Question: Please include an indication of how sensitive your/these models are to effects of induced traffic.

Response: Comparing local survey data through time has shown that trip generation rates generally remain stable with changes in travel times. So, it is assumed that induced demand refers to additional trips choosing a certain destination or mode based on improvements in accessibility resulting from increases in highway capacity, but not necessarily an increase in the total universe of trips in the system. Our model responds to changes in infrastructure in destination choice and mode choice by an iterative process of feeding output travel times back to the beginning of the model, and rerunning until equilibrium is reached.

For example, we use generic existing travel times for input into an initial model run. Let's assume a new development with households and employment is added to the region. The new opportunities presented by this development will attract more trips to the area. Given the additional trips, the resulting travel times in this area will show increased congestion. These more congested travel times are then fed back to the beginning of the model and the model is rerun. This time, the increased congestion (or slowed travel times) will reduce the attractiveness of the destination and may also make non-auto modes more desirable for this destination. If capacity is added to the highway network serving this development (improving travel times), then more iterations of the model will show additional trips attracted to this area and changes in mode share chosen by people who travel there.

Thank you for the opportunity to participate in this survey. Please feel free to contact Mike Hoglund at 503–797–1743 if you have any questions, or require further assistance.

Sincerely,

ANDREW C. COTUGNO,
Planning Director, Metro.

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS,
NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD,
777 NORTH CAPITOL STREET, NE,
Washington, DC 20002–4226, July 17, 2002.

Honorable JIM JEFFORDS, *Chairman,*
Committee on Environment and Public Works,
U.S. Senate,
Washington, DC 20510–6175.

Honorable BOB SMITH, *Ranking Member,*
Committee on Environment and Public Works,
U.S. Senate,
Washington, DC 20510–6175,

DEAR SENATOR JEFFORDS AND SENATOR SMITH: Thank you for your letter of July 3, 2002 requesting information about transportation and air quality planning efforts in the metropolitan Washington region. I appreciate the opportunity to contribute to the deliberations of the Senate Environment and Public Works Committee on this subject in the context of the TEA–21 reauthorization process.

Air quality planning for the metropolitan Washington non-attainment area is conducted by the Metropolitan Washington Air Quality Committee (MWAQC), which includes representatives of the local governments in the non-attainment area, the State air agencies, and the State transportation agencies. Air quality plans developed by MWAQC are incorporated into the State Implementation Plans (SIPs) submitted to the Environmental Protection Agency (EPA) by the District of Columbia, the State of Maryland, and the Commonwealth of Virginia. Transportation planning in the metropolitan Washington region is conducted by the National Capital Region Transportation Planning Board (TPB), the Metropolitan Planning Organization (MPO) for the area, which includes representatives of the local governments in the metropolitan area, the State transportation agencies, the Washington Metropolitan Area Transit Authority (WMATA), the Metropolitan Washington Airports Authority (MWAA), and Federal agencies.

MWAQC and TPB are staffed respectively by the Department of Environmental Programs and the Department of Transportation Planning of the Metropolitan Washington Council of Governments (MWCOG), and several policy officials serve on both bodies. Close policy and staff coordination between MWAQC and TPB provided within the MWCOG structure has been critical in helping the Washington region to address linkages between air quality and transportation planning, and in particular to meet the transportation conformity requirements of the Clean Air Act. Despite this close coordination, however, we have experienced some significant challenges in carrying out our transportation and air quality planning activities, and we welcome the in-depth interest of the Senate Environment and Public Works Committee that is reflected in the questions you have posed. The responses I have provided to your questions have been coordinated with local government officials on MWAQC and TPB as well as with representatives of the State transportation and air agencies.

Difference in Timing of Schedules

? Describe how the different schedules for the SIP, TIP, conformity, etc. and the impacts of data changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans. Provide a time-line or narrative description of your various schedules.

Question: What impact have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities.

Question: What has been your experience coordinating your SIP and conformity processes with SIP submittals or updates?

Response: State SIPs are developed to meet a current attainment year of 2005, the regional constrained long range transportation plan (CLRP) has a horizon year of 2025, and the current 6-year TIP is for fiscal years 2003–2008. Mobile emissions budgets for VOC and NOx are set for 2005 as part of the attainment plan. Higher VOC and lower NOx budgets have been developed for 2015 and 2020 using VOC/NOx substitution procedures approved by EPA. The CLRP is updated every 3 years (1997, 2000, 2003, etc.), the 6-year TIP is typically updated every year, and the SIPs are updated as needed to meet EPA and regional air quality requirements.

Changes in input data on vehicle registration and vehicles miles of travel by vehicle type in the FY2002–2007 TIP update cycle caused projected mobile NOx emissions to increase by 8 tons per day in 2005. No updates were undertaken to the State SIPs to reflect these changes in vehicle registration and vehicle miles of travel

input data. Consequently, the entire 8 ton per day increase in NOx emissions had to be addressed within the transportation conformity process, using mobile emissions budgets which had been set in the SIPs using earlier input data. In order to provide time to address this difficult issue, proposed TIP updates had to be deferred for a year and were subsequently included in the FY2003–2008 TIP cycle. While there has not yet been a TIP lapse (since the approved FY2001–2006 TIP continues to be valid until January of 2003), there have been some delays in incorporating new projects into the CLRP and TIP.

Synchronizing SIP updates with CLRP/TIP and conformity schedules requires extensive communication, coordination, and cooperation between MWAQC, TPB, EPA, and the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). CLRP/TIP conformity and SIP update schedules as currently prescribed in Federal regulations and as administered by FHWA, FTA, and EPA do not in themselves ensure synchronized processes. Regulatory changes are needed to improve coordination between these schedules; to place SIP planning and conformity on the same timeframes (with out-years of, say, 10 years beyond the attainment date); and to require that key input data used in the SIP to establish mobile budgets continue to be used for conformity until the SIP is revised.

MOBILE 6 Versus MOBILE5 Projections

Question: Compare and contrast your MOBILE5 and MOBILE6 emission projections.

Question: How does the increase in near term emissions (though 2010) from MOBILE6 affect your conformity status?

Question: How will your air quality planning process take the new MOBILE6 into account, and will the SIP be updated before or after the new MOBILE6 projections?

Question: Will the new 8 hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

Response: The Washington metropolitan area has been working on preparing inputs for the Mobile6 model, but has not yet developed emissions projections using the model. Consequently, we are unable to provide any comparisons to Mobile 5 projections.

We do not yet know how emissions projections from Mobile 6 will affect our conformity status.

We are planning to update our regional air quality plan and our State SIPs to reflect Mobile6 emissions projections.

We do not yet know what the effect of the new 8 hour NAAQS will be on our vehicle emissions budgets.

Additional Vehicle Emission Controls

Question: What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection and maintenance, reformulated fuels, diesel retrofit, TCMs?

Question: Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6?

Response: In seeking measures to mitigate projected excess NOx emissions from mobile sources in 2005, the TPB has developed and analyzed an extensive list of Transportation Emission Reduction Measures (TERMs) which could provide additional reductions in mobile emissions. These measures and associated analyses of potential costs and effectiveness in terms of emissions reductions are documented in a report entitled "Transportation Emissions Reduction Measures (TERMs) Under Consideration for Conformity of the 2002 Constrained Long Range Plan (CLRP) and FY2003–2008 Transportation Improvement Program (TIP)," June 28, 2002. In terms of cost-effectiveness, the most promising additional measures for NOx reductions appear to be diesel fuel additives, diesel engine replacements, and other potential diesel retrofit measures. These measures appear to be in the range of $2,000 to $10,000 per ton in cost-effectiveness, and have the added advantage of providing substantial reductions in particulates. Since it will be several years before the EPA heavy-duty diesel regulations will result in significant changes in the diesel fleet, measures aimed at reducing emissions from existing diesel engines appear to be very promising in the short time-frames addressed in air quality attainment plans. Measures aimed at promoting more telecommuting and more effective enforcement of speed limits on freeways and other high speed facilities might also have significant short-term benefits.

As noted earlier, the metropolitan Washington region is still developing inputs for the Mobile 6 model, and we do not yet know how Mobile 6 will affect our emissions projections.

Role of Transportation Control Measures

Question: What role do TCMs play in helping to meet attainment? Please list the TCMs and CMAQ projects in your plan, and the associated "off" or "on" model emission reduction credits for each.

Question: What percentage of total emission reductions do they represent?

Question: Are there CMAQ projects in your plan for which you have not applied any on or off model emissions reductions?

Response: Transportation Control Measures (TCMs) play a very small role in the regional air quality attainment plan, accounting for only 0.2 tons per day of VOC reductions and 0.4 tons per day of NOx reductions in 2005. As you know, once TCMs are included in SIPs they can be changed only through a lengthy SIP amendment process. Because of this lack of flexibility, the only TCMs included in the Washington area SIPs are TCMs associated with capital projects that have already been completed. Such measures include park-and-ride lots, bus and rail transit vehicle replacements, and bicycle facilities. By comparison, emissions reductions of around 4.5 tons per day of VOC and 7.7 tons per day of NOx are being achieved through Transportation Emission Reductions Measures (TERMs) which are incorporated into the CLRP and annual TIP updates as they are needed to meet conformity requirements. These latter measures include employer outreach programs to promote increased carpooling and van pooling, transit use and telecommuting, CNG buses, and bicycle facilities. Should any of these "TERMs" not meet anticipated emissions reductions goals, new or revised TERMs can be developed and implemented through the CLRP and TIP update process, without requiring amendments to the SIPs.

TCMs and TERMS collectively provide 4.7 tons per day of VOC reductions and 8.1 tons per day of NOx reductions in 2005. Of these totals, TCMs account for 4.3 percent of the VOC reductions and 4.9 percent of the NOx reductions.

Emissions reductions credits are taken for all CMAQ projects included in the CLRP and TIP as part of meeting conformity requirements.

Impacts of Conformity Lapse

Question: If your area has experienced a conformity lapse, describe the effect this has had on transportation and air quality planning, funding process, preconstruction, and construction.

- When projects were reactivated, after USDOT approved your conformity determination, what impact did this have on funding, project completion dates, personnel, renegotiation of contracts, updating old information, etc.

Question: What impact did the March 1999 U.S. Court of Appeals decision to eliminate the EPA "grandfather" provision from the conformity regulations have on your transportation investments?

Response: The metropolitan Washington area has not experienced a conformity lapse, and consequently has not had to address any of the three issues raised above.

Role of Motor Vehicle Emission Estimates and Models

Question: How has conformity analysis helped improve the quality of estimates of motor vehicle emissions for SIPs to better protect public health?

Question: How accurate and consistent have estimates of regional motor vehicle emissions been when compared with each other over time and with actual experience?

Question: How have official estimates of motor vehicle emissions in your metropolitan region changed over the past 10–20 years and how well have they tracked actual emissions in years past?

Response: Conformity analysis requirements have focused attention on key transportation and land use variables that can significantly affect the levels of motor vehicle emissions, and provided a better understanding of the relative importance of these variables for policymakers and the general public. In particular, the increase of 8 tons per day of NOx emissions resulting from changes in input data on vehicle registrations and vehicle miles of travel by vehicle type in metropolitan Washington has highlighted the importance of obtaining accurate data on these vehicle inputs, and on how these inputs may be changing through time.

Substantially increased planning resources need to be devoted to improving data collection procedures for these vehicle fleet variables, and to analyzing measures such as diesel fuel additives that can produce significant reductions in emissions from high-emitting vehicle classes.

The greatest challenges in maintaining consistency in estimates of motor vehicle emissions over time have been related to the vehicle fleet mix inputs discussed above. While land use and transportation system inputs generally change relatively slowly over time and are relatively easy to track, changes in fleet mix have been

occurring rather rapidly and have been difficult to track accurately with current data collection procedures. Changes in these data collection procedures have resulted in significant changes to fleet mix estimates and to regional emissions estimates, creating challenges in demonstrating conformity to mobile emissions budgets developed using earlier procedures and data. Forecasting changes in vehicle fleet mix and vehicle miles of travel into the future is an additional challenge for planners and policymakers. With ever-changing vehicle technologies, emissions and fuel economy standards, and consumer preferences, estimating motor vehicle emissions even a few years into the future is subject to considerable uncertainty. This uncertainty compounds as the out-years stretch to 2015, 2020, and 2020.

Official estimates of motor vehicle emissions have shown steady declines in overall emissions over the past 10–20 years, despite steady growth in vehicle travel in the Washington region. Improvements in emission control and fuel technologies have been largely responsible for these declines. Further substantial reductions in mobile emissions are projected to result from EPA's TIER II/low sulfur rule and heavy-duty diesel standards over the next 10 to 15 years. While current conformity procedures do not permit anticipation of new technology in emissions calculations, further technological advances such as hydrogen fuel cells are likely to produce additional mobile emissions reductions over the longer term.

Role of Transportation Models

Question: Has conformity analysis been supported by adequate regional transportation analysis models that accurately reflect how changes in highway capacity affect total travel and air pollution emissions?

Question: How well have your region's travel models tracked actual experience with growth in vehicle miles of travel (VMT)?

Question: Please include an indication of how sensitive your/these models are to effects of induced traffic.

Response: Conformity analysis requirements have placed new demands on regional transportation analysis tools, and prompted us to invest a significant portion of our MPO planning funds into upgrading these models to address emerging conformity issues. The Washington region is currently introducing a new "Version 2" set of travel models which will significantly enhance our current "Version 1" model capabilities. Continuing development and upgrading of these models is anticipated over the coming years, placing continuing demands on our planning resources. We believe that we have been keeping pace with the "state-of-the-practice" in regional travel modeling, and we are continuing to introduce "state-of-the-art" improvements as they are developed and validated. The models have been used to assess the impacts on travel and air emissions of changes in highway, transit, telecommuting and other transportation programs, and have produced results that policymakers find useful and credible.

We regularly compare vehicle miles of travel (VMT) estimates produced by our regional travel models with observed VMT collected through FHWA's Highway Performance Monitoring System (HPMS), and provide reports to EPA on these comparisons. My most recent letter to EPA, dated April 23, 2002, transmitted regional comparisons of estimated versus observed data for 1997, 1998, 1999 and partial data for 2000. These comparisons showed that the results of the regional travel modeling process track quite well with observed VMT data.

In response to a request by the TPB, we recently conducted an extensive study of the concept of induced travel and how it is addressed by our regional travel models. The study, which is available on our web site at www.mwcog.org, concluded that all of the significant aspects of induced travel are captured in our modeling process, although induced travel is not generally broken out from other changes in travel behavior (such as travel that is diverted from one route to another by a highway improvement.)

I hope these responses will be helpful to the committee as it continues its deliberations on these important issues. I would be pleased to provide any additional information you may require. I can be reached at 202–962–3310 or by e-mail at rkirby@mwcog.org.

Sincerely,

RONALD F. KIRBY, *Director,*
Department of Transportation Planning.

OKI RESPONSE TO QUESTIONS ABOUT THE TRANSPORTATION CONFORMITY PROCESS

Difference in Timing of Schedules

Question: Describe how the different schedules for the SIP, TIP, conformity, etc. and the impacts of data changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans. Provide a time-line or narrative description of your various schedules.

Response. The Transportation Plan, and SIP must use the latest planning assumptions at the time of each update. Because these documents are updated at different frequencies, we commonly encounter several mismatch issues in regards to planning assumptions. For example, the SIP budget for Northern Kentucky and the SIP budget for Southwest Ohio were last revised in 1999. Since then, OKI has incorporated new advancements in our travel forecasting model and revised our vehicle fleet mix. Our most recent Transportation Plan, the 2030 Plan adopted in September 2001, included these new assumptions. We were able to pass conformity, but only due to off-model CMAQ credits. Since then, we anticipate three major new assumptions on the horizon; 1) new population projections based on the 2000 Census, 2) further enhancements to the travel forecasting model, and 3) MOBILE6. We have several rapid growth counties in the region, resulting in a significant increase in the population projections and hence VMT through 2030. Improvements in our travel forecasting model have also resulted in higher VMT's. Without the ability to modify the SIP budget, OKI anticipates serious difficulties in passing future conformity tests. Any future unforeseen changes in several projects' scope and schedule we cause us to amend our Plan, and conformity will be in jeopardy. Aligning the update schedules for the SIP, TIP and Plan would allow us to make quality traffic forecasts while being able to more accurately determine whether our transportation decisions are improving air quality.

Question: What impact have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities?

Response. Making air quality conformity determinations is a complex task requiring significant staff resources, and allowance for adequate opportunity for public comment. This leads to some reluctance to amend the TIP/Plan for changes or additions of non-exempt projects. Major amendments are frequently delayed so that we may analyze a combination of several changes to non-exempt projects at the same time.

Question: What has been your experience coordinating your SIP and conformity processes with SIP submittals or updates?

Response. Coordination is difficult when dealing with two States and two Federal regions. The SIP update process is the responsibility of the State air quality agencies. Coordination among the State air agencies and the Federal regions is difficult. We are working the States, FHWA-Kentucky Division, FHWA-Ohio Division, EPA Region 4 and EPA Region 5 to try to reach a better understanding of coordination procedures.

We were pleased that the two States were able to have concurrent SIP update processes in 1999. Due to differing legal constraints and priorities, it is not likely that both States will have a concurrent process for the next SIP update. Ohio EPA is revising their SIP to address certain area source deficiencies. OKI is currently working to provide Ohio EPA with a revised mobile source budget that can be included in the SIP revision. We will be using the latest planning assumptions to develop that budget. There is no requirement for Kentucky to revise their SIP or mobile source budget. The result for the region will be two separate budgets created with two different sets of planning assumptions. This will likely increase the difficulty in making conformity determinations.

MOBILE6 Versus MOBILE5 Projections

Question: Compare and contrast your MOBILE5 and MOBILE6 projections. How does the increase in near term emissions (through 2010) from MOBILE6 affect your conformity status?

	VOC	NOx
2010 Region	−6 percent	+18 percent
2030 Region	−40 percent	−40 percent

Preliminary results for the OKI region have shown that MOBILE6 causes NOx projections to increase by 18 percent for 2010 (our maintenance year). VOC projec-

tions for 2010 decrease 6 percent. For 2030, VOC and NOx projections decrease by 40 percent with MOBILE6. We will not be able to pass conformity with MOBILE6 if the existing budgets are maintained.

Question: How will your air quality planning process take the new MOBILE6 into account, and will the SIP be updated before or after the new MOBILE6 projections?

Response. Not sure when SIP budgets will be updated with MOBILE6. Ohio is currently in the process of revising SIP, with new mobile source budgets, using MOBILE5.

Question: Will the new 8-hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

Response. It is likely that the new 8-hour NAAQS would lead to a decrease in our vehicle emissions budget.

Additional Vehicle Emission Controls

Question: What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection and maintenance, reformulated fuels, diesel retrofit, TCMs?

Response. Nearly all of the controls with the most significant impact have already been implemented in the OKI region. Currently we have an inspection and maintenance program in Northern Kentucky and Southwest Ohio. Reformulated gas is used in Northern Kentucky, oxygenated fuels in Southwest Ohio. We have also implemented a region-wide Intelligent Transportation System called ARTIMIS that has significantly reduced vehicle delays due to traffic incidents. Upcoming Federal requirements for cleaner heavy-duty diesel engines and cleaner gasoline will help. We don't anticipate any additional controls to be implemented locally.

Our 2030 Plan recommends the adoption and implementation of comprehensive land-use and transportation policies that support SOV alternatives, such as transit use, biking and walking.

Question: Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6?

Response. Not sure.

Role of Transportation Control Measures

Question: What role do TCMs play in helping to meet attainment? Please list the TCMs and CMAQ projects in your plan, and the associated "off" or "on" model emission reduction credits for each.

Response. TCM and CMAQ type projects play a role in helping us meet conformity targets. However, there are no required TCMs in our SIP.

We have taken "off-model" credit for three CMAQ projects and one STP project in our Transportation Plan. The projects include the Kentucky and Ohio elements of ARTIMIS (Advanced Regional Traffic Interactive Management and Information System) and continuation of OKI's efforts to promote ridesharing. Details of off-model credits are provided in the table below.

Project	Funding Source	2010 Daily VOC reduction (tons)	2010 Daily NOx reduction (tons)	2020 and 2030 Daily VOC reduction (tons)	2020 and 2030 Daily NOx reduction (tons)
Ohio ARTIMIS	STP	0.54	1.14	0.27	0.45
Ohio RideShare	CMAQ	0.20	0.17	0.10	0.07
Kentucky ARTIMIS	CMAQ	0.14	0.30	0.07	0.12
Kentucky RideShare	CMAQ	0.05	0.05	0.03	0.02

Question. What percentage of total emission reductions do they represent?

Response. The emission reductions from the four projects represent 2 percent of regional VOC emissions and 3 percent of regional NOx emissions in 2010.

Question. Are there CMAQ projects in your plan for which you have not applied any on or off model emission reductions?

Response. There are at least 6 other CMAQ projects in our TIP/Plan for which we have not taken off-model credit. We estimate that the total VOC and NOx emissions of these projects represent less than 1/2 of 1 percent of regional emissions.

Impacts of Conformity Lapse

Question. If your area has experienced a conformity lapse, describe the affect this has had on transportation and air quality planning, funding process, preconstruction, and construction.

Response. The region experienced a 9-day conformity lapse in October 2001. Because of the short duration of the lapse, only one project was impacted. The design phase of a bridge project in Middletown, OH was delayed approximately 2 weeks.

Question. When projects were reactivated, after USDOT approved your conformity determination, what impact did this have on funding, project completion dates, personnel, renegotiation of contracts, updating old information, etc?

Response. No impact.

Question. What impact did the March 1999 US Court of Appeals decision to eliminate the EPA "grandfather" provision from the conformity regulations have on your transportation investments?

Response. The March 1999 decision has not impacted any projects in our region.

Role of Motor Vehicle Emission Estimates and Models

Question. How has conformity analysis helped improve the quality of estimates of motor vehicle emissions for SIPs to better protect public health?

Response. The conformity requirement has prompted us to continually update certain planning assumptions such as VMT mix and vehicle age distributions.

Question. How accurate and consistent have estimates of regional motor vehicle emissions been when compared with each other over time and with actual experience?

Response. How have official estimates of motor vehicle emissions in your metropolitan region changed over the past 10–20 years and how well have they tracked actual emissions in years past?

Estimates of regional motor vehicle emissions have changed over time due to changes in planning assumptions including demographic and socioeconomic conditions, changes in the analysis years, and new updates to the MOBILE model. Output from the travel and emission models provides our best estimate of the actual regional motor vehicle emissions. The Ohio EPA and the Kentucky Division of Air Quality maintain detailed records of monitored pollutant concentrations.

Role of Transportation Models

Question. Has conformity analysis been supported by adequate regional transportation analysis models that accurately reflect how changes in highway capacity affect total travel and air pollution emissions?

Response. The OKI Travel Demand Model is a traditional 4-phase sequential model (trip generation, trip distribution, modal choice and trip assignment) with a feedback process from trip assignment phase to trip distribution phase. In this model, the capacity constrained algorithm is utilized in the trip assignment phase. The assignment algorithm considers the effect of changes in roadway capacity on the degree of congestion and thus the travel speed of the roadways, which in turn affect the distribution of the traffic loads among the roadways in the roadway network. In addition, the feedback process allows the impact of change in roadway capacity on trip distribution (where trips should be sent) and modal choice (which transportation should be used) to be properly considered. The speeds and traffic loads determine the amount of emission. With the speed and traffic load reflecting the impact of the changes in roadway capacity, the impact of capacity changes on emissions is properly reflected as well. In summary, OKI's model adequately reflects how changes in highway capacity will affect total travel and emissions.

Question. How well have your region's travel models tracked actual experience with growth in vehicle miles of travel (VMT)?

Response. The growth in vehicle miles of travel is mainly due to the growth and distribution in population as well as the increase in automobile ownership. In the OKI Travel Demand Model, the estimation of population and its distribution closely follow the building permits issued and land development plans. The auto ownership trend is tracked and forecasted into the future. Thus the amount of trips and distance traveled are properly simulated in the model.

Question. Please include an indication of how sensitive your/these models are to effects of induced traffic.

Response. Highway improvements that add capacity to a specific corridor or a regional transportation network will attract increased levels of vehicle traffic. The model is very sensitive to the effects of added roadway capacity. The model will divert the traffic to the roadways with new and/or added capacity. In addition, changes in the transportation system (highway or transit) cause travelers to change their transportation mode (drive-alone, share-ride or transit) and/or destination. OKI's model simulates these effects too.

SUBMISSION OF THE SACRAMENTO AREA COUNCIL OF GOVERNMENTS

CONFORMITY QUESTIONNAIRE

Difference in Timing Schedules

The Metropolitan Transportation Plan (MTP) is updated every 3 years. The SACOG Board adopted the most recent MTP on July 18, 2002. The Metropolitan Transportation Improvement Program (MTIP) is updated every 2 years. The SACOG Board adopted the most recent MTIP on July 18, 2002.

The State Implementation Plan (SIP) for the Sacramento Federal ozone nonattainment area was last updated in 1994. The Sacramento region is currently discussing the need for an update to the 1994 SIP due to conformity implications. The Sacramento region faces a conformity "lockdown" after December 31, 2002. A conformity "lockdown" is a term coined by SACOG staff and means that we will be unable to make any changes, additions, or deletions to non-exempt projects in either the MTP or MTIP until a new SIP is approved by the EPA with new conformity budgets. If a new SIP is not approved by July 2005, the SACOG region will lapse conformity until a new SIP is approved and we can make a positive conformity determination.

Coordinating SIP updates and the conformity process has been difficult at times. This is because the Sacramento Federal ozone nonattainment area covers five air districts, each with its own Board of Directors. It is sometimes difficult to get all five air districts together to discuss issues of mutual interest. There is a real concern by some air districts that they do not want conformity to drive their air quality programs (i.e., a SIP update).

MOBILE6 Versus MOBILE5 Projections

In California we use an emissions model called EMFAC, but the same issues that you raise about MOBILE5 versus MOBILE 6 apply to EMFAC7F/7G versus EMFAC 2001. The difference between EMFAC7F, which was used to prepare Sacramento's 1994 SIP, and the new EMFAC2001 emissions model is dramatic. If the Sacramento region were required to use EMFAC2001 when preparing conformity determinations the region would fail. This is because EMFAC 2001 is projecting far greater on-road mobile source emissions than EMFAC7F did for the 1994 SIP and out years.

The region is currently discussing the need for a new SIP that would incorporate the use of EMFAC 2001. It has not been decided if the region will update its SIP before 2005, which is when the current plan projects that the Sacramento region will attain the Federal 1-hour ozone standard. There is considerable discussion occurring over whether the region will attain the standard in 2005 and whether the region should be embarking on a new SIP. We are anticipating that the requirement to use the EMFAC 2001, or its successor, will occur before our mandated attainment date of 2005. We anticipate that the 2-year grace period on EMFAC 2001 will start sometime early next year (Feb/March 2003). This would mean that all nonattainemnt areas in California will have to use EMFAC 2001 to prepare conformity determinations once the 2-year grace period is up (Feb/Mar 2005). Unless the Sacramento region has a new SIP in place at that time, we will be unable to make a positive conformity determination and the region will go into a conformity lapse for an unknown period of time.

It is unknown whether or not the new 8-hour NAAQS will lead to an increase or decrease in our vehicle emissions budget. Our best guess would be that it would lead to higher budgets initially (i.e., 2005). It is also unclear whether or not the SACOG region would be able to pass future conformity tests with these new budgets.

Additional Vehicle Emission Controls

The SACOG region is currently implementing the Sacramento Emergency Clean Air and Transportation (SECAT) program. The SECAT program was created as a way to help truck owners and fleet operators reduce their vehicles' emissions in a business-friendly manner. There are two options available to truck owners: diesel engine retrofits or replacement of their older truck with a cleaner-burning newer truck. The goal of the SECAT program is to reduce NOx emissions from heavy-duty vehicles by two tons per day by 2002 and a total of three tons per day by 2005 within the Sacramento Federal 1-hour ozone nonattainment area. The current program is funded with $70 million in state and local funds. If this program were to be continued after the moneys are expended, additional NOx emissions reductions could be achieved. We do not believe it would be sufficient to make up the projected increase in on-road emissions associated with EMFAC 2001.

Role of Transportation Control Measures (TCMs)

TCMs do not play a big role in helping the Sacramento region achieve attainment of the ozone standard. The 1994 SIP calls for reductions of 26 tons per day of NOX and 35 tons per day of ROG emissions from proposed new measures. The 1994 SIP shows a 1 ton reduction in both ROG and NOX from "TCMs/Land Use" measures. These measures have never been defined. This 1 ton represents approximately 4 percent of the NOx reductions needed and approximately 3 percent of the ROG reductions needed to achieve attainment.

The SACOG region does not take any credit for CMAQ projects in its conformity determinations. This is because CMAQ projects are difficult to quantify.

Impacts of Conformity Lapse

The SACOG region has not experienced a conformity lapse within the last couple of years. The SACOG region, however, intentionally let conformity lapse several years ago because the schedule for updating the MTP and conformity didn't mesh and the SACOG Board of Directors did not want to accelerate the MTP development for conformity reasons. The SACOG region lapsed for several months and it had no impact on project deliveries.

The SACOG region is facing a lapse in October 2004 that could last quite a while, depending on when a new SIP is approved. As indicate above, the SACOG region is currently discussing the need for a new SIP and, depending on the outcome of those discussions, the region could face a conformity lapse that could last anywhere from several months to several years.

The March 1999 U.S. Court of appeals decision had no effect on SACOG's transportation investments.

Role of motor vehicle emission estimates and models

The conformity analysis has not helped the motor vehicle emissions inventory for SIPs because there has not been a SIP update since 1994. The motor vehicle emissions inventory is prepared by ARB. We have not done a systematic analysis of changes in each update of the inventory.

Role of Transportation Models

Yes it has. The transportation demand models have met or exceeded the guidelines in the CAAA and include full feedback from traffic assignments to trip generation and all travel modes including walking and bicycling.

The travel model has been updated several times since 1994. The base year of the model has changed from 1990 to 1994 to 1997 to 2000. Each update has shown at least the same and generally better validation of the models traffic assignment to actual traffic counts. We have a data base of 2000+ traffic counts for each calibration year.

If you define "induced traffic" as the traveler's response to changes in congestion, the model we use has accessibility measures in auto ownership, trip generation, trip distribution, and mode choice steps.

The inclusion of the accessibility measures means that as congestion increases over time, or given higher congestion levels in one area of the model area versus another, auto travel (both trip and VMT) are reduced. The amount of reduction is generally small, but measurable in the order of a few percentage points.

SAN JOAQUIN COUNCIL OF GOVERNMENTS, STOCKTON, CALIFORNIA AIR QUALITY CONFORMITY CASE STUDY RESPONSE

(Prepared by Julia E. Greene, Executive Director, San Joaquin COG)

July 19, 2002

Air quality conformity has had a positive impact over the past 6 years in merging transportation investments with the objectives of achieving air quality standards in this region. The Congestion Mitigation and Air Quality (CMAQ) program is an excellent example of how transportation objectives and air quality objectives can be integrated. Great progress has been made. Nevertheless there are challenges that still need to be met. The timing of air quality attainment plans, the conformity process, and regional transportation plans has led to confusion and unnecessary work. To a large extent the timing of conformity drives the transportation planning process rather than the other way around. Also, the transportation modeling tools that have been accurate for assessing regional impacts of transportation improvements have had a greater set of expectations placed on them with air quality require-

ments. These tools have not always proven up to the task, and the investment required for staffing and upgrading of these tools has been inadequate.

In the San Joaquin Valley of California the task of achieving Federal and state air quality attainment standards is daunting. The requirement to reduce emissions by 30 percent by 2005 is not achievable. As a result this valley will join the Los Angeles air basin within the next year under the "Extreme" air quality designation. Merging the efforts of technology improvements, transportation control measures and capital and operating transportation investments will be a large challenge for this region, and attainment of air quality standards will still be an uncertain thing. We need the ability to use all these tools in our effort to bring acceptable clean air to the San Joaquin Valley.

POINT BY POINT RESPONSES

Difference in Timing Schedules

California's State Implementation Plan (SIP) process in the San Joaquin Valley Air Basin has been driven by Environmental Protection Agency (EPA) findings of inadequacies, rather than by a regular schedule for SIP updates. Our Regional Transportation Plan and Federal Transportation Improvement Program are updated on schedules determined by our transportation planning requirements, and by the ever-changing nature of our conformity and the San Joaquin Valley's attainment status.

To date the SIP process has not yet impacted our highway investments. The San Joaquin Valley Air Basin experienced a lapse of 7 weeks due to an inadequate SIP. The impact was minimal in San Joaquin County, only due to the time of year in which it occurred. Had it occurred during early spring there would have been a project delivery impact.

The entire eight county San Joaquin Valley Air basin faces a constant threat of highway funding sanctions that could halt over $3 billion in transportation projects valley-wide. SJCOG has always voluntarily placed a high priority on clean air projects, independent of the SIP planning process.

SJCOG has prepared four air quality conformity certifications in the past 12 months. This has been the result of both the requirements of the transportation planning process and our SIP status.

MOBILE6 Versus MOBILE 6 Projections

California uses the EMFAC air quality model, rather than the MOBILE air quality model. We face the same problem as the rest of the Nation as the new EMFAC 2001 model reportedly projects higher emissions levels than the older EMFAC 7F and EMFAC 7G models it will replace.

In California, the challenge is even greater in that EPA and the California Air Resources Board (CARB) have not sanctioned EMFAC 2001 for use in most of the state's non-attainment areas. (The reason is somewhat arcane but is based upon the assumptions for vehicle fleet mix that are used in California and their adequacy.) Federal Highway Administration has made it known that if this is not achieved by December of 2002, a conformity freeze will be in effect. This will mean that no Regional Transportation Plan, Federal Transportation Improvement Program or amendment to either will be approved by FHWA unless the modified projects fall into the exempt category. It is almost a surety that most of California's regions will suffer an air quality conformity "lockdown" or "freeze" as a result of this modeling issue.

The impact of the new model is still unclear as a new SIP is pending for our air basin. MPOs in the San Joaquin Valley believe that from the results of tests at the University of California at Davis, there will be great difficulty in meeting conformity and that emissions budgets will go up due to changes in the new EMFAC model.

The new EMFAC 2001 model, or an updated version, will be used to prepare our next SIP. At this point it is still uncertain what air quality status the SIP will address. The San Joaquin Valley is currently designated as Severe, but the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) has declared "an intent" to voluntarily designate the air basin as Extreme.

Technical staffs in the San Joaquin Valley estimate that the new 8-hour standard will be more difficult to attain, than the previous 1-hour standards. We also are given to understand that the 1-hour standard will remain in place until it has been attained.

Additional Vehicle Emissions Controls

San Joaquin COG already is subject to inspection and maintenance, reformulated fuels, the standard TCMs (i.e. ridesharing, transit alternatives etc.), and is even involved in funding an Air District sponsored diesel retrofit program as well as our

own CNG fueled school bus replacement program (removes older diesel powered school buses from California) here in San Joaquin County.

New Federal Vehicle Emission Controls scheduled for 2007 are estimated to have a significant impact in our air basin. The effectiveness of Transportation Control Measures varies by region. SJCOG has placed a very high priority on ride-sharing, vanpool, and commuter rail projects that have been very successful in our region due to a very large percentage of long distance commuters to the San Francisco Bay Area that reside in our region.

The new Vehicle Emissions Controls will not be implemented in time to assist in attainment of the Severe area deadline of 2005. They may allow for development of a SIP to meet an Extreme area designation by the 2010 deadline, though this is highly uncertain.

Role of Transportation Control Measures

Transportation Control Measures alone cannot attain air quality standards, but does have the following effect:

- Encourage public agencies to invest in alternative transportation modes (other than street and roads) that improve air quality. For example, the city of Lodi has an aggressive program to purchase CNG powered public vehicles (buses, police cars, trucks).
- Result in incremental (phase by phase) implementation of large-scale, air quality beneficial projects, wherein the ultimate project will have the largest air quality gains. (Example: citywide traffic signal coordination/synchronization; clean air bus acquisition/fleet conversion)
- Provide multiple transportation options for the general public, resulting in reduced vehicle trips and vehicle idling. An example is our vanpool program that has 90 vans leaving our region every workday morning for the Bay Area.

TCMS AND ESTIMATED EMISSION REDUCTIONS

	ROG	NOx	CO	PM-10
Traffic synchronization and signal installation (Not quantifiable).				
Intercity and interregional bus transit				
Total Reduced Emissions (kg/day)	60	30	n/a	25
Rideshare Programs				
Total Reduced Emissions (kg/day)	36	61	n/a	26
Bicycle Programs (Not quantifiable)				
Alternative Fuel Fleet Conversion Programs				
Total Reduced Emissions (kg/day)	10	2	0	3
Rail transit				
Total Reduced Emissions (kg/day)	21	39	n/a	25

TCMs represent between 4 and 5 percent of total emission reductions in our region. The SJCOG Model projects that it will be as much as 10 percent by 2020. The effectiveness of TCMs varies greatly by region. In San Joaquin County rideshare, vanpool, and commuter rail provide significant emissions reductions. Again, this is due to the large percentage of San Joaquin County residents that have long distance commutes into the San Francisco Bay Area. These TCMs have an even greater value in the San Francisco Bay Area where the VMT reduced is even greater than in our own county.

CMAQ projects are considered in an overall qualitative analysis of air quality improvements and are performed off model. CMAQ money and CMAQ projects are a key component of our strategy to demonstrate air quality conformity.

Emissions reductions are the major criteria for selection of CMAQ projects, and are quantified in our project selection process. See the attached list of CMAQ projects and their air quality impact.

Impacts of Conformity Lapse:

As mentioned earlier, the entire San Joaquin Valley Air Basin experienced a conformity lapse of less than 2 months that did not significantly impact any project delivery. We were fortunate that the conformity lapse occurred during the off peak period of project contract awards.

We are unaware in our region of any costs to project due to the conformity lapse, but there are five other MPOs in the Central Valley of California that may have experienced a more serious issue during these 7 weeks.

The lapse was brief but did result in some project schedules slipping. We had enough lead-time to avoid any major re-startup costs or problems.

The March 1999 U.S. Court of Appeals decisions to eliminate the "grandfather" clause did not have a significant impact during our brief lapse. It certainly would have a major impact during an extended lapse of conformity. Bringing a multi-million dollar project to a halt during the middle of construction would cause millions in re-startup costs and contractor penalties. Even a halt during project design would result in the loss of hundreds of thousands of dollars.

It should be pointed out that any delay is fraught with concern. Even a short delay at the wrong time could greatly impact project schedules. For instance, a 2-month delay during a USFWS permitted time for pile driving piers into a river would result in reapplying for the permit, and could add 6 to 18 months to the project schedule if the Service requires even more mitigation than was identified under the original permit.

Role of Motor Vehicle Emissions Estimates and Models:

The conformity process has put a greater burden on transportation models to accurately represent the regional picture in transportation planning. As a result, there has been a higher level of expectation put on model outputs, and therefore a more rigorous set of calibration requirements. Our models are marginally better today as a result of conformity. These models are the basis for estimating emissions budgets for each region, and have been beneficial in assessing the full impact of mobile sources on the air quality picture.

The bigger challenge has been with increased expectations there is a greater demand for more comprehensive and better performing modeling tools. This translates into cost. Not so much for the tools themselves (though the promise of better tools has not matched actual performance in the real world), but for the data to be input into the model, and the skill needed to produce the model itself, run it effectively and maintain it.

In San Joaquin County the results have been consistent over the past 10 years. Where differences have occurred it has been the result of changes in planning assumptions such as population and employment projections. These did change in San Joaquin County in future years and had a proportional impact on Vehicle Miles of Travel and therefore emission projections.

There has been some variation over the 20-year period of time. With the introduction of new technology for emissions reductions, modeling assumptions changed substantially in the late 1980's, and emission reductions were substantial. In the past 10 years we have captured this impact well, and produced a more consistent and we believe more accurate picture of emissions.

Role of Transportation Models:

Impacts of individual highway capacity projects are difficult to determine in a regional air quality conformity process because of the accepted level of accuracy of a region project. However, when assessing the impacts of a larger number of capacity projects the effectiveness of the modeling tool is better. The size of the regional modeling tool means that it is relatively insensitive to a few small capacity increasing projects. However, as the number of projects increase, the impact is better captured on the regional system.

The Federal planning regulations require that models be "calibrated," or adjusted, to reflect current vehicle miles traveled as reported in the Federal Highway Performance Monitoring System (HPMS) every 10 years. Estimates during interim periods from existing conditions varied. The primary reason was that population and employment projections for the region proved too high. Actual emissions were likely lower than those predicted.

None of the models in the San Joaquin Valley produce a specific estimate of the impacts of induced travel. Using manual techniques an estimate of induced trips can be made, but the level of accuracy is highly uncertain.

CMAQ Air Quality Analysis

Traffic Signal Installation and Coordination Projects

Caltrans District	County MPO/RTPA	Project Name & Description	CMAQ Funding Amount	Emissions Reductions			
				ROG in LB Per Year	NOX in LB Per Year	ROG in KG Per Day	NOX in KG Per Day
10	SJCOG	Lodi Avenue Sidewalk, Signal Installations/Interconnect, Cherokee to Lower Sacramento	$310,000	4,516	2,139	6	3
10	SJCOG	Tracy Boulevard Traffic Signal Coordination Project	$220,000	4,811	3,665	6	5
10	SJCOG	March Lane/El Dorado Street Intersection Improvements	$333,000	2,062	1,374	3	2
10	SJCOG	Eleventh Street/MacArthur Drive Traffic Signal	$220,000	2,401	1,281	3	2
10	SJCOG	Swain Road Traffic Signals	$540,000	471	314	1	0
10	SJCOG	Stockton Traffic Management System	$1,500,000	The emissions reductions of these projects cannot be adequately measured by the air quality model.			
10	SJCOG	"B" Street Improvements	$896,000				
10	SJCOG	Benjamin Holt Drive and Gettysburg Place Traffic Signal	$250,000	1,852	877	2	1
10	SJCOG	Benjamin Holt Traffic Signal at Herndon Place and Bike Lane/Sidewalk Installation	$199,000	2,816	1239	3	2

CNG Station and Other Vehicle Projects

Caltrans District	County MPO/RTPA	Project Name & Description	CMAQ Funding Amount	Emissions Reductions					
				ROG in LB Per Year	NOX in LB Per Year	PM 10 in LB Per Year	ROG in KG Per Day	NOX in KG Per Day	PM 10 in KG Per Day
10	SJCOG	Lodi CNG Bus Acquisition - Acquisition of three CNG fueled buses for local service.	$760,000		2,841			4	
10	SJCOG	Tracy CNG Bus Acquisition - Acquisition of two CNG fueled buses for local service.	$546,000		909			1	
10	SJCOG	6 CNG Replacement/Expansion Lodi Buses	$354,000	251	560	29	0	1	0
10	SJCOG	3 CNG Replacement Vehicles for Lodi Police Department	$24,000	24	52	1	0	0	0
10	SJCOG	CNG Fueling Station in Ripon and 5 CNG Vehicles	$500,000	16	31	1	The San Joaquin Council of Governments is committed to funding air quality projects that have beneficial emissions reduction. CNG Fueling Facilities, however, cannot adequately be measured for emissions reduction using this current model since these projects combine both CNG vehicles and Fueling Stations. Please see the project description for accurate emissions reduction data.		
10	SJCOG	CNG Fueling Facility in Tracy and 2 CNG Buses	$480,000		2,768				
10	SJCOG	CNG Fueling Station in Stockton and 10 Vehicles	$170,000						
10	SJCOG	CNG Fueling Station in Lodi	$498,000						

Caltrans District	County MPO/RTPA	Project Name & Description	CMAQ Funding Amount	Emissions Reductions					
				ROG in LB Per Year	NOX in LB Per Year	PM 10 in LB Per Year	ROG in KG Per Day	NOX in KG Per Day	PM 10 in KG Per Day
10	SJCOG	CNG School Bus Replacement - Replacement of 14 diesel school buses with 14 CNG school buses in the City of Lodi	$1,120,000	0	13,923	0	0	17	0
10	SJCOG	Replace 5 heavy duty vehicles with 5 CNG heavy duty vehicles	$200,000	0	2,978	0	0	4	0
10	SJCOG	5 Expansion clean diesel transit buses for Stockton Metro Service	$1,856,000	8,056	4,816	2,795	10	6	3
10	SJCOG	7 Replacement clean diesel transit buses for SJRTD	$2,596,000	0	6,703	485	0	8	1
10	SJCOG	Two Hybrid-electric transit vehicles	$960,000	963	934	817	1	0	1
10	SJCOG	3 Compressed Natural Gas Transit Trolleys	$902,000	1,964	181	372	2	0	0

Other CMAQ Projects

Caltrans District	County MPO/RTPA	Project Name & Description	CMAQ Funding Amount	Emissions Reductions					
				ROG In LB Per Year	NOX In LB Per Year	PM 10 In LB Per Year	ROG In KG Per Day	NOX In KG Per Day	PM 10 in KG Per Day
10	SJCOG	Various - various projects which encourage the use of clean fuels in heavy duty vehicles.	$386,000	All projects in this category will meet a cost effectiveness requirement of no more than $6 per pound of emission reduced. Since actual projects have not been finalized, the emissions of this item cannot be measured. Please see project description for					
10	SJCOG	Lathrop Road Bike and Pedestrian Facility	$130,000	108	75	19	0	0	0
10	SJCOG	Rail Car Purchase	$2,880,000	2,918	5,574	3,496	4	7	4
10	SJCOG	Heavy Duty Low Emission Engine Incentive Program (Countywide)	$200,000	All projects in this category will meet a cost effectiveness requirement of no more than $6 per pound of emission reduced. Since actual projects have not been finalized, the emissions of this item cannot be measured.					
10	SJCOG	Ridesharing and TDM strategies	$ 325,000	28,552	49,073	21,162	36	61	26
GRAND TOTAL			**$ 19,977,000**	**81,681**	**102,908**	**29,201**	**68**	**109**	**35**

SOUTHERN CALIFORNIA COUNCIL OF GOVERNMENTS

Difference in Timing of Schedules

Question: Describe how the different schedules for the SIP, TIP-conformity, etc., and the impacts of date changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans.

Response. Southern California is one of many areas in the Nation that is facing a mismatch between air quality planning and transportation planning schedules. This mismatch is important because it could interrupt the flow of millions of Federal transportation dollars to the region. The question posed has been answered in the following two parts; mismatch in the schedules and frequency of Regional Transportation Plan (RTP) and State Implementation Plan (SIP) updates; and mismatch between the RTP and SIP planning horizon requirements and its affect on out-year emissions.

Mismatch in the Schedule and Frequency of RTP and SIP Updates

In non-attainment and maintenance areas, the conformity of the RTPs must be re-determined at least every 3 years. However, there is no Federal requirement for a regular or frequent SIP update. This has created a situation where RTPs are updated regularly while SIPs are updated on a discretionary basis inconsistent with the RTP process.

An RTP provides inputs (planning assumptions, i.e. socio-economic data and transportation activity data) to the SIP development process. While a SIP provides the set of constraints (e.g., emissions budgets and TCMs) for the RTP. The development of these two documents should be sequential and cumulative, not concurrent and independent.

Both the RTP and the SIP are required to use the Latest Planning Assumptions, as stipulated by the Federal agencies, whenever they are updated. The Latest Planning Assumptions include the most recent sociodemographic and vehicle activity data (e.g., population distributions, vehicle age and fleet mix). Since the SIPs are updated much less frequently than the RTPs, the planning assumptions in the SIPs tend to be much older than those in the RTPs.

In the SCAG region, there are 11 non-attainment areas, with 13 associated SIPs stipulating emissions budgets for transportation conformity. At the present time, there are only five applicable ozone SIPs and one applicable NOx SIP in place. However, all of them were developed and based on planning assumptions that are now seven to 10 years old. As such, they are too obsolete for pertinent conformity analysis.

A related factor is the Federal requirement that any update of a SIP, with its associated new emissions budgets, triggers an 18-month clock within which all relevant RTPs must re-demonstrate conformity using these new emission budgets. This requirement, together with the mismatch in frequency of RTP and SIP updates discussed above, results in debilitating procedural inconsistencies.

Mismatch Between the RTP and SIP Planning Horizon Requirements and Impacts on Out Year Emissions

Federal regulations require at least a 20-year planning horizon for the development of any RTP. However, SIPs are only required to address the time period up to the attainment or maintenance date for the relevant area. Thus, SCAG's 2001 RTP extends up to the year 2025, and the upcoming 2004 RTP will extend up to the year 2030. However, and as one example, the 1-hour Ozone SIP for the South Coast Air Basin (SCAB) in the SCAG region is only required to consider the period preceding its stipulated attainment year of 2010. As a consequence, there is always a gap of about 15 to 20 years between SIP and RTP planning horizons. The complex interplay of socio-demographic projections and emission budgets between the SIP and the RTP processes means that there is almost always the potential of a procedural conformity lapse.

Additionally, under the current conformity rule, all transportation agencies must demonstrate conformity up to the last year of the RTP. However, the applicable emissions budgets contained in the relevant SIP, and which are only required to extend up to the attainment year or last year of maintenance, establish a ceiling for conformity analysis. Thus, the RTP and Regional Transportation Improvement Program (RTIP) emission budgets for these future years-i.e., beyond the attainment year or the last maintenance year-cannot exceed this SIP-established ceiling. As a result, demonstrating attainment for the out-years beyond the attainment year of the last year of maintenance becomes problematic for all MPOs.

This is particularly a problem for PM10 non-attainment or maintenance areas, as there is a direct relationship between population growth, increases in annual vehicle

miles traveled (VMT), and annual PM10 (particulate matter) emissions. Generally, and because both of these metrics trend upward through time, both VMT and PM10 emissions tend to increase into these future years. For example, the current PM10 attainment year for the SCAB and for the Coachella Valley portion of the Salton Sea Air Basin (SSAB) is 2006. The gap between this PM10 attainment year and the stipulated planning horizon year ranges from 19 to 24 years (for the 2001 RTP and the 2004 RTP, respectively). In the absence of realistic PM10 emissions budgets for these future years, it is difficult, if not impossible, to demonstrate conformity beyond the attainment year of 2006.

Question: Provide a time-line or narrative description of your various schedules.

Response. A timeline, which incorporates both the air quality and transportation planning schedules for the SCAG region, is attached to the end of this document for your review. SCAG's next RTIP comes due on October 6, 2002 and the next RTP comes due on June 8, 2004. In order to avoid an adverse impact on conformity, SCAG is working closely with the local, state and Federal air agencies to ensure the timely approval of an adequate emissions budget.

Question: What impact have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities?

Response. As mentioned, a real potential exists for a conformity lapse due to the mismatch of air quality and transportation planning schedules, and the SCAG region will continue to face this constant threat. However, so far, the mismatch in schedules has not had an impact on investments in highway and safety projects, construction costs and air quality projects and activities. During a conformity lapse only certain projects can be implemented, such as: safety-related projects; those which are regional emission-neutral (known as exempt projects); and TCM projects. Generally, no capacity enhancement projects (such as all-purpose-lane highways) can be implemented during a conformity lapse. (The SCAG region experienced short-term, mild conformity lapses due to reasons beyond the mismatch of schedules during 1998 and 2001. These lapses are described in the last section of this document).

Question: What has been your experience coordinating your SIP and conformity processes with SIP submittals or updates?

Response. A few months ago, in California, all MPOs and the State were facing a potential conformity lapse for all RTIPs and some RTPs. The transportation agencies were asked to use the most recent vehicle data to demonstrate conformity for the RTP and RTIPs. However, the Federal regulations also require that the RTPs and RTIPs conform to the applicable SIPs, which are currently based on old data.

The California situation has been temporarily resolved through inter-agency cooperation. The California Air Resources Board (CARB) and the local air agencies have committed to update all SIPs between late this year and late 2003, and, in return, the United States Environmental Protection Agency (USEPA) has agreed to process the emissions budgets based on this provisional schedule. In addition, the Federal Highway Administration (FHWA) has issued a letter permitting a limited use of the old version of the mobile source emissions inventory model, EMFAC7F and 7G, and its associated data through the end of the current calendar year of 2002. Therefore, the six-county SCAG region will be in what amounts to a conformity lockdown from January 1, 2003 until June 8, 2004, when the 2004 RTP should be in place as the region's federally approved and conforming RTP. This conformity lockdown means that no changes requiring conformity analysis and finding can be made to any transportation plans during this period. For a region as economically dynamic as Southern California, this is an unreasonable constraint.

To illustrate this SIP-related problem, the conformity lockdown situation described above will begin to have effects in the SCAB portion of the SCAG region as early as November 2002. With SCAG's concurrence, the air agencies have had to re-submit their 1997 PM10 SIP in order to request a needed extension of the attainment year from 2001 to 2006. To extend the attainment date, USEPA will approve this PM10 SIP in mid-November, at which time the associated emission budget becomes the mandatory basis for all conformity analyses. However, this PM10 SIP is based on obsolete emission budgets that cannot, realistically, be used for present-year conformity determinations.

In the SCAG region, the situation is further complicated by the fact that some air basins have been designated non-attainment for more than one criteria pollutant. For instance, the SCAB is non-attainment for four pollutants: ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), and particulate matter less than 10 microns in aerodynamic diameter (PM10). Therefore, all pertinent SIPs for this air basin must be prepared on the same schedule, otherwise risking a conformity lapse.

EMFAC2000/EMFAC2001VERSUS EMFAC7F/7G PROJECTIONS

The state of California utilizes its own mobile source emissions inventory model, known as EMFAC, rather than USEPA's model, Mobile. CARB has long maintained a California specific model, which represents conditions unique to California. Therefore we have addressed the questions specifically to EMFAC. However, we do face a similar situation as the rest of the Nation, as there is a projected emissions increase between model versions, as described below.

Question: Compare and contrast your EMFAC7F/7G and EMFAC2000/2001 emission projections.

Response. EMFAC2001 (Version 2.08) will soon be the working version of the motor vehicle emissions inventory model. USEPA intends to approve this model for new SIP development purposes on a statewide basis in the near future. This new EMFAC version replaces the previous model versions: EMFAC2000 (which was approved on a limited basis for SIP development in the San Francisco Bay area only) and EMFAC7F and 7G. In California, most of the current SIPs and their associated emission budgets are based on EMFAC7F or 7G, which use seven to 10 year old data. As previously mentioned, Federal agencies require that conformity determinations be based on the Latest Planning Assumptions, which includes the most recent socio-demographic and vehicle activity data (e.g., population distributions, vehicle age, and fleet mix). Effective January 1, 2003, all RTPs and RTIPs in the State of California will be required to be based on the most recent EMFAC2001 model, which incorporates these Latest Planning Assumptions.

EMFAC2000 was under development for 5 years and represented a complete rewrite of computer code and algorithms. EMFAC2000 represents a significant change to the existing on-road motor vehicle emissions inventory as compared to EMFAC7F and 7G. Emission inventories based on EMFAC2000 increase substantially for nearly every category of motor vehicle fleet and for all pollutants, with NOx being somewhat less impacted than reactive organic gases (ROG) and CO. NOx emissions from heavy-duty diesel vehicles have doubled for this vehicle class in year 2000. For light-duty cars and trucks, the calendar year 2000 ROG inventory has increased by 192 percent, the CO inventory has increased by 204 percent, while the NOx inventory has increased by a modest 3 percent. Much of the light-duty vehicle ROG increase is related to the way EMFAC2000 handles evaporative emissions, which increase threefold when compared to EMFAC7G.

EMFAC2001 (Version 2.08) is one of a series of minor updates planned for the on-road model, and reflects clean-up items and incorporation of the impacts of new emission standards (e.g., Federal Tier 2 standards) and new data (e.g., travel activity data); there are no major changes to algorithms or structure. It is unclear how the proposed changes will impact overall inventory estimates, but it appears that EMFAC2001 will have lower emissions when compared to EMFAC2000, especially for calendar years 2010 and beyond. However, EMFAC2001 will certainly have higher emissions than the current EMFAC7F and 7G models

Question: How does the increase in near term emissions (through 2010) from EMFAC2001 affect your conformity status?

Response. It is unclear how the increase in near term emissions from EMFAC2001 will affect the conformity status of the SCAG region. There have been considerable delays in the development of the SIPs for the SCAG region, and hence there are no emission budgets established at this time.

Question: How will your air quality planning process take the new EMFAC2001 into account, and will the SIP be updated before or after the new EMFAC2001 projections?

Response. The 2003 SIPs for the SCAG region will be updated subsequent to the finalization of EMFAC2001. As mentioned previously, USEPA intends to approve EMFAC2001 for SIP development purposes on a statewide basis in the near future. The emission budgets of the SIPs for the SCAG region will be based on EMFAC2001, which are scheduled to be approved by EPA in mid–2003. Subsequently, SCAG's 2004 Regional Transportation Plan (RTP), which comes due June 8, 2004, will be based on budgets generated from EMFAC2001. SCAG is working with the respective air agencies to maintain consistency between the SIP and 2004 RTP schedules.

Question: Will the new 8 hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

Response. It is unclear if the new 8 hour NAAQS standards will increase or decrease SCAG's vehicle emissions budget. Implications of the new 8-hour Ozone NAAQS are currently being assessed by the CARB. USEPA plans to implement the new 8-hour ozone standard and the new PM2.5 standard over the next few years. Implementation of the 8-hour ozone standard will occur in the early part of the

TEA–21 reauthorization period, while that of the PM2.5 standard may occur somewhat later. The impacts will probably include conformity requirements for the existing RTPs and RTIPs, and some new areas will need adequate time to prepare to meet these new requirements.

Congress provided a 1-year grace period for new areas to demonstrate conformity after the new 8-hour ozone or PM2.5 non-attainment designations are made. One year is not sufficient for transportation agencies to address conformity issues.

Additional Vehicle Emission Controls

Question: What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection and maintenance, reformulated fuels, diesel retrofit, TCMs?

Response. SCAG has no regulatory authority, and, therefore, does not formulate or administer rules and regulations pertaining to vehicular emission controls. However, a number of additional vehicle emission control measures and related actions which promise air quality benefits are being considered or implemented by regulatory agencies within the region. These include the following measures.

- Improved implementation of Air Quality Investment Program, under the South Coast Air Quality Management District's (SCAQMD's) Ridesharing Rule 2202
- Improved implementation of SCAQMD's Fleet Rules 1186.1/1191–96—These fleet rules require new garbage trucks, sweepers, buses and airport vehicles to switch to alternative fuels such as natural gas.
- Incentivize use of reformulated fuels (such as biodiesel)
- Controls on truck-idling at goods movement centers (such as the Ports of Los Angeles and Long Beach)
- Urban forestry for heat island mitigation (tree plantation in open-to-sky parking lots and thoroughfares-reduction in evaporative emissions and indirect benefits of evapo-transpiration)
- Use of innovative technologies (e.g., fuel cells, personal transportation devices, photocatalytic VOC-and NOx-reducing chemical coatings such as titanium dioxide, which can be applied to wall surfaces in semi-enclosed areas which see high volumes of vehicular emissions such as parking garages)

Question: Would these controls be sufficient to address the potential increase in emissions projected under EMFAC2001?

Response. As mentioned previously, emission budgets based on EMFAC2001 have not been established at this time. Therefore, it is unclear if the control measures described above are adequate to offset a potential increase projected under EMFAC2001.

Role of Transportation Control Measures

Question: What role do TCMs play in helping to meet attainment? Please list the TCMs and CMAQ projects in your plan, and the associated "off" or "on" model emission reduction credits for each.

Response. There are 11 non-attainment areas in SCAG's six-county region, with 13 SIPs associated with them. Only two of the six applicable SIPs contain Transportation Control Measures (TCMs)-the South Coast Air Basin's 1997 Ozone SIP, and the Ventura County portion of the South Central Coast Air Basin's 1994 Ozone SIP.

TCMs in the South Coast 1997 Ozone SIP/AQMP (as amended in 1999):

1. High Occupancy Vehicle (HOV) Improvements

HOV projects and related pricing alternatives and park and ride lots/intermodal facilities.

2. Transit/System Management

The following system management measures improve congestion and reduce emissions:

- Bus, rail, and shuttle transit improvements.
- Bicycle and pedestrian facilities.
- Urban freeway system management improvements.
- Smart Corridors system management programs.
- Railroad consolidation programs (e.g., Alameda Corridor).
- Congestion Management Plan-based demand management strategies.
- County/corridor-wide vanpool programs.
- Telecommunication facilities/satellite work centers.
- Seed money for transportation management associations.
- Transportation Demand Management (TDM) demonstration programs/projects eligible for programming in the RTIP.

3. Information Services

By targeting individuals who travel to and from employment sites and other activity centers (e.g., airports, schools, shopping centers, and special event centers) and providing them with information specifically tailored to facilitate use of alternative travel modes, vehicle travel and the associated emissions can be significantly reduced. Providing information services offers an innovative way of reducing vehicle emissions when combined with facility improvements, service enhancements, product development, extensive education, marketing, and promotion.

Potential actions to reduce congestion and emissions through individual efforts include:

- Promoting multi-modal strategies to maximize all options available to commuters.
- Targeting peak period trips for reduction.
- Marketing and promoting the use of HOV lanes to the general public.
- Marketing and promoting rail lines to the general public.
- Educating the public regarding cost, locations, accessibility, and services available at park and ride lots.
- Promoting and marketing vanpool formation, incentive programs promoting ride-matching through the Internet, and other means of making alternative travel option information more accessible to the general public.

TCM strategies in the Ventura County portion of the South Central Coast Air Basin's 1994 Ozone SIP:

1. Clean Fuel Bus Fleets & Support Facilities
2. Improved Public Transit
3. Bicycle & Pedestrian Facilities
4. Traffic Flow Improvements

SCAG's Regional Transportation Model generates the vehicle miles traveled (VMT) based on all projects in the system. The regional emissions estimates are the product of the collective action of all strategies (HOV lanes, transit, mixed flow, etc), not just an aggregation of the individual projects and programs, including the TCM projects. It is not possible to allocate specific emission credits for individual TCMs.

CMAQ Projects Associated with Regional Transportation Plans

All CMAQ program funds are allocated to a variety of projects that meet the CMAQ eligibility criteria (such as HOV lanes, purchase on the alternative fuel buses, signal synchronization, rideshare program, etc.). Some of these projects are regionally significant, e.g., HOV lanes, while some are not, e.g., bicycle parking racks.

All regionally significant projects and programs were included in SCAG's Regional Transportation Model (RTM) and their regional emissions were calculated directly through the model. No off-model emission reduction credits were claimed.

Question: What percentage of total emission reductions do they represent?

Response. TCMS for the South Coast 1997 Ozone SIP/AQMP (as amended in 1999)

Emission reductions resulted from the major TCM categories and were calculated for the year 2010 for the SCAB area. They are reflected in the applicable SIP as follows.

TCM	percent Reduction VOC	percent Reduction NOx
HOV Lanes	19 percent	19 percent
Transit/System Management	16 percent	18 percent
Information Services	10 percent	13 percent

No emission reduction benefits were claimed for any of the TCM strategies in the Ventura County portion of the South Central Coast Air Basin's 1994 Ozone SIP:

Question: Are there CMAQ projects in your plan for which you have not applied any on-or off-model emissions reductions?

Response. Yes. There are two types of CMAQ projects for which no emission reduction credits were applied: 1) small projects, which are not regionally significant and which are not included in SCAG's RTM (e.g. bike racks), and 2) some technology-based projects, such as alternative fuel infrastructure and the replacement of old buses with new, clean fuel ones. No off-model emission reduction credits were taken for any type of project.

Impacts of Conformity Lapse

Question: If your area has experienced a conformity lapse, describe the effect this has had on transportation and air quality planning, funding process, preconstruction, and construction.

Response. Since the publication of the Transportation Conformity Rule in November 1993, SCAG has experienced a conformity lapse three times. However, because none of these lapses in conformity extended for more than 2 months, in no case was SCAG required to prepare an Interim RTP/RTIP. Each conformity lapse is described below.

- The first conformity lapse occurred in 1998, because SCAG did not complete its 1998 RTP on time. Due to the size and complexity of the Federal non-attainment areas contained within the SCAG region, preparation of the RTP-including the required conformity analysis-sometimes took more time than other MPOs. Presently, the completion of one RTP marks the beginning of the next one. It takes more than 2 years, from the beginning to the Federal approval, to complete an RTP in the SCAG region. However, from the Draft RTP stage-i.e., once most of the RTP's projects, programs, and policies are set-the associated regional emissions analysis, publication of the Draft, public review and comment, public hearing, through SCAG's submission for Federal approval takes at least 9 months.
- The next conformity lapse was caused by a non-transportation related development. The U.S. Court of Appeals' March 2, 1999, ruling invalidated the use of submitted emission budgets in conformity findings. SCAG revisited the 1998 RTP and 1998 RTIP in the PM10 non-attainment areas in the region and re-affirmed their original conformity finding by using the build/no-build method for conformity determination.
- The most recent conformity lapse was caused by the USEPA's interpretation of the PM10 construction-related emission analysis. This occurred during the 2001 RTP process; only two PM10 non-attainment areas were affected and the lapse lasted for less than 2 months.

Due to the short duration of each lapse, SCAG did not survey the transportation project sponsors to determine which projects were halted. However, all constituents were informed of the lapse and its resolution.

Question: When projects were reactivated, after USDOT approved your conformity determination: what impact did this have on funding, project completion dates, personnel, renegotiation of contracts, updating old information, etc.

Response. SCAG's RTIP has a 6-year planning horizon, in compliance with California requirements, and is valued at about $22–24 billion. However, only the first and second fiscal years of each TIP are used in estimating the cost of a conformity lapse. Therefore, between $0.5 and $2 billion of all transportation projects were subject to postponement during the 1998 and the 2001 conformity lapses, respectively. All projects were fully implemented, once the conformity status was reinstated.

Question: What impact did the March 1999 U.S. Court of Appeals decision to eliminate the EPA "grandfather" provision from the conformity regulations have on your transportation investments?

Response. Due to the fact that, in each instance of conformity lapse, the SCAG region was out of conformity for less than 2 months, and, hence, no interim RTP was required, the implications of the above decision were not evaluated.

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PAUL FARRAGUT
Executive Director

Anne Arundel County
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July 23, 2002

The Honorable Jim Jeffords
Chairman, Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

The Honorable Bob Smith
Ranking Member, Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Re: Transportation and Air Quality Conformity Case Study

Dear Senators Jeffords and Smith:

Please find the following responses in reference to your request for information. Thank you for the opportunity to comment on the Baltimore region's experience with transportation conformity. Additionally, it is important to note that while the Baltimore region progresses in coordinating transportation and air quality planning, stationary source and inter-regional transported pollution continue to be a major challenge in achieving attainment of national air quality standards.

For expediency, the enclosed information was formulated by staff of the Metropolitan Planning Organization for the Baltimore region and does not necessarily reflect the view of the MPO members. Responses were coordinated with the state air and transportation agencies, the Maryland Departments of Transportation and the Environment.

Please contact me with any questions or requests for additional information.

Sincerely,

Harvey S. Bloom, Director
Transportation Planning Division

Conformity Case Studies

— BALTIMORE —

Please find the following responses in reference to your request. For expediency, this information was formulated by staff of the Metropolitan Planning Organization for the Baltimore region and does not necessarily reflect the views of the MPO Board members. For more information, please contact Harvey S. Bloom, Director of Transportation Planning, at 410-732-9566 or hbloom@baltometro.org.

Difference in Timing of Schedules

In the Baltimore region, the attainment date is 2005. Currently, transportation plans and programs are tested against the SIP budget for 2005, 2015, and 2025. Due to advancements in vehicle technology and federal and state regulations, the requirement to demonstrate conformity for out-years is not currently an issue affecting the implementation of the transportation plan or program for the Baltimore metropolitan nonattainment area.

In general, the difference in requirements for update schedules for the SIP, transportation plans, transportation programs, and conformity presents a challenge. Air quality plans are under various timelines for submittal (both required and court-ordered). Transportation plans and programs operate under a different timeline for update as well as conformity determinations that are updated under a third set of timelines. These various schedules trigger different work tasks, update timelines and/or sanctions clocks. Ultimately, timing work activities, project solicitation, and final conformity determinations demand effective coordination with a wide array of entities engaged in these various activities. A sample schedule of transportation and air quality activities is attached.

The Baltimore region experienced a delay in the 2001-2005 TIP submittal/approval due to timing issues in updating data assumptions between the transportation program and the SIP. Using 1999 vehicle registration data in the development of the 2001-2005 TIP, emissions estimates were significantly greater than those in the SIP mobile source emissions budgets created using 1990 vehicle registration data. Although not required, the SIP mobile source emissions budgets were updated to address the new vehicle data, ultimately resolving the situation. Additional emission reductions strategies were also initiated at the time. This delay did not result in the cancellation of any transportation investments or economic development opportunities.

As a result of this delay, the region's state transportation and air quality agencies now work consistently with the MPO as well as federal officials to anticipate timing and coordination issues in advance. Nonetheless, the complexity of the transportation and air quality models as well as transportation and air quality regulations and planning practices does not allow for perfect, consistent harmony between the two planning areas.

MOBILE6 Verses MOBILE5 Projections

The Baltimore region has begun the process of developing estimates of mobile source emissions using MOBILE6. Preliminary, unapproved estimates indicate a substantial increase in VOC and NOx emissions. These estimated emissions are the result of changes in heavy-duty truck percentages (which have changed in recent transportation conformity emissions work compared to the analysis completed for the approved SIP budget), greater gram per mile emission factors

for vehicle classes contained in MOBILE6, and reductions in credits for programs such as Inspection and Maintenance.

The Baltimore region is developing a methodology to estimate mobile source emissions using MOBILE6 for a January 23, 2003 SIP submittal. Working cooperatively with the Maryland Departments of the Environment and Transportation, conformity of plans and programs using MOBILE6 will most likely wait until new SIP budgets have been developed for a January 2003 SIP submittal to and approval by EPA. It is unclear at this time the effect of MOBILE6 budgets on the ability to determine conformity of the region's transportation plans and programs.

It is our understanding that when EPA classifies areas using the 8 hour NAAQS standards, non-attainment areas will develop new budgets. It is anticipated that the budgets will change with the new standard, since a rolling 8 hour concentration will be used as opposed to a one hour concentration.

Additional Vehicle Emission Controls
Major vehicle emissions controls have already been instituted in Maryland. Additional controls could include alternative fuels and TCM-like measures. It is most likely that these measures would not be sufficient to address the shortfall created by MOBILE6, particularly in the timeframe to reach attainment in 2005.

Role of Transportation Control Measures
The Attainment Plan for the Baltimore region does not formally include any TCMs, such as those listed in Section 108(f) of the CAA. TCM-like initiatives and CMAQ-funded strategies are included in the latest transportation plan and capital program, with associated credits used for conformity.

Impacts of Conformity Lapse
The Baltimore region has not experienced a conformity lapse to date.

Role of Motor Vehicle Emission Estimates and Models
The quality of estimates of mobile source emissions has dramatically changed due to the conformity process. The conformity requirement mandates a more precise understanding of motor vehicle operation conditions and their associated impact on emissions. This improvement has promoted refinements in transportation models to produce estimates for variables for which the MOBILE model is sensitive. Together, these improvements should lead to more accurate estimates of mobile source emissions. It is hoped that the better understanding of mobile source emissions production allows for politically acceptable and cost effective programs to be developed, ultimately resulting in emission reductions and cleaner air.

Estimates of regional mobile source emissions have increased and decreased over time. As federal and state regulations have been promulgated, such as the TIER II standards, estimates of future mobile source emissions have decreased compared to early year estimates. Conversely, emissions estimates have increased as updated assumptions on inputs such as vehicle registration and vehicle miles of travel (VMT) mix have changed. Methodological changes in versions of the

MOBILE emission model have also caused inconsistencies between what was projected and experienced. The reliability of the impacts of technology changes, input assumptions regarding fleet characteristics, and the reliance of estimations of mobile source emissions from models determines the accuracy and consistency between estimates and what is experienced over time.

Over the past 10-20 year period, mobile emissions estimates in the Baltimore metropolitan area have been decreasing. As vehicle technology has become increasingly advanced, inspection and maintenance programs have expanded and become more stringent, and fuel volatility has decreased, regional mobile emissions have also decreased. Recently promulgated Tier II regulations and the Heavy-Duty Engine Rule should help to continue this trend.

It is difficult to tell how well our estimates of mobile source emissions have been with actual emissions. Monitoring data shows emissions of all sources, including transport. Overall, ozone violations from 1990 to present have decreased. Our inventory estimates from all sources show decreasing emissions, which does agree with the monitoring data of decreasing ozone violation data.

Role of Transportation Models

At the present time, the best professional tool available to estimate regional travel, and potentially motor vehicle emissions, are travel demand forecasting models. Travel models were originally designed to assist transportation planners and elected officials in the development of the interstate and transit systems. The models have done an adequate job in performing analyses for this goal. Travel models have been developed to be sensitive to changes in transportation supply improvements (new roadways, additional lanes, and transit improvements) and changes in demand (location of households and employment) used in the planning and implementation of the transportation network.

More recently, travel demand models have been used for the estimation of mobile source emissions. This task is different from the original intent of travel demand modeling, but planners have adapted travel models to include variables sensitive to emissions analysis. This adaptation effort is not all-encompassing at this time; therefore, the output from the travel model is at times being used for levels of calculation that are beyond the travel model's intended level of accuracy.

Travel models have mixed results in their ability to track changes in VMT. In short range planning applications (5 year period), travel models perform reasonably well, since near term estimates are extrapolation of existing trends. For longer range planning purposes, the accuracy of growth in VMT is more questionable. Travel models, built on the observation of current conditions, use variables that influence travel in the base year to estimate future conditions.

Given the ever-changing influence of national and regional economic conditions, local public policy initiatives and individual choices and preferences on travel demand and behavior, the expectation that travel models will be able to capture and predict the real world experience some 20 years "down the road" is unreasonable.

Many forms of induced travel exist. Induced demand resulting from a new transportation improvement, a location change of employment or a regional activity center are captured in our regional travel model. However, more complex issues associated with induced demand are not captured. An increase in the number of trips that a household makes as a result of reduced congestion is not estimated. Increases in the concentration of new households and employment resulting in additional access with transportation network improvements are also not captured. The Baltimore Metropolitan Council is currently working on a method to integrate a land use model into the transportation planning process to forge a better understanding and ultimate decision-making process in capturing the potential impacts of transportation investments.

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July 23, 2002

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The Honorable James M. Jeffords, Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

The Honorable Robert C. Smith
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Dear Chairman Jeffords and Senator Smith,

I am responding to your July 3, 2002 request to provide information about the Metropolitan Transportation Commission's experience with Clean Air Act transportation conformity requirements. We have endeavored to answer your list of questions to the best of our ability in the attached responses.

Please do not hesitate to have your staff contact us if they seek additional information either before or after your July 30, 2002 hearing on Transportation and Air Quality.

Sincerely,

Steve Heminger
Executive Director

Attachments
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Responses to Questions from the Senate Committee on Environment and Public Works on the Transportation Conformity Process

General Context

There have been both positive and negative consequences of the conformity regulations flowing from the 1990 Clean Air Act. On the positive side, there has been better integration of planning requirements under the Intermodal Surface Transportation Efficiency Act (ISTEA) and TEA 21 and the 1990 Clean Air Act Amendments (CAA). The conformity process and analysis has established a connection between these two pieces of federal legislation. In particular the Interagency Consultation process has provided a strong mechanism for building helpful working relationships between the U.S. Department of Transportation (DOT- Federal Highway Administration and Federal Transit Administration), the U.S. Environmental Protection Agency (EPA), metropolitan planning organizations (MPOs), as well as State and local transportation and air quality agencies. This collaborative process has generally been open to the public and environmental advocacy organizations.

On the negative side, the conformity process is a procedural morass, with multiple opportunities for legal challenge and delays in providing needed transportation improvements. The process is extremely resource intensive for MPOs and diverts these resources from the real air quality planning that is necessary to develop additional control strategies for future SIP updates. Challenges to TCMs, which deliver emission reductions in the order of tenths of a ton, can adversely affect approval of TIPs that involve billions of dollars of highway and transit improvements. Further it is difficult to ensure that planning assumptions in SIPs and Plans are compatible and kept current, leading to disconnects in the assumptions used to develop SIPs and in the conformity determinations for transportation Plans and TIPs that rely on these SIPs. As a result, transportation plans and programs are increasingly vulnerable to legal challenge.

Differences in Timing of Schedule

Schedule Compatibility. There is no federal requirement for compatible schedules between SIP updates and adoption of long-range regional transportation plans or TIPs. SIP updates are typically initiated by EPA actions, such as a SIP disapproval or SIP call. Transportation plans and TIPs are required by metropolitan planning regulations to be updated at least every three years. Because MPOs must use the latest planning assumptions in the conformity process, differences between SIP assumptions and conformity assumptions will have greater divergence over time. In general, changes in assumptions beyond the attainment year (2006 for the Bay Area) are not as important as changes that affect the attainment year, as even the slightest change in motor vehicle emission estimates for the attainment year could create problems conforming a Plan or TIP to the motor vehicle emission budget established in the SIP if the projections exceed the budget by as little as a tenth of a ton.

Impact of Schedules on Projects. MTC has been able to make timely conformity findings for Plans and TIPs and maintain an orderly project delivery process in the Bay Area up until 2001/2002. The 2001 Ozone Attainment Plan was intended to provide a more current motor vehicle emissions budget for transportation conformity, but delays arose in submitting the SIP and approving the budget leading to a short conformity lapse. The delays were caused by: 1) the California Air Resources Board which sent the draft 2001 Ozone Attainment Plan back to the local air agency for more public review, and 2) a delay by the EPA in finding the new motor vehicle emission budget to be adequate (EPA's action exceeded the 90 day review period that was agreed to in 1999 litigation over the grandfather clause). As a result, there was a conformity lapse in the Bay Area, which lasted about 8 weeks. The timeline of events leading up to the lapse is shown in Attachment A.

Prior to the conformity lapse, the Bay Area was under a conformity "freeze" due to EPA's disapproval of the 1999 Ozone Attainment Plan and the applicable conformity provisions therein. While Bay Area project sponsors could continue to work on projects in the adopted TIP, no projects could be added or modified. This freeze affected a small number of projects which were ready to be amended into the TIP.

Experience in Coordinating SIP and conformity process. Since the mid-90's, the Bay Area has been in a virtually continuous state of updating the Ozone Attainment Plan due to a series of EPA actions. These updates have generally provided timely information for the transportation planning decisions, and the coordination with the local and state air resource agencies has been excellent. As an example, the schedule for the most recent SIP update-the 2001 Ozone Attainment Plan-was accelerated to provide a conformity budget in time for MTC's adoption of the new 2001 Regional Transportation Plan in December 2001.

MOBILE6 Versus MOBILE5 Projections

EMFAC 2001. In California, the equivalent set of motor vehicle emission factors is called EMFAC. Metropolitan Planning Organizations in California will be required to use EMFAC 2001 for all conformity determinations after December 2002. While some MPOs may be able to demonstrate conformity with an older motor vehicle emission budget using EMFAC 2001, a number of others will not. Therefore, a number of metropolitan areas will require SIP revisions in order to incorporate new mobile source emissions calculations and the associated motor vehicle emission budgets for conformity determinations. Since the Bay Area is already required to update its currently submitted SIP by April 2004, the new conformity budgets will be available prior to MTC's next Plan update in 2004.

Mobile 6 versus Mobile 5. It is our understanding that MOBILE6 emission projections will be lower than MOBILE 5 for future years.

8-Hour Ozone Standard. We are currently unable to determine if the new 8 hour NAAQS will likely lead to an increase or decrease in the vehicle emissions budget for the Bay Area.

Additional Motor Vehicle Emission Controls

Additional Existing Controls. Existing measures that directly address tailpipe emissions and excess vapors from gasoline station nozzles will have a far greater impact on reducing ozone than any new TCMs that MTC may be able to identify and implement under its existing legal authority. Enhancements to the existing motor vehicle inspection program in the Bay Area could reduce smog-forming emissions by over 10 tons a day (although these improvements would, due to the region's air chemistry, provide larger benefits to downwind areas in the Central Valley than the Bay Area). Replacement of selected gasoline station fuel dispensing nozzles could reduce smog-forming chemicals by over 6 tons per day.

Additional TCMs. MTC has repeatedly undertaken efforts to identify new TCMs that could provide significant emission reductions but has been unsuccessful. More stringent TCM type measures would require authority which MTC does not presently have (e.g., raising bridge tolls significantly, charging for parking at work sites, or taxing gasoline at very high levels). In addition to the emission reduction considerations, it has been our experience that TCMs that are not directly implemented by MPOs and depend on actions by other agencies will create future legal problems and can affect an MPOs ability to make conformity findings on Plans and TIPs.

MTC has experienced continued legal challenges with TCMs generally and with disputes over one TCM in particular. Many TCMs were drafted over 20 years ago, but are still enforceable today although conditions have changed considerably. The arguments over the particular disputed TCM are unrelated to the air quality reductions that the TCM was intended to achieve and have led to expensive and protracted legal proceedings. In addition, there is a constant risk that legal disputes with this TCM, which provides only minor emission reductions, may eventually affect the conformity process, stalling the region's much needed transit and highway investment program. The dispute over this TCM further highlights the issue of the difficult process that is necessary to go through to even attempt to amend an existing TCM or substitute a new TCM into the SIP.

Episodic Controls. In addition to various existing controls, the Bay Area is increasingly interested in a set of control measures that are episodic, that is, are in effect only when needed to address an ozone episode. Episodic controls may involve more stringent regulatory controls coupled with significant incentives to change behavior, but for very short periods of time. These short-term measures may be more acceptable to the regulated community and the public if they are applied during the few very hot days when obvious ozone problems exist.

Sufficient Controls to Offset New EMFAC 2001 Emissions. The MTC region is the only area in California that has a submitted SIP based on the latest version of EMFAC

(EMFAC 2000). Since EMFAC 2001 may be similar to EMFAC 2000, the changeover to the newest set of emission factors may not have a significant impact on the need for additional motor vehicle emission controls beyond those in the submitted SIP. However, the answer to this question will not be fully known until further work is completed on the next SIP update in 2004.

Role of Transportation Control Measures

Impact of TCMs on Attainment. In general, traditional categories of TCMs play a relatively minor role in reducing total regional emissions. This is because they affect a small portion of daily travel and largely rely on indirect inducements for changing travel behavior, such as providing more convenient transit or carpooling options. This is not a new conclusion and is well documented in a number of past studies of TCM effectiveness, including studies jointly prepared by US DOT and EPA. TCMs that directly affect the operations of motor vehicles, such as signal timing coordination and freeway incident management, can have more significant air quality benefits, but are often viewed by environmental advocates as encouraging auto travel. The TCMs that have been adopted by MTC fall into three categories: 1) those in the 1982 Plan (one of which is under litigation), 2) a Contingency set of TCMs adopted in response to a SIP lawsuit in the early 90's, and 3) new TCMs adopted for the recently submitted 2001 Ozone Plan. The attached table (Attachment B) lists all these TCMs and the percentage reduction from the on road mobile source inventory associated with each. (Also note that many of the older TCMs have no direct impact on the "Baseline" emission reductions in the SIP but still have legal implications simply because they were once included in the SIP and remain in the SIP).

Emission Reductions from TCMs. While the current level of emission reductions is small, there are other issues with adopting new TCMs. First as the vehicle fleet becomes cleaner over time, the impact of TCMs becomes smaller and smaller. Secondly, TCMs often reduce the two smog precursors (Volatile Organic Compounds and Nitrogen Oxides) in nearly equal amounts. Because of the Bay Area's air chemistry, these equal reductions have limited impact on ozone reduction compared to strategies which focus on VOC reductions. Finally, the newer TCMs are progressively less cost effective. As an example one of MTC's newest TCMs, an expanded regional express bus program, will cost $40 million dollars and produce emission reductions of less than half a ton per day.

CMAQ Projects and Emission Reductions. Most of the CMAQ projects and programs in MTC's long range Plan, while having some air quality benefits, are also important for mobility reasons and would be implemented with or without conformity requirements. This is also true in a larger sense, in that the current Regional Transportation Plan invests 77% of the region's transportation funding over the next 25 years in maintenance, operation, and expansion of the Bay Area's extensive public transit system. This investment in maintaining and improving the region's transit system is seen as an essential strategy to protect and improve mobility and quality of life in the Bay Area independent of any impetus from the Clean Air Act. Specifically in reference to CMAQ

funding, there are a number of projects funded by CMAQ, which are part of the regional toolkit to enhance mobility, but do not have specific emission credits in the SIP.

- Regional ridesharing program (starting in 2003)
- Translink universal transit fare card
- Traveler information systems (both highway and transit)
- Transit trip planning systems
- The Air District's Spare the Air program
- Freeway Service Patrol (start up service)
- Transportation for Livable Communities
- Certain transit improvements (e.g., transit signal priority systems and ITS strategies)
- Traffic Engineers Technical Assistance Program (signal timing coordination plans)
- Smart Arterial Projects (ITS applications at the arterial level)

Impacts of a Conformity Lapse

Effect of Recent Conformity Lapse on Bay Area projects. When it became apparent in 2001 that a conformity lapse was imminent (despite the best efforts of MTC and the local air agency to avoid a lapse), MTC developed a comprehensive list of transportation projects that would be "at risk" during the projected period of the lapse –essentially projects that were in the TIP and would need a federal approval between January and April of 2002. This list (Attachment C) was widely distributed to the Bay Area transportation project sponsors, the state DOT, FHWA, and Bay Area Congressional delegation. Because of the early identification of these at risk projects, many projects were able to obtain needed federal approvals prior to the lapse taking effect. The number of projects adversely affected during the 8 week lapse was about 5. The lapse was officially lifted after EPA found the motor vehicle emission budget in the 2001 Ozone Attainment Plan adequate for conformity purposes and FHWA/FTA approved MTC's conformity finding on March 18, 2002. Had MTC not focused political attention on the impact of a lapse on delivery of Bay Area projects, the lapse could have been longer and adversely affected a larger number of projects.

A second set of projects that was also affected included projects that were adopted as part of the 2001 RTP but were not yet in the TIP. These projects included local and state funded projects that were ready to go, but were prevented from being added to the TIP due to the combination Freeze/Lapse. This list of projects and the associated dollar amount is also shown in Attachment C (pages 2 and 3).

A conformity lapse or freeze has two deleterious impacts of project delivery. First delays can increase project costs due to normal cost escalation factors. Costs can also increase due to contractors needing to reschedule planned work. Second, the delays have indirect impacts on the regional economy when the construction dollars and other indirect spin off benefits of construction work are not realized in the planned timeframe.

Elimination of the "grandfather" provision. This action had no effect on MTC's long range Plan or specific projects as MTC was able to make conformity findings for amendments to the TIP up until the Freeze/Lapse starting in October of 2001.

Role of Motor Vehicle Emission Estimates and Models

Quality of estimates of motor vehicle emissions. The conformity analysis has focused attention on how well regional travel demand models forecast current and future vehicle activity which then can be translated into estimates of on road motor vehicle emissions. While the interagency consultation process has, over time, resulted in various improvements to MTC's travel forecasting model that are believed to improve its general predictive powers, it is not clear how these changes alone have improved the more global air quality planning process. This is because the larger air quality process depends on numerous additional inputs such as inventory estimates for stationary and biogenic sources and the calibration of complex photochemical models to estimate ozone concentrations. Calibrating photochemical models to accurately replicate ozone episodes and estimate emission reductions needed for attainment is perhaps the most challenging of tasks. Thus there is a continuing concern among the transportation planning community that the travel models are inappropriately being taxed to levels of accuracy (e.g. the pass/fail conformity budget test, where even a tenth of a ton of auto emissions over the budget can throw a Plan or TIP out of conformity) that are higher than required for other models used in the air quality planning process and well within the accepted margin of error for these types of analytical tools.

Consistency of Motor Vehicle Emission Estimates over Time. Differences in regional motor vehicle emission estimates for similar years (current or future) are largely a function of new/revised motor vehicle emission factors (MOBILE/EMFAC) as opposed to changes produced in the regional vehicle activity forecasts that are derived from regional travel models. The extent to which motor vehicle emission rates can change from model version to model version is illustrated in Attachment D which compares two recent California EMFAC series and shows changes of 30% to 200%, depending on the year (data are from the California Air Resources Board). In comparison, changes in vehicle activity forecasts for a similar future year would typically vary by 5% or less (these changes would be due to model refinements, new travel behavior data from surveys or the Census, new demographic projections, updated assumptions for bridge tolls, transit fares, parking charges, etc). Thus significant variations in mobile source emissions from forecast to later forecast are the norm rather than the exception given the often dramatic advances in the understanding of on road emission characteristics. Other than professional consensus on the best modeling protocol there is little that can be done to confirm that total vehicle emissions that are occurring in the real environment. This is because air quality monitors cannot separate motor vehicle emissions from other stationary and biogenic (plant) emissions that the monitor is recording.

Changes in Official Estimates of Emissions. Two recent SIP submittals highlight the change that can occur between regional emission estimates. The ozone attainment plan prepared in 1999 estimated on road motor vehicle emissions for volatile organic

compounds to be 175 tons per day in the year 2001, while the 2001 ozone attainment plan, prepared a short time later with more recent vehicle emission factors, estimated on road motor vehicle emissions to be 238 tons per day in 2000, a 36% increase. Although estimates of regional VMT and the amount of VMT in different speed ranges were adjusted between plan updates, the bulk of the increase is due to the new emission factors developed by the state air resource agency (EMFAC 2000). In general there are extensive difficulties in separating out the effects of multiple factors that lead to different motor vehicle emission estimates for the same year, but they would tend to be more related to the on road emission factors used at the time of the estimate. Going back 10 or 20 years and comparing emissions today is very problematic for this reason. For example an estimate of emissions made in the early 80's for the year 1987 is identical to what the current ozone plan is projecting for 2006. In reality the earlier emission estimates probably underestimated significantly the actual emission levels of motor vehicles in that era.

Role of Transportation Models

Adequacy of Transportation Models. MTC maintains a highly advanced travel demand forecasting model system that is supported by a major survey of regional travel behavior every 10 years. The model is extremely capable of assessing how changes in highway and transit capacity affect travel behavior and the resulting amount of daily vehicle activity at a regional scale (this model is routinely validated against traffic counts -where such information exists-and transit ridership counts). However, the travel demand models are only one part in a chain of models and estimates necessary to accurately assess motor vehicle emissions. The adequacy of downstream adjustments to the model outputs is just as important as the capability of the model itself. Differences in how the model output is treated can have large impacts on the end calculations of total emissions. As an example, whether motor vehicle emission calculations should be trip-based, meaning that they use average vehicle emission rates for a complete door-to-door driving cycle, or facility-based, meaning that the emission rates should relate to traffic characteristics on specific types of facilities (such as freeways, major arterials, and other local roads) will greatly influence the final regional emission calculation Similarly, procedures for dividing model estimated travel into speed ranges and distributing vehicle trips by time of day are critical to the overall attainment assessment. Therefore the question concerning the adequacy of existing planning tools, cannot be isolated to the travel models alone, but must be extended to the post processing assumptions of model outputs, to vehicle emission factor models, and to the complex photochemical models which predict emission concentrations in the atmosphere.

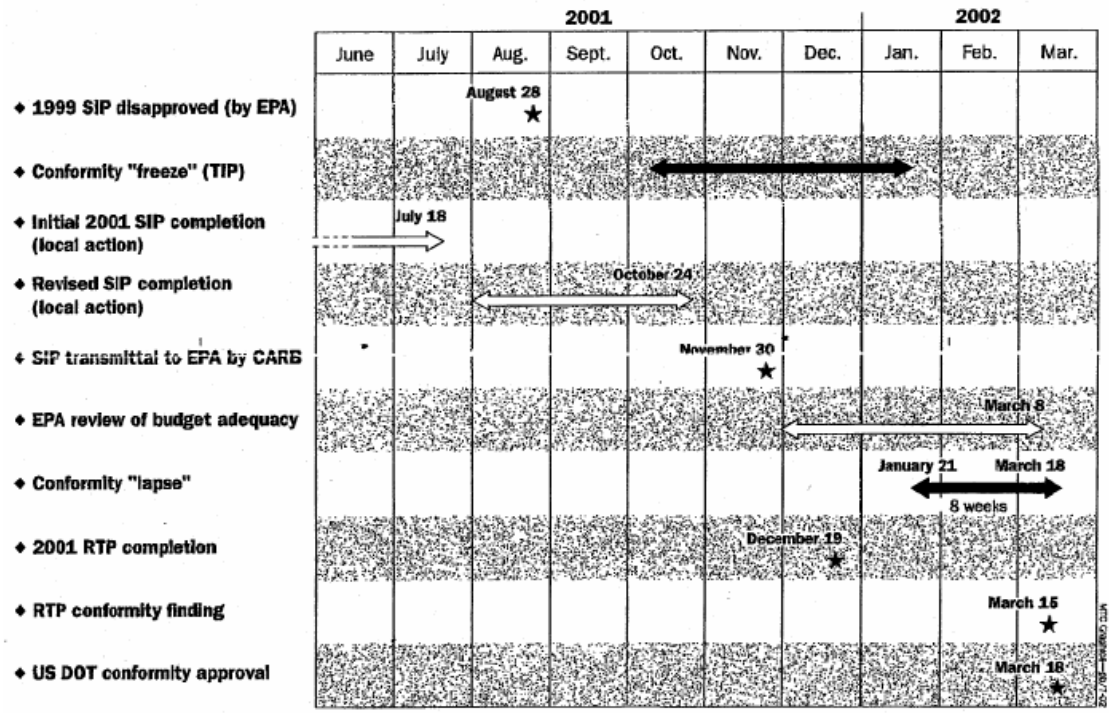
VMT Growth. Despite what may seem to be an easy question to answer, there is no universally accepted way to measure or track "actual" vehicle miles of travel (VMT), particularly in a large region such as the Bay Area with 1,500 miles of state highways and 19,000 miles of local roads. Estimates of present year VMT depend on which method is used to measure it, and each approach has inherent limitations, whether it is: federal Highway Performance Monitoring System (HPMS)-based VMT, odometer-based VMT, or travel model-based VMT. Estimated VMT from these various approaches can differ by much as 15 to 20%. A protocol for estimating base year VMT is still under discussion.

The story is somewhat better in terms of being able to forecast future growth rates in VMT, at least for the VMT on freeways (. This is because travel model projections can be more directly compared to freeway traffic counts and the growth that they are registering at different freeway locations. In terms of comparing projected VMT from travel models with actual growth rates for VMT, there is a much greater ability to make reasonable comparisons, at least for freeway VMT (a number of Bay Area freeways have permanent traffic counting devices, whereas time series count data are more limited for local arterials). In general we have found that regional travel models do fairly well in estimating future VMT growth, which is highly correlated to the underlying growth rates for population and jobs. Thus, looking at past model projections, say for the last 5 or 10 year period, the model's projected growth rates will generally come close to actual growth rates, except to the extent that unanticipated economic events or fluctuations in gas prices fundamentally change the inputs to the travel model (e.g., population, jobs, auto operating costs, etc).

Induced traffic. Traditional MPO travel models address "induced" traffic to the extent that the traffic on any new road facility represents traffic shifted from another route, travel mode, or time of day. The question as to whether new transit or highway facilities actually stimulate a net increase in discretionary trips is a much harder one to answer. While some evidence suggests that these types of trips do exist, their impact over the long term is likely to be inconsequential. For example, in Bay Area demographic projections show that population will grow 14 % over the next 25 years, and jobs will grow 30%. This contrasts to a 5% increase in road miles, which is all the capacity that is funded given the financial constraints and policy choices in the current long range Regional Transportation Plan for the same period. It is therefore likely that as the overall road system becomes increasingly congested due to regional growth, the net effect would be to discourage trips rather than create new trips. In the near term, this same balancing effect would also be expected to occur, which is that any new discretionary trips attracted to a road facility would exist up until the point that the facility becomes heavily used and traffic levels would discourage such trips.

ATTACHMENT A

Timeline of Recent RTP and SIP Actions



Attachment B

Transportation Control Measures

- 1982 Plan -

Name	Tons/Day Reduction and (%)*	Can be Modeled?	Emissions in Baseline?
TCM 1: Reaffirm commitment to 28% transit ridership increase between 1978 and 1983	N/A	Yes	Yes
TCM 2: Support post-1983 improvements identified in transit operator's five year plans and, after consultation with the operators, adopt ridership increase targets for the period 1983 through 1987	.72 (.43%)	Yes	Yes
TCM 3: Seek to expand and improve public transit beyond committed levels	.37 (.22)	Yes	Yes
TCM 4: Continue to support development of HOV lanes	N/A	Yes	Yes
TCM 5: Support RIDES' efforts	N/A	No	No
TCM 6: Continue efforts to obtain funding to support long-range transit improvements	N/A	No	No

*Percent relates to on-road mobile source emissions

Attachment B

Transportation Control Measures

- 1982 Plan –

Name	Ton/Day Reduction and (%)*	Can be Modeled?	Emissions in Baseline?
TCM 7: Preferential Parking	N/A	No	No
TCM 8: Shared Use Park and Ride Lots	.04 (.05%)	No	No
TCM 9: Expand Commute Alternatives	.87 (.52)	No	No
TCM 10: Information Program for Local Government	.55 (.41)	No	No
TCM 11: Gasoline Conservation Awareness Program (GasCAP)	N/A	No	No
TCM 12: Santa Clara Commuter Transportation Program	N/A	No	Partial
Subtotal	2.55 (1.63%)		

*Percent relates to on-road mobile source emissions

Transportation Control Measures

- 1990 Contingency TCMs –

Name	Ton/Day Reduction and (%)*	Can be Modeled?	Emissions in Baseline?
TCM 13: Increase Bridge Tolls to $1.00 on all Bridges	.19 (.15%)	Yes	Yes
TCM 14: Bay Bridge surcharge of $1.00	.15 (.12)	Yes	Yes
TCM 15: Increase State Gas Tax by 9¢	.57 (.44)	Yes	Yes
TCM 16: Implement MTC Resolution 1876, Revised – New Rail Starts Agreement	.08 (.06)	Yes	Yes
TCM 17: Continue October 1989 Post-Earthquake Transit Services	.27 (.21)	Yes	Yes
TCM 18: Sacramento-Bay Area Amtrak Service	.07 (.05)	Yes	Yes
TCM 19: Upgrade Caltrain Peninsula Service	.11 (.08)	Yes	Yes
TCM 20: Regional HOV System Plan	.25 (.19)	Yes	Yes
TCM 21: Regional Transit Coordination	.05 (.04)	No	No
TCM 22: Expand Regional Transit Connection (RTC) Services	(.05)	No	No

*Percent relates to on-road mobile source emissions

Transportation Control Measures

- 1990 Contingency TCMs –

Name	Tons/Day Reduction and (%)*	Can be Modeled?	Emissions in Baseline?
TCM 23: Employer Audits	.16 (.13%)	No	No
TCM 24: Expand Signal Timing Program to New Cities	1.42 (1.1)	Yes	Yes
TCM 25: Maintain Existing Signal Timing Programs on Local Streets	Included in above %	Yes	Yes
TCM 26: Incident Management on Bay Area Freeways	.36 (.28)	No	No
TCM 27: Update MTC Guidance on Development of Local Transportation Systems Management (TSM) Programs	.09 (.09)	No	No
TCM 28: Local TSM Initiatives	Included in above %	No	No
Subtotal	3.8 (2.96%)		

*Percent relates to on-road mobile source emissions

Transportation Control Measures

- 2001 Ozone Plan TCMs –

Name	Ton/Day Reduction and (%)*	Can be Modeled?	Emissions in Baseline?
TCM A: Regional Express Bus Program	See Total	Yes	No
TCM B: Bicycle / Pedestrian Program	See Total	No	No
TCM C: Transportation for Livable Communities (TLC)/Housing Incentive Program	See Total	No	No
TCM D: Additional Freeway Service Patrol	See Total	No	No
TCM E: Transit Access to Airports	See Total	Yes	No
Subtotal	.5 (.3%)		

*Percent relates to on-road mobile source emissions

METROPOLITAN TRANSPORTATION COMMISSION
PROJECTS THAT WOULD BE DELAYED BY A CONFORMITY LAPSE
BETWEEN JANUARY AND APRIL 2002

	TIP ID	COUNTY	PROJECT NAME	PROJECT DESCRIPTION	Projects with Environmental Delays	Projects with Design or Right of Way Delays	Projects with Construction Delays
1	ALA010035	ALAMEDA	ACE Track Improvements	Between Ala. & Santa Clara County: Track improvements: including siding upgrades and double tracking at various locations, replacement of rail and track bed stabilization.			X
2	ALA978064	ALAMEDA	Rt 84 - 4 Lane Express Way on new alignment	Rt. 84 4-Lane Expressway in Fremont/Union City/Hayward - Route 880 to Route 238	X		
3	ALA978027	ALAMEDA	6 lane freeway add 2 HOV lanes	Fremont, Newark, and Union City: On Highway 880 from Santa Clara county line to Alvarado-Niles Road; add 2 HOV lanes and reconstruction		X	
4	ALA990089	ALAMEDA	I-880/980 BWY/Jackson Ramps	Broadway/Jackson and 5th Avenue to Adeline Street, and High Street ramp improvements, auxiliary and right turn lanes - environmental and preliminary engineering only until RTP update.	X		
5	ALA990018	ALAMEDA	Eastbound HOV Lane Extension	Oakland and Emeryville - San Francisco/Oakland Bay Bridge Toll plaza to Powell Street - widen from 5 to 6 lanes to extend eastbound high occupancy vehicle lane			X
6	ALA990051	ALAMEDA	Greenville Rd. Widening, UPRR Bridge Replacement	Widen Greenville Road from 2 lanes to 4 lanes from .6 mile north of UPRR tracks to 250 miles south and UPRR Bridge Replacement		X	X
7	ALA990070	ALAMEDA	Upgrade Industrial parkway SW	Upgrade Industrial parkway SW	X	X	
8	ALA991060	ALAMEDA	Dumbarton Express Park and Ride Lot	Acquire right-of-way and construct approximately 90 parking spaces on Desoto Road near I-880.			X
9	ALA991071	ALAMEDA	Osgood Road Widening	This amendment will add a project to widen Osgood Road. This project received TEA 21 demonstration funds, but was not included	X		
10	ALA995A12	ALAMEDA	Third Street Extension	Third Street Extension			X
11	CC-010001	CONTRA COSTA	Ygnacio Valley Road Widening	Ygnacio Valley Road Widening between Nortegen Blvd. And Oewell Road (Environmental and PSE only until RTP air quality update).	X		
12	CC-010003	CONTRA COSTA	I-80 HOV westbound from Carquinez Bridge to SR4.	Link westbound HOV lane west of Rt. 4 with the westbound HOV lane that will be included on the new westbound Carquinez Bridge.	X		
13	CC-97AM15	CONTRA COSTA	Wilbur Avenue Bridge widening	Widen and add two lanes to Wilbur Avenue Bridge (P.W. 259-B)		X	
14	CC-990004	CONTRA COSTA	HOV - Marina Vista to North Main	Walnut Creek to Martinez: On Highway 680 from Marina Vista to North Main St; Construct HOV lanes.			X
15	CC-990049	CONTRA COSTA	I-680 Auxiliary Lanes	I-680 Auxiliary Lanes from Diablo Road Bollinger road to Canyon Rd, NB and SB directions.	X	X	
16	CC-991088	CONTRA COSTA	Pittsburg / Bay Point Parking Expansion	Project will make various access improvements to station including adding 200-300 additional parking places and other access im	X		
17	CC-99SA09	CONTRA COSTA	San Pablo Corridor Transit System	San Pablo Corridor Transit System Improvements - Project includes Street Improvements, Bus Shelters, and Vehicle Purchase			X
18	MRN990001	MARIN	101 HOV Gap Closure Reversible Operation.	In San Rafael: From Lucky Drive to North San Pedro Road; Install/construct reversible devises and lanes for reversible HOV lanes operations and gap closure.	X	X	
19	MRN990035	MARIN	Manzanita Park & Ride Lot	Hwy 101/Manzanita Interchange: Park & Ride lot to meet the need for the park & ride shuttle transfer point to access Muirwoods; Purchase land & construct Park & Ride facilities.			X
20	NAP990030	NAPA	SR 29 Rio Del Mar Intermodal Station	In Napa County; adds an intermodal station at the southwest corner of SR29 and Rio del Mar in the City of American Canyon.	X		
21	NAP990031	NAPA	Yountville Intermodal Station	In Napa County; adds an intermodal station in the Town of Yountville on Washington Street just south of California Drive.	X		
22	SCL010014	SANTA CLARA	Central Expressway HOV lanes	Mountain View to Santa Clara: Santa Clara Expressway, from Shoreline Blvd to Scott Blvd; Environmental update and final design of HOV lanes		X	

ATTACHMENT C

METROPOLITAN TRANSPORTATION COMMISSION
PROJECTS THAT WOULD BE DELAYED BY A CONFORMITY LAPSE
BETWEEN JANUARY AND APRIL 2002

23	SCL990041	SANTA CLARA	Route 87 Guadalupe Freeway Corridor	Julian St to route 101 - new 6 lane freeway with HOV lanes - Basset Sweet Viaduct and construct freeway			X	
24	SM-010003	SAN MATEO	Route 101/Ralston Ave. I/C Improvements	Belmont - Route 101/Ralston Ave. Interchange Improvements		X		
25	SM-010031	SAN MATEO	101 Aux Lanes - 3rd Ave to Millbrae Ave.	Highway US101 Auxiliary Lanes Between Third Avenue and Millbrae Ave. (PSE and Environmental phases only until RTP update.	X			
26	SM-990003	SAN MATEO	Routes 35 to 280 slow vehicle lane	Near Crystal Springs Reservoir - Skyline Blvd (Route 35) to Route 280 - Slow vehicle lane improvements	X			
27	SM-991080	SAN MATEO	Bayshore Blvd/Valley Dr Intersection. Mod.	Modify intersection to incorporate new dual left turn lane from NB Bayshore Blvd. to Valley Dr. Scope to include modification		X		
28	SM-991118	SAN MATEO	Rt 280/380 I/C Local Access Improvements	Route 280/380 Interchange Local Access Improvements	X	X		
29	SM-991105	SAN MATEO	Marsh Rd. to Ralston - Auxiliary Lane	Redwood City, San Carlos, Belmont and San Mateo - Route 101 - Marsh Road to Ralston Avenue - new auxiliary lanes			X	
30	SOL970025	SOLANO	Mare Island Parkway widening	Mare Island and Wilson from Florida to Route 37 - widen to 4 lanes	X		X	
31	SOL990004	SOLANO	I-80 Reliever Route	Vacaville: I-80 Reliever Route; Construct Jepson Parkway.	X		X	
32	SOL990048	SOLANO	Leisure Town road park & Ride Lot	Leisure Town road park & Ride Lot	X		X	
33	SOL97004A	SOLANO	Walters Road Project	Walters Road Project (also see I-80 Reliever Route additional support cost (split from SOL990004))	X		X	
34	SOL-991032	SOLANO	Bayfink Ferry Maintenance Facility.	In Vallejo: Create a full-scale Ferry Maintenance Facility including repair shop, fueling tanks, dock and office space and other associated improvements.	X	X		
35	SOL991062	SOLANO	Bella Vista Park and Ride Lot	The Bella Vista Park and Ride Lot will be a 150-space park and ride lot just off of the I-80 eastbound exit at Davis Street in	X	X		
36	SOL991063	SOLANO	Electric Vehicle Program Expansion	Expand the existing Electric Vehicle Program for the City of Vacaville with additional charging stations and additional electric vehicles			X	
37	SON970024	SONOMA	Rohnert Park Expressway interchange Ramp	Construct new southbound loop onramp. Improve existing diagonal onramps for ramp metering.		X		
38	SON990003	SONOMA	Rohnert Park - Park & Ride Lot & On Ramp	Rohnert Park Expressway Park and Ride Lot and SB On-ramp loop		X		
39	SON991057	SONOMA	Rohnert Park Expressway Part N Ride Lot	Develop new Park 'n Ride lot in interchange at Highway 101/Rohnert Park Expressway. Improve existing Park 'n Ride lot. Construct pedestrian improvements in interchange.		X		
				Number of projects	**20**	**15**	**15**	**Grand Total 50**
				Total Estimated Dollar Amounts (millions)	**$25,222**	**$43,635**	**$337,077**	**$405,53**

				PROJECTS READY TO GO THAT ARE PENDING NEW AIR QUALITY CONFORMITY ANALYSIS BEFORE BEING ADDED TO THE TIP, AND PROJECTS PENDING NEW AIR QUALITY CONFORMITY ANALYSIS BEFORE NON-EXEMPT PHASES CAN BE ADDED TO THE TIP.				
40	TBD	ALAMEDA	I-580/San Ramon Rd (Foothill Interchange Imp)	Replace existing interchange and widen EB off ramp to 2 lanes plus an auxiliary lane.		X	X	
41	TBD	ALAMEDA	I-580/Fallon Rd - El Charro Rd Interchange Imp	Widen Fallon Rd/El Charro Rd overcrossing from 2 lanes to 4 lanes. Install traffic signals and reconstruct interchange ramps.		X	X	
42	ALA010045	ALAMEDA	N. Livermore Avenue/I-580 interchange	Modify and expand the ramps in the northeast quadrant of the N. Livermore Avenue/I-580 interchange.	X	X		
43	SF-010037	SAN FRANCISCO	Muni 3rd Street Light Rail Transit: Phase 2 New Central Subway	Construct Construct below ground light rail system from Market Street corridor to China Town		X		
44	SF-010015	SAN FRANSICO	Transbay Terminal Replacement Project.	In San Francisco: Transbay Terminal; Conduct preliminary design and engineering analyses for Terminal replacement.		X		
45	SM-010052	SAN MATEO	Route 101 @ University Ave. Overcrossing and interchange Project Phase 1 & 2	IN EPA: Modify SB on/off ramp to University Avenue.		X		

METROPOLITAN TRANSPORTATION COMMISSION
PROJECTS THAT WOULD BE DELAYED BY A CONFORMITY LAPSE
BETWEEN JANUARY AND APRIL 2002

46	SM-010031	SAN MATEO	101 Aux Lanes - 3rd Ave to Millbrae Ave	Highway US101 Auxiliary Lanes Between Third Avenue and Millbrae Ave. Add Construction Phase After RTP adopted.			X	
47	SCL991033	SANTA CLARA	Route 85/US 101 Interchange Connector Ramps	Routes 85 and 101 interchange and connector ramps in South San Jose			X	
48	SCL990027	SANTA CLARA	US 101 Widening	Widen Hwy 101 From 6 lanes to 8 lanes from Bernal Ave. to Metcalf Rd including Hwy 85/101 interchange modification			X	
49	SCL010031	SANTA CLARA	SR-17 Improvements and expansion.	SR-17 Various Improvements: Between Hwy 9 in Los Gatos and I-280 in San Jose; including the following elements braided ramps, reconfiguration of ramps, one auxiliary lane, 2 new lanes and various other improvements.	X	X	X	
50	SCL010018	SANTA CLARA	Rt 85/US101 NB Interchange Modification: Phase 1	Mountain view: On US 101 & Rte 85; Operational reconfiguration & re-orientation of ramps at Moffett Blvd, N. Shoreline Blvd & Old Middlefield Wy - Add the NB & SB HOV connector ramps.			X	
51	SON010002	SONOMA	101 - Aux lane SB - Rt 116 to E. Wash.	Provide early operational improvements at northern end of Marin-Sonoma Narrows prior to highway widening phases to accommodate continuous HOV lanes connecting Marin and Sonoma Counties.	X	X		
				Total	2,525	31,837	343,480	$377,842
				GRAND TOTAL BOTH CATEGORIES (In Millions)	$27,747	$75,472	$680,557	$783,776

KYOVA
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PLANNIN
COMMISSION

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July 23,

The Honorable James M. Jeffords, Chairman
The Honorable Robert C. Smith, Ranking
United States
Committee on Environment and Public
Works
Dirksen Senate Office Building

Dear Senators Smith and

We appreciate your interest in the Clean Air Act conformity program, the impact that program has on transportation planning and the opportunity to provide information from the perspective of a small Metropolitan Planning Organization (MPO). Responses to issues listed in the attachment to your July 3, 2002 correspondence follow.

Difference in Timing of

Timing of required studies and reports for the state implementation (SIP), long range transportation plan (LRTP), improvement program (TIP) and the process for conformity analysis is, we agree, complicated at best. A graph accompanies this letter, which illustrates our MPO's recent history of general due dates for each transportation planning document and the effective duration of the document. The four year span of the TIP, for example, stops in two years when the update is due and a new document is developed. That is the most logical of the schedules, because it establishes reasonable time span for viewing the TIP and requires updates on a regular basis. An exception to the timing of the TIP is that a new one must be prepared each time that a LRTP is due. Very important, is the mismatch of the LRTP (20 year horizon) and SIP (10 year horizon), which results in ten years of the LRTP being discounted. There is

and cooperation of state and federal agencies, we have been able to meet required due dates. Because of the different frequencies, one considerable problem is that data and planning assumptions at the time of each update are different in the LRTP and TIP than those used in the SIP. The outcome of modeling projected emissions is affected.

Differences in timing posed delay for a major local FTA investment year, which threatened to increase project costs. The excellent cooperation and effort of the West Virginia Office of Air Quality, and

federal agencies involved, resulted in timely resolution.

Kyova Interstate Planning Commission's experience last year in coordinating SIP and conformity processes with SIP submittals and updates resulted in a conformity lapse. The MPO began the air quality conformity process in February of 2001 that led to conformity analysis not meeting the SIP emission budget. With MOBILE6 on the horizon, the choices were to wait for its release (January 2002) or to request a SIP revision to avoid conformity lapse. The latter was chosen. The lapse occurred in September 2001. A model for interagency cooperation took place among the Environment Protection Agency (EPA), Federal Highway Administration (FHWA),

Federal Transit Administration (FTA), West Virginia Department of Transportation (WVDOT), the local transit authority (TTA) and the West Virginia Division of Air Quality (WVDAQ), which resulted in expediting the approval of a revision to the WV SIP.

MOBILE6 Versus MOBILE5 Projections

The West Virginia SIP was developed using MOBILE5. Neither Kyova nor the state of West Virginia has practical experience with the use of MOBILE6 , however it will be used to produce the WVSIP next year.

Kyova's conformity status is maintenance. To meet EPA requirements for use of latest planning assumptions, even though we use MOBILE5 , it was necessary to use MOBILE6 default data for motor vehicle registration. That process generated excess emission data.

The new eight hour National Ambient Air Quality Standards is not expected to change the emissions budget.

Additional Vehicle Emission Controls

The Kyova Interstate Planning Commission urban area is less than 200,000 in population and is, therefore, not a Transportation Management Area (TMA). West Virginia, which is the lead state for the MPO, federal vehicle emission control program.

Role of Transportation Control Measures

TCMs are not required in the planning area. CMAQ projects in the plan are associated with model reduction credits. In planning, Kyova has taken into account a planned extensive bicycle path, an intermodal facility and traffic signal system optimization to reduce vehicle trips, travel time/delays and emissions.

Impacts of Conformity Lapse

When the conformity lapse occurred in September 2001, consequences were immediate as expected. Our greatest concern at the time were projects that would suffer increased costs and delays that could threaten project development. As mentioned previously, an extraordinary spirit of cooperation among all concerned agencies averted that problem.

Role of Motor Vehicle Emission Estimates and Models

For a small MPO, where presumed data is used, it is difficult to quantify results. The conformity analysis is expected to maintain attainment status for the area for all plan years.

The conformity process does help focus public attention on air quality concerns. MOBILE5a mobile source emission models are used to estimate VOC and NOX.

Different methods and levels of analysis, as well official estimates of motor vehicle emissions have changed over the past 10-20 years making comparisons unrealistic.

Role of Transportation Models

Conformity analysis has not been supported by adequate regional transportation analysis models that reflect how changes in highway capacity affect total travel and air pollution emissions.

The transportation model accounts for only two-thirds of the actual vehicle miles of travel (VMT) since the travel forcasting model is limited to the urbanized area. Remaining VMTs are projected.

We are grateful, that in the course of the reauthorization proceedings, the Committee has recognized this important air quality process and the opportunity to improve its outcome. Thank you for the opportunity to provide information for your deliberations.

Sincerely,

Michele P. Craig
Executive Director

MECKLENBURG-UNION
METROPOLITAN PLANNING ORGANIZATION
600 East Fourth Street
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CHARLOTTE
CORNELIUS
DAVIDSON
HUNTERSVILLE
INDIAN TRAIL
MATTHEWS
MECKLENBURG COUNTY
MINT HILL
NCDOT
PINEVILLE
STALLINGS
UNION COUNTY
WEDDINGTON

July 25, 2002

Jim Jeffords, Chairman
United States Senate
Committee On Environment and Public Work
Washington, DC 20510-6175

Dear Mr. Jeffords

As part of the reauthorization of the Transportation Equity Act for the 21st Century (TEA-21), the Senate Committee on Environment and Public Works has requested that the City of Charlotte participate in providing information concerning our experience with the Clean Air Act conformity program and transportation control measures. I have attached our response for your review.

Please feel free to contact me at 704.336.8643, if you desire any additional information.

Sincerely,

Danny Rogers, P.E.
MPO Secretary

Conformity Case Studies

Difference in Timing of Schedules:

- What impact have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities? *Mismatch between the Transportation rules and Air Quality rules require the MPO to provide twenty-year transportation plans, but air quality budgets are only given for ten-year period. Updates to the Transportation Plan are required every three-years, however, the SIP is not required to be updated that often.*

  (Example) The MPO's 2025 Plan had to be compared to out year budget of 2005, which is a twenty-year mismatch.

- What has been your experience coordinating your SIP and conformity processes with SIP submittals or updates? The requirement to update Transportation Plans and Conformity Determinations every three-years provides only enough time to do the bare minimum of planning work. (more detailed planning, migration of models and testing of new technology is prohibited under the current time constraints). It is desirable to extend Transportation Plan updates and Conformity Determinations to every five-years.

MOBILE6 Versus MOBILE5 Projections:

- Will the new 8-hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget? *Will probably lead to a decrease in our vehicle emissions budget.*

Additional Vehicle Emission Controls:

- What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection and maintenance, reformulated fuels, diesel retrofit, TCMs? *Early introduction of low sulfur gasoline and diesel fuels. Accelerate diesel fleet turnover or retrofits by including requirement in Federal and State contracts for clean diesel technology.*

- Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6? *Not enough modeling has been completed to accurately answer this question; however, the non-road mobile sources will be an increasing percents of the mobile inventory as approved measures are implemented in the on-road sector.*

Role of Transportation Control Measures:

- What role do TCMs play in helping to meet attainment? Please list the TCMs and CMAQ projects in your plan, and the associated "off" or "on" model emission reduction credits for each. *We do not have TCM's. CMAQ projects are currently limited to bus replacement and expansion of transit service and limited intersection and ITS projects.*

- Are there CMAQ projects in your plan for which you have not applied any on or off model emissions reductions? *We have not claimed emission reductions from those projects.*

Impacts of Conformity Lapse:

- What impact did the March 1999 U.S. Court of Appeals decision to eliminate the EPA "grandfather" provision form the conformity regulations have on your transportation investments? *The loss of the grandfather provision has brought the need for completing a conformity plan to a much higher priority. This has placed considerable stress of limited federal funding available to complete the planning task.*

Role of Transportation Models:

- Has conformity analysis been supported by adequate regional transportation analysis models that accurately reflect how changes in highway capacity affect total travel and air pollution emissions? *Our transportation model does not represent the entire nonattainment area for which we have sub-allocated budgets.*

One Newark Center, 17th floor, Newark, NJ 07102
(973) 639-8400; fax (973) 639-1953

Theodore J. Narozanick, Chairman
Joel S. Weiner, Executive Director

July 19, 2002

The Honorable Jim Jeffords
The Honorable Bob Smith
United States Senate
Committee on Environment and Public Works
Washington, DC 20510-6175

Dear Senator Smith and Senator Jeffords:

We are pleased to respond to your recent questionnaire on Conformity Case Studies related to the upcoming Senate Committee on Environment and Public Works hearing on Transportation and Air Quality. We appreciate the opportunity to provide you with input on the experience of our large Metropolitan Planning Organization with the Clean Air Act conformity program as well as our transportation and air quality planning efforts overall.

Our responses to the specific items on the questionnaire are enclosed. If you have any further questions, please don't hesitate to contact me or David Heller, our Air Quality Planner, at: (973) 639-8429.

Thank you again for this opportunity. We look forward to hearing from you on the findings of the Transportation and Air Quality hearing.

Sincerely,

Joel Weiner
Executive Director

C: Brian Fineman, NJTPA
David Heller, NJTPA

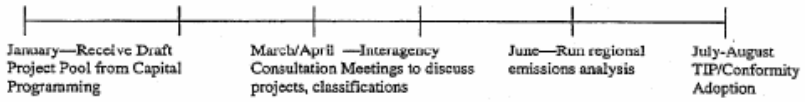
US Senate—Committee on Environment and Public Works--Conformity Case Studies

Difference in Timing of Schedules

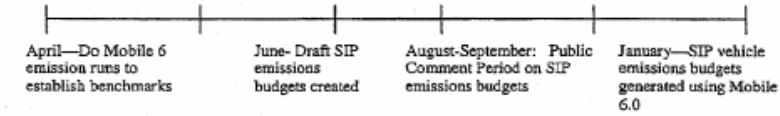
• Describe how the different schedules for the SIP, TIP, Conformity, etc. and the impacts of data changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans. Provide a time-line or narrative description of your various schedules.

In principle, differences in the SIP/Plan/TIP schedules can cause some difficulty. In the past, we have sought better coordination of these schedules. However, in recent experience, as illustrated by the timelines below, there has been sufficient coordination so as not to delay or hamper transportation and air quality plans.

TIP/Conformity Schedule (Typical) (2001)



Sample SIP Schedule (2002)



• What impact have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities?

As noted above, the difference in SIP/Plan/TIP schedules have not impacted investments in highway and safety projects, construction costs, and air quality projects and activities.

• What has been your experience coordinating your SIP and conformity processes with SIP submittals or updates?

The timing of a SIP submittal can pose somewhat of a challenge. For example, while preparing the emissions budgets for use with Mobile 6.0, we were working on our conformity analysis for this year's TIP and RTP using Mobile 5.0 emissions budgets.

MOBILE6 Versus MOBILE5 Projections

• Compare and contrast your MOBILE5 and MOBILE6 emission projections.

The preliminary runs in producing Mobile 6 estimates show that Mobile 6 generates higher emissions for both VOC and NOx than Mobile 5. There is also a greater percentage reduction in 2007 (the out-year) than 1996 for both pollutants.

• How does the increase in near term emissions (through 2010) from Mobile 6 affect your conformity status?

Since new budgets using Mobile 6 are currently being generated now, (which will be higher than the current Mobile 5.0 budgets), and we will be using these new budgets when we run the conformity analysis next year; it will likely not affect our conformity status.

• How will your air quality planning process take the new MOBILE6 into account, and will the SIP be updated before or after the new MOBILE6 projections?

The SIP is currently being updated now with Mobile 6, but for this year's conformity analysis, we are running Mobile 5.0. Next year, we will be running Mobile 6.

• Will the new 8 hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

Since the new standard is more stringent than the old one-hour standard (i.e. from 0.08 parts per million measured over eight hours vs. 0.12 parts per million measured over one hour), it will likely lead to a decrease in our vehicle emissions budget. However, this is more likely due to technology changes as opposed to the stricter standard. However, at this point, no budgets using the 8-hour Ozone standard have been calculated.

• What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g. inspection and maintenance, reformulated fuels, diesel retrofit, TCM's?

Inspection and maintenance, reformulated fuels, and diesel retrofit are all being done to some extent in the Northern New Jersey region. Transportation Control Measures (TCM's) could certainly be implemented in our area. Currently, there are no TCM's in the SIP. Also, more widespread use of Alternative Fuels (e.g. natural gas, electric, etc.) by all types of vehicles (both private and commercial) in our region could probably also significantly reduce vehicle emissions.

• Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6?

It is difficult to say at this point, without having used Mobile 6 emissions in an official conformity analysis. In the past, we took large credits from the implementation of the Inspection and Maintenance Program in New Jersey. We are also currently taking large credits from the implementation of the Tier 2 low-sulfur fuel program. But alternative fuel vehicle programs or even some TCM's (i.e. employer-sponsored flexible work schedules), may not be all that significant in reducing overall regional emissions.

Role of Transportation Control Measures

• What role do TCM's play in helping to meet attainment? Please list the TCM's and CMAQ projects in your plan, and the associated "off" or "on" model emission reduction credits for each.

There are currently no TCM's in our SIP, so they play no role in helping to meet attainment. The following list is the CMAQ projects scheduled for inclusion in the upcoming FY 2003-2005 TIP. The DBNUM is the unique identifier for each project.

```
DBNUM ProjectName
01316  Transportation Demand Management/Transit Village Program
02347 Rte.  80 Sec. Howard Boulevard NJ TRANSIT Park & Ride Mile posts:
30.61 -
99357 Bicycle Projects, Local System
99358  Pedestrian Projects, Local System
```

T07	Emission Control/Rebuilt Engines
T106	Private Carrier Equipment Program
T111	Bus Acquisition Program
T112	Rail Rolling Stock Procurement
T120	Clean Air Programs
T87	Hudson/Bergen LRT System MOS I
X065	Local CMAQ Initiatives
X095	Enhanced Vehicle Inspection and Maintenance
X185	Bicycle & Pedestrian Facilities/Accommodations
X32	Project Development, Preliminary Engineering
X34	Freight Program
X43	Transportation Management Association Program Support--This program supports the evaluation of the impact of TMA/TDM strategies on air quality, traffic congestion, and the statewide transportation system.
X43K	TMA-NJTPA-This program will provide funding of Keep Middlesex Moving (KMM), Hudson, Meadowlink, MCRides, Ridewise, and Hunterdon Rural, Transportation Management Associations (TMA).

• What percentage of total emission reductions do they represent?
0 (for TCM's) at the current time. At the present time, our regional model measures aggregate emissions, so it is difficult to determine emissions from specific projects.

• Are there CMAQ projects in your plan for which you have not applied any on or off model emissions reductions?

There are some CMAQ funded projects, such as Clean Air Programs (T120 above) or Pedestrian Projects (DBNUM 99358), which are exempt under conformity regulations. But there are others, such as the Enhanced Vehicle Inspection and Maintenance Program, for which we receive a significant credit.

Impacts of Conformity Lapse

• If your area has experienced a conformity lapse, describe the effect this has had on transportation and air quality planning, funding process, preconstruction, and construction.

In 1998, we experienced a conformity freeze, because of improper implementation of the enhanced Inspection and Maintenance Program. It delayed the implementation of some projects, but because a new SIP was put in place, and the State promised to expedite the implementation of the I&M program, the "effects" were not quite as severe as originally expected.

• When projects were reactivated, after USDOT approved your conformity determination, what impact did this have on funding, project completion dates, personnel, renegotiation of contracts, updating old information, etc.?

Some projects that were previously delayed could not be rescheduled.

• What impact did the March 1999 U.S. Court of Appeals decision to eliminate the EPA "grandfather" provision from the conformity regulations have on your transportation investments?

This decision just made it more difficult for some projects to advance during a conformity lapse, because only exempt or Non-Regionally significant Non-Federal projects are able to advance in a lapse. Those projects from a previously conforming plan/TIP, which have received funding commitments for

construction, Plans, Specifications & Estimates (PS&E) approval, Full Funding Grant Agreements (FFGA), or equivalent approvals may also advance.[1]

Role of Motor Vehicle Emission Estimates and Models

• How has conformity analysis helped improve the quality of estimates of motor vehicle emissions for SIPs to better protect public health?

As the models have gotten more sophisticated, more comprehensive and realistic estimates of emissions are generated. The conformity process itself draws clear requirements for planning, stressing the importance of environmentally beneficial projects to decision-makers. At the NJTPA, the planning and project selection process have systematically incorporated methods (e.g. Sustainability Performance Goals and Project Prioritization Criteria) to favor such beneficial projects.

• How accurate and consistent have estimates of regional motor vehicle emissions been when compared with each other over time and with actual experience?

When compared with each over time, estimates of regional motor vehicle emissions have decreased gradually. There has been a decrease in overall emissions in the entire region as well.

• How have official estimates of motor vehicle emissions in your metropolitan region changed over the past 10-20 years and how well have they tracked actual emissions in years past?

Generally, in the North Jersey region, motor vehicle emissions have gone down over the past 20 years. It is difficult to track actual emissions, because even though there is monitoring of pollutants, it is difficult to differentiate between the ozone precursors (i.e. NOx, VOC's), as well as the different categories of sources: (mobile, stationary, point).

Role of Transportation Models

• Has conformity analysis been supported by adequate regional transportation analysis models that accurately reflect how changes in highway capacity affect total travel and air pollution emissions?

Yes. The NJTPA uses an elaborate regional transportation model which follows the advanced four-step travel demand process,and has a "capacity-sensitive" assignment algorithm, as specified in §93.122 (iv) of the Transportation Conformity Rule. The model is linked to a sophisticated Post-Processor for Air Quality (PPAQ), which can actually calculate emissions based on changes in link capacity.

• How well have your region's travel models tracked actual experience with growth in vehicle miles of travel (VMT)?

It is calibrated to replicate observed traffic with an error of +/- 1%.

Our region's travel model has captured the increase in vehicle miles of travel which has been the actual case. Over time, the NJRTM (North Regional Transportation Model) has followed "actual" urban VMT within a range of +/- 10%.

[1] US DOT, Transportation Conformity Reference Guide. May 2000. p. C-4-4.

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

Tom Schulze
Executive Director

July 25, 2002

Hon. James M. Jeffords, Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Dear Senator Jeffords:

Please see the attached response to the specific air quality questions you have forwarded.
I trust this is the information you are seeking as you proceed with the TEA-21 reauthorization.

As you requested, I am e-mailing my response to Chris Miller.

Sincerely,

Tom Schulze
Executive Director

THE METROPOLITAN PLANNING ORGANIZATION
45-46 21st Street • Long Island City • New York • 11101 • 718.472.3046 • www.nymtc.org

Conformity Case Studies

1. Difference in Timing of Schedules

a) Describe how the different schedules for the SIP, TIP, Conformity, etc. and the impacts of data changes on out year emissions affect your ability to develop effective and timely transportation and air quality plans. Provide a time-line or narrative description of your various schedules.

It would be helpful if the schedules for updating the SIP, TIP, conformity, and the supporting databases were coordinated on a rational basis so that all schedules are synchronized to the greatest extent possible.

Currently, we must update our Regional Transportation Plan on a three-year cycle and our Transportation Improvement Program (TIP) a minimum of once every two years. The TIP is amended outside of this update cycle on an as needed basis. Conformity analyses are required whenever updates to these products add, subtract or change non-exempt projects included in the fiscally constrained plan or TIP.

b) What impact have these schedules had on investments in highway and safety projects, construction costs, and air quality projects and activities?

The difference in schedules has not significantly impacted to date investments in highway and safety projects, construction costs, and air quality projects and activities. However, we anticipate significant impacts in coming years as we approach the region's attainment data under the clean air act.

c) What has been your experience coordinating your SIP and conformity process with SIP submittals or updates?

The number of intervening years since the last SIP submittal and the need to perform a conformity determination in the near future present a problem because the original planning assumptions used in the SIP have changed in the interval.

2. MOBILE6 Versus MOBILE5 Projections

a) Compare and contrast your MOBILE5 and MOBILE6 emission projections.

At this time no official projections have been issued, as the process for using Mobile6 for both the SIP and for future conformity determinations nears completion. Nevertheless, preliminary indications are that Mobile6 will give higher emission rates for the milestone years of 2005 and 2007, in line with national trends.

b) How does the increase in near term emissions (through 2010) from MOBILE6 affect your conformity status?

A potential increase in near term emissions (through 2010) from Mobile6 will increase the need to develop effective emission reduction strategies.

c) How will your air quality planning process take the new MOBILE6 into account, and will the SIP be updated before or after the new MOBILE6 projections?

Currently we are working on using Mobile6 with our new transportation model. The SIP will be updated using Mobile6 first.

d) Will the new 8 hour NAAQS likely lead to an increase or decrease in your vehicle emissions budget?

The new standard is more stringent than the current one-hour standard (i.e. from 0.08 parts per million measured over eight hours vs 0.12 parts per million measured over one hour); therefore it will probably result in a decrease in our vehicle emissions budget.

3. Additional Vehicle Emission Controls

a) What additional existing controls could be implemented in your area to significantly reduce vehicle emissions, e.g., inspection and maintenance, reformulated fuels, diesel retrofit, TCMs?

Our organization has consultant studies underway to determine which proposed emission reduction measures are most effective for reducing air pollution in this area. Inspection and maintenance and reformulated fuel programs are already in place.

b) Would these controls be sufficient to address the potential increase in emissions projected under MOBILE6?

We will know the answer to this question when the consultant efforts are complete. One important consideration is the potential cost-effectiveness of the measures.

4. Role of Transportation Control Measures

a) What role do TCMs play in helping to meet attainment? Please list the TCMs and CMAQ projects in your plan, and the associated "off" or "on" model emission reduction credits for each?

There are no active TCM's in our SIP at this time. The current TIP contains a number of projects that help reduce emissions; including park and ride facilities. Intelligent transportation systems, and CMAQ projects that produce beneficial impacts on air quality. Please refer to the list of CMAQ projects in 4c with positive air quality impacts.

b) What percentage of total emission reductions do they represent?

Currently, we are looking at calculations to determine the proper level of emission reductions due to these projects.

c) Are there CMAQ projects in your plan for which you have not applied any on or off model emissions reductions?

To date we have not yet applied any credit for these projects pending further analysis of their benefits.

REGIONAL PROJECT:
Electrical Vehicle Demo – A three year demonstration of deploying 100 electric vehicles.

MID-HUDSON VALLEY

882038 – METROPOOL Rideshare Programs
880534 – Transitchek Program
882104 – Rebuild three route vehicles
882188 – Westchester County Purchase 30 Paratransit Vehicles
882168 Westchester Bee Line Fleet Expansion
856117 – Route 35 Intersection Safety Improvements Town of Lewisboro
880830 & 31, 8T0177 – TDM Grant Program
880424 – TDM Unit
880688 – Westchester Commute Alternative Program
880689 – Rockland Commute Alternative Program
880690 – Promotional Campaign to Support Metro North Service
882275 – Bee Line Service Loop T
882287 – Bee Line Service Loop H
A401-02-06 – Comet V Coaches Fleet Expansion
875686 – Westchester City Signal Upgrade
875757 – New City Park & Ride Lot
882219 – Bus Service (Rockland – Manhattan)
882244 – Putnam Bus Loop
882284 – Putnam P&R
882303 – Taconic Express (See 882244)
M303-08-01 – Mid-Harlem Third Track "I" Coded with MTA Tool

LONG ISLAND

082309 – Fund Transit Center
080556 – Incident Management HELP Program
075672 – Closed Loop Traffic Signal System (Suffolk Co)
004218 – NY25/NY110 Intersection Improvement
033912 – Pilgrim State Freight Terminal Study
051650 – Inform Upgrade Northern State Parkway
075657 & 075778 - CR39 Bridge over St. Andrews Road

075753 – Signal Computer Expansion (Nassau)
075767 & 68 – Closed Loop Traffic Signal System (Suffolk Co)
080170 – Park & Ride Lot Lease
080372 – TDM Program
090395 – Rideshare Program
080523 – LIRIC Block to Reduce SOVs
080553 – TDM Education & Outreach (Continuation)
080634 – Nassau County Commute Alternatives Program
080655 – Suffolk County Commute Alternatives Program
080696 – Suffolk County Innovative Transit
0L2460 – Long Island Transit Check
0L3160 – LI Bus/LIRR Intermodal Commercial Project
0L3200 – Hempstead Transit Intermodal Hub
0T1557 – Meadowbrook State Parkway ITS
L402-04-24 – Atlantic Terminal Rehabilitation
053464 – Southern State Parkway ITS
075684 – Ronkonkoma Parking LIRR
080659 – Suffolk Express Commuter Bus

NEW YORK CITY

X500.40 - ITS GW Bridge
X500.41 - Advanced Traveler Information System (ATIS)
X500.42 - Electric Vehicle Municipal Demo Program
X500.77 – ITS Travel Info Systems at various Hospitals3
X500.92 – Remote Traffic Sensors
X756.27 – Public Information Signage (PATH)
X756.39 – NYC Subsidized Bus Service / Implementation
X756.41 – Commuter Parking
X756.43 – Intermodal Ferry East River
X756.56 – Construct Rail Road Pier 65th Street (Garmen may have analyzed)
X756.58 – ECO Transit Center
MTA Riders Guide
MTA Articulated Bus Lift Replacement (Articulated Buses?)
X500.68 – Purchase 8 Electric Buses
X500.77 – Community Transit Link Info
X500-78 – Outerborough Alt Transportation Management Program
X500.80 – GWB Bus Station Marketing & Route Extension
X500.92 – Advance Traveler Info Dissemination (Name confliction with above obligation)
X500.94 – Local Street Incident Management
X501.15 – ShortLine Bus Service (Orange – GWB)
X501.18 – Freight Information Real Time System
X501.25 – Reconstruction of Arlington Rail Yard SI for Intermodal Yard
X501.28 – Private Ferry Emissions Demo
X804.13 – Incident Management
X806.02 - Incident Management (HELP)
X500.93 – Realtime Traffic Adapt System

5. Impacts of Conformity Lapse

a) If your area has experienced a conformity lapse, describe the effect this has had on transportation and air quality planning, funding process, preconstruction, and construction?

This area has not experienced a conformity lapse to date.

b) When projects were reactivated, after USDOT approved your conformity determination, what impact did this have on funding, project completion dates, personnel, renegotiation of contracts, updating old information, etc.

See response to 5(a)

c) What impact did the March 1999 U.S. Court of Appeals decision to eliminate the EPA "grandfather" provision from the conformity regulations have on your transportation investments?

There has been no impact to date since there has never been a conformity lapse. However, it is understood that this decision would no longer allow projects that had been previously found to conform and had completed the NEPA process to advance in the event of a lapse.

6. Role of Motor Vehicle Emission Estimates and Models

a) How has conformity analysis helped improve the quality of estimates of motor vehicle emissions for SIPs to better protect public health?

In the time period before the introduction of the Clean Air Act amendments in 1990, sketch planning tools and early Mobile models were used to develop rough estimates of the impact of the TIP on air quality. Today, comprehensive and realistic estimates are generated.

b) How accurate and consistent have estimates of regional motor vehicle emissions been when compared with each other over time and with actual experience?

Generally speaking, the emission estimates have proven to be reasonably accurate. For example a recent unanticipated rise in the number of SUVs resulted in an increased level of emissions predicted by the models and MOBILE5.

c) How have official estimates of motor vehicle emissions in your metropolitan region changed over the past 10-20 years and how well have they tracked actual emissions in years past?

Generally, in the New York metro area, motor vehicle emissions have declined over the past so years in line with national trends and in accordance with the rate of progress towards attainment required by the Clean Air Act 1990. The model estimates of the emissions have tracked these changes in actual emissions fairly well.

7. Role of Transportation Models

a) Has conformity analysis been supported by adequate regional transportation analysis models that accurately reflect how changes in highway capacity affect total travel and air pollution emissions?

Yes, this metro area uses a regional transportation model, which follows the four step travel demand process and has a 'capacity sensitive' assignment algorithm. This model is linked to a sophisticated post-processor for air quality which calculates emissions based on changes in link capacity.

b) How well have your region's travel models tracked actual experience with growth in vehicle miles of travel (VMT)?

It appears that our travel models are able to track actual experience with growth in VMT very well. The network based travel models are reconciled with HPMS on a regular basis, and factors are developed to calibrate the network. These factors are then applied to model estimates of future VMT.

c) Please include an indication of how sensitive your/these models are to effects of induced traffic?

The new model is properly sensitive to the effects of induced traffic on a regional and corridor level. The new model has not yet been used for a conformity analyses.

Senator JEFFORDS. Senator Inhofe.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Mr. Chairman.

Today's hearing is a subject I've spent a good deal of time on, back when we were in the majority I chaired the Subcommittee on

Clean Air. We addressed some of the problems, we worked to make sure the States had tools necessary to meet Clean Air requirements. Title VI of TEA–21 is a result of the subcommittee's efforts. Following passage of TEA–21, there was concern with the effects of conformity on newly designated areas of non-attainment. Specifically, we were concerned that these new areas had adequate time to bring their communities back into attainment before we lost critical highway dollars. Every time I think about one of these programs where holding back highway dollars reminds me of 1966, Mr. Chairman, when I, as a newly elected State legislator, came to Washington to testify before this very committee. At that time, Jennings Randolph was the chairman. And here we are right now, we lost the fight then, now we're going to try to win it again after all these years.

As a result of our efforts, and working with other members, we were successful in attaching language to the fiscal year 2001 VA-HUD appropriation bill, of which Senator Bond was the chairman and was very helpful to us. That established a 1 year grace period before an area newly designated as non-attainment must demonstrate conformity. As the Ranking Member of the Transportation Infrastructure Subcommittee, I now have the opportunity to work more closely on making sure that the Clean Air requirements and transportation needs do not conflict.

I believe there is still much that needs to be done. For instance, the recent data shows, as Senator Smith pointed out, that the impact of increased vehicle travel is having a smaller and smaller impact on emissions, because of the improvements in emissions control technology. I want to explore with our witnesses what practical effect this has on choices States can make, given that many of the emission goals are based on old data.

I will be interested to hear if our witnesses believe we should reexamine how the current congestion mitigation air quality programs, CMAQ programs, work and what changes if any need to be made in the program to make it more usable for the States. Additionally, I have concerns with the new rule on diesel engine nitrogen oxide, which is scheduled to go into effect on October 1st of 2002. While I understand this is consistent with the provisions of a consent decree entered into with engine manufacturers, my concern is that the trucking community has raised several valid issues, not the least of which is that there has not been sufficient time to thoroughly test new engines. And given the presence of Mr. Holmstead from the Air Office of the EPA, I hope we can spend a little time exploring that issue further, which we have talked about privately.

Finally, and most importantly, I want to thank Mary Peters. We had a disaster in Oklahoma that was similar to the one that happened down in Texas, in Port Isabelle, Texas. It didn't get much publicity down there, because it happened at the same time that the September 11th tragedy took place, and that is, a barge running into a bridge and then the cars going over and several people falling to their deaths. That happened in Oklahoma. Mary, it's kind of funny, because most people in this room don't even know that we're navigable in Oklahoma, we have a navigation lane. But sure enough, we do.

Well, this happened, you were there just a matter of days afterwards. We put together a very aggressive repair schedule. We actually ended up yesterday opening it up 30 days earlier than we would have otherwise. While there are some penalties in the provision for us, it was certainly to the benefit of everyone, particularly those in Oklahoma, for not having to go that long route to circumvent the disaster area.

So I just want to thank you for coming out, not just when this first happened, not just when we started the project, but also yesterday when we dedicated it, and all the work that you have done. Because it couldn't have been done without your personal attention, and I thank you very much for that.

Thank you, Mr. Chairman.

Senator JEFFORDS. Senator Bond.

OPENING STATEMENT OF HON. CHRISTOPHER S. BOND, U.S. SENATOR FROM THE STATE OF MISSOURI

Senator BOND. Thank you very much, Mr. Chairman, for holding this hearing on transportation and air quality issues. We all depend upon and expect clean, healthy air for our families, our children and our elderly to breathe. We also all depend upon safe, affordable and accessible transportation to get our breadwinners to work, take our family to buy groceries, get to the hospital in an emergency or visit our relatives. We must succeed at providing both air quality and transportation solutions.

I'm very pleased to have been working with my colleagues on this committee in the Congress, as well as colleagues when I was in the Governor's Conference, to make sure we're on that path. Congress, as part of its debate to reauthorize the next transportation program, will reconsider congestion mitigation and air quality programs in ways to ensure conformity between transportation plans and air qualities. I support the goals of these programs and plans.

However, 10 years of CMAQ and conformity requirements have shown us that many of our original assumptions in the way we set up the programs are outdated, mistaken or in need of reform. The transportation sector, as Senator Smith has demonstrated, has made great progress, improving air quality over the last 30 years. Between 1970 and 1999, carbon monoxide emissions from on-road vehicles were reduced by 43 percent. Volatile organic compounds, a precursor to ozone, were reduced by 59 percent. Particulate matter, PM10 emissions, have been reduced by 33 percent. NOX emissions from automobiles have been down 31 percent since 1970.

As we review the CMAQ and conformity programs, we should remember that most of the air quality improvements in the transportation sector came from new vehicle emission and fuel standards, not transportation control measures or blocked transportation projects. Indeed, a recent National Academy of Science transportation research board study, which has already been cited, evaluating the effectiveness of the CMAQ program, raised some serious questions that ought to be considered, and concluded that approaches aimed directly at emissions reductions generally have been more successful than CMAQ strategies relying on changes in travel behavior.

Furthermore, as we see greater and greater benefits from vehicle emission reductions, the CMAQ strategies have less and less relevance in terms of further reduction of pollutants. These results shouldn't be surprising. No matter how well intentioned the proposals, most Americans just don't want to live in dense urban areas serviced by mass transit. Nor do we want to ride our bikes to work. Some of our most disadvantaged depend upon cars. Single mothers need cars to drive their children to day care. Low income workers need workers to get from their affordable housing to oftentimes distant jobs in suburbs.

Likewise, by 2004, cars will be 100 times cleaner than they were in 1970, 100 times. That means that a ride share program to reduce vehicle miles traveled will be 100 times less effective in 2004 as it was in 1970 in reducing air pollution. As the Transportation Research Board states, transportation control measures, such as public transit, HOV lanes, traffic flow and bicycle lanes may help air quality on the margins, but they are becoming increasingly less relevant. I believe the solution to air quality lies in programs aimed directly at emissions reductions. We must continue to develop the next generation of vehicles with low emission or no emission technology and I think it is vitally important that we must also preserve alternative modes of transportation like barge traffic. We in Missouri, St. Louis, are at the heart of the heaviest truck transportation lanes in the Nation. The Federal Highway has come out with a study that shows the red lines, and the brightest red lines all converge in St. Louis. And we have a choice, a single 15 barge tow will carry the cargo of 870 semi-trucks. That means 870 trucks come off our congested highways and 870 fewer trucks polluting the air as they go through that critical area.

Transporting one ton of cargo by barge produces 85 percent less hydrocarbon than by truck. We cannot close off these other forms of transportation, like some are trying to do on the Missouri River. A sidebar, but an important one.

Senator JEFFORDS. I got you.

[Laughter.]

Senator BOND. In the meantime, we must aggressively pursue clean burning renewable fuels, such as bio-diesel. And you knew that was coming, too. Bio-diesel reduces particulate matter and the harmful air toxics that can cause cancer. Bio-diesel reduces sulfur dioxide emissions, unburned hydrocarbons and life cycle CO2 emissions. At my urging, and by strong request, the St. Louis transportation authority has committed to begin burning the B–20 bio-diesel blend in its vehicles, and we expect that Kansas City will follow suit. Instead of being engulfed by the noxious fumes of diesel as you follow a bus in our major cities, you will think of stopping for french fries, and you'll be getting cleaner air.

Last year, I introduced legislation with Senator Johnson, S. 1071, to expand the CMAQ program to address additional air pollutants and make eligible for funding technologies such as bio-diesel that improve air quality in these areas. The recent National Research Board report supports expanding the CMAQ program to include particulate matter, air toxics, sulfur dioxide and CO2. I hope we will take a hard look at this proposal. This is one area where I think CMAQ funds can make a very significant reduction in air

pollution by making it economically affordable for more cities to burn the B–20 blend.

As for transportation improvements, the current process unfortunately leaves highway construction bogged down and overlapping and conflicting deadlines, planning processes out of sync, litigation tying the hands of planners and construction workers, and congestion mitigation measures which don't work. The result is gridlock, congestion and traffic jams. Unfortunately, traffic jams do not clean the air. Bumper to bumper slow moving or idling cars do not reduce asthma. In fact, they increase it. That's why when I was Governor of Missouri, I was proud to sign a right turn on red light measure, to get idling cars off the road. A small measure, but one of the things that can make a difference. All the bike racks in the world and nice bike trails won't make that much difference.

Transportation opponents follow the reverse of the old adage, if you build it, they will come. They believe if you don't build it, then they won't come. Well, not only are the coming, but they're here. Meanwhile, congestion costs to the economy have more than tripled from $21 billion to $72 billion from 1982 to 1997.

Transportation opponents have the right to oppose cars. I support funding for their innovative transportation programs to help where they can. But the remaining 99 percent of us must also have transportation capacity to allow for safe and vibrant communities, not only cleaning up the environment, but saving lives. Taking away transportation money is not the solution. We shouldn't punish commuters struck in traffic trying to get home to their families. How can we look these people in the face and say, we're making their lives miserable in the name of air quality when this committee just doomed any hope of passing this year additional SOX-NOX and mercury air pollution reductions from electric utilities in order to make a political point about carbon dioxide?

We have the chance to make real improvements in the transportation and air quality planning process. We have the chance to give metropolitan planning organizations flexibility and certainty. We have the chance to give our families cleaner air. We have the chance to give our communities, our workers and our families safe and accessible transportation. I look forward to working with my colleagues to pursue all of these noble objectives.

I thank the chair.

[The prepared statement of Senator Bond follows:]

STATEMENT OF HON. CHRISTOPHER S. BOND, U.S. SENATOR FROM THE STATE OF MISSOURI

Mr. Chairman, thank you for holding this hearing on transportation and air quality issues. We all depend upon clean, healthy air for our families, our children and our elderly to breathe. We also all depend upon safe, affordable and accessible transportation to get our breadwinners to work, take our family to buy groceries, get to the hospital in an emergency, or visit our relatives. We must succeed at providing both air quality and transportation solutions.

Congress, as part of its debate to reauthorize the next transportation bill, will reconsider congestion mitigation and air quality programs, and ways to ensure conformity between transportation plans and air quality plans. I support the goals of these programs and plans.

However, 10 years of CMAQ and conformity requirements have shown us that many of our original assumptions and the way we set up the programs are outdated, mistaken, or need reform.

The transportation sector has made great progress improving air quality over the last 30 years. Between 1970 and 1999, carbon monoxide emissions from on-road vehicles were reduced by 43 percent. Volatile organic compounds, a precursor to ozone—were reduced 59 percent. Particulate matter (PM–10) emissions have been reduced 33 percent. NOx emissions from automobiles are down 31 percent since 1970.

As we review the CMAQ and conformity programs, we should remember that most of these air quality improvements in the transportation sector came from new-vehicle emission and fuel standards, not transportation control measures or blocked transportation projects. Indeed, a recent National Research Council study evaluating the effectiveness of the CMAQ program concluded that approaches aimed directly at emissions reductions generally have been more successful than most CMAQ strategies relying on changes in travel behavior.

These results shouldn't surprise anyone. No matter how wellintentioned the proposals, most Americans just don't want to live in dense urban areas serviced by mass transit. Nor do we want to ride our bikes to work. Some of our most disadvantaged depend upon cars. Single mothers need cars to drive their children to daycare. Low-income workers need cars to get from their affordable housing to often-times distant jobs in suburbs.

Likewise, by 2004, cars will be one hundred times cleaner than they were in 1970. That means that a ride share program to reduce vehicle miles traveled will be one hundred times less effective in 2004 as it was in 1970 in reducing air pollution. As the NRC states, transportation control measures such as public transit, HOV lanes, traffic flow, and bicycle lanes may help air quality on the "margins," but are becoming increasingly irrelevant.

I believe the solution to air quality lies in programs aimed directly at emission reductions. We must continue to develop the next generation of vehicles with low-emission or no-emission technology.

In the meantime, we must aggressively pursue clean-burning, renewable fuels such as biodiesel. Biodiesel reduces particulate matter and the harmful air toxics that can cause cancer. Biodiesel reduces sulfur dioxide emissions, unburned hydrocarbons, and lifecycle C02 emissions.

Last year, I introduced legislation with Sen. Johnson, S. 1071, to expand the CMAQ program to address additional air pollutants, and make eligible for funding technologies such as biodiesel that improve air quality in these areas. The recent NRC report supports expanding the CMAQ program to include particulate matter, air toxics, sulfur dioxide and C02. I hope we will take a hard look at this proposal.

As for transportation improvements, the current process leaves us bogged down in overlapping and conflicting deadlines, planning processes out of sync, litigation tying our hands, and congestion mitigation measures which don't work. The result is gridlock, congestion and traffic jams.

Unfortunately, traffic jams do not clean the air. Bumper-to-bumper, slow moving or idling cars do not reduce asthma. All the bike racks in the world will not ease congestion.

Transportation opponents follow the reverse of the old adage "if you build it they will come." They believe that "if you don't build it, then they won't come." Well, not only are they coming, but they're already here.

Transportation opponents have the right to oppose cars. I support funding for their innovative transportation programs to help where they can. But the remaining 99 percent of us must also have the transportation capacity to allow for safe and vibrant communities.

Taking away transportation money is not the solution. We shouldn't punish commuters stuck in traffic trying to get home to their families. How can we look these people in the face and say we are making their lives miserable in the name of air quality when this committee just doomed any hope of passing this year additional SOx, NOx and mercury air pollution reductions from electric utilities in order to make a political point about carbon dioxide?

We have the chance to make real improvements in the transportation and air quality planning process. We have-the chance to give metropolitan planning organizations flexibility and certainty. We have the chance to give our families cleaner air. We have the chance to give our communities, our workers and our families safe and accessible transportation. I look forward to working with my colleagues on all of these issues. Thank you.

Senator JEFFORDS. Senator Voinovich.

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator VOINOVICH. Thank you, Mr. Chairman. I thank you for calling today's hearing on transportation and air quality. I think it's important to examine the effectiveness of the congestion mitigation and air quality program and conformity.

As a past chairman and current Ranking Member of the Clean Air Subcommittee, and the past chairman of the Transportation Subcommittee, I understand full well the importance and the significance of the overlap between highway planning and air quality. When I began my term as Governor, 28 Ohio counties were in nonattainment for ozone. I spent considerable time to get them in attainment.

In addition, working with the utilities to reduce their emissions, I implemented an automobile emissions testing program called EJECT to help bring Ohio counties into compliance. At that time, Ohio was one of only few States that had enhanced auto emissions testing in urban areas. The program was a success, according to the 1997 EPA report. Volatile organic compounds and nitrogen oxides, which are major components in the formation of ozone and are emitted by cars and trucks, have been dramatically reduced between 1970 and 1996.

Emissions of VOCs were reduced by 49 percent and NOx by 26 percent. Additionally, air toxins in Ohio were reduced from approximately 381 million pounds in 1987 to 144 million pounds in 1996. Due to these reductions, all of Ohio's 88 counties have met the national air quality standard. But this, Mr. Chairman, was not an easy battle. The EJECT project was criticized because it required vehicle owners in smoggy areas to pay for annual emissions testing and to make their necessary repairs when they found that the emissions needed to be repaired on the automobile. And due to its unpopularity, Ohio's general assembly passed a bill revoking the program. However, I stood up for the program and vetoed the bill, because I believe it was important and a necessary step to clean up Ohio's air.

I believe hard choices like these are important. The conformity program has helped encourage cleaner air and transportation planning and has benefited from coordination with the air quality planners. As we move forward with the reauthorization of the Highway Bill, we must reevaluate the conformity and CMAQ programs and be willing to make those hard choices if we're not getting the benefits that we should be getting, or if the program should take on a new dimension.

Mr. Chairman, as you know, the National Academy of Sciences issued a good assessment of CMAQ. They have made some good recommendations and some constructive criticisms and we should take their advice. In fact, I wish we would have a witness from them here today.

I hope the committee will use this time for a good, hard evaluation of the program and I would like to outline a few areas which I think deserve attention today and in the coming months. First, we need to examine the timing issues between the SIP process and the transportation improvement plan process. We need to see if

there is room for improvement between the two processes. Too many times they are not coordinated.

Are the CMAQ projects getting us the best air quality reductions for the money we are spending? The National Academy of Sciences study indicated that first of all, with the limited evidence available, approaches aimed directly at emissions reductions, new vehicle emission and fuel standards, well structured inspection and maintenance programs, vehicle scrappage programs generally have been more successful than most CMAQ strategies relying on changes in travel behavior.

For example, in Chicago an inspection and maintenance program provided a 30 ton per day credit for emission reductions. By comparison, several hundred CMAQ funded TCMs provided a 2 ton per day credit. We ought to look at where is this money going and can we get a bigger bang for our dollar.

So often we spend money on pet projects to make us feel better or make some group feel better. I always say that we need to work harder and smarter, we need to do more with less. I think it's time we reevaluate some of the projects we've been funding and shift the focus to deal more with existing air quality problems. I look forward today to hearing from our witnesses.

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF HON. GEORGE VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Mr. Chairman, thank you for calling today's hearing on Transportation and Air Quality. I believe it is important to examine the effectiveness of the Congestion Mitigation and Air Quality Program (CMAQ) and conformity.

As the past chairman and current ranking member of the Clean Air Subcommittee, and the past chairman of the Transportation Subcommittee, I understand full well the importance and significance of the overlap between highway planning and air quality.

When I began my term as Governor, 28 Ohio counties were in non-attainment for ozone. I spent considerable effort to get them into attainment. In addition to working with utilities to reduce their emissions, I implemented an automobile emissions testing program, called E-check, to help bring Ohio counties into compliance. At that time, Ohio was one of only a few states to have an enhanced auto emissions test in its urban areas.

This program was a success. According to a 1997 EPA report, volatile organic compounds and nitrogen oxides, which are major components in the formation of ozone and are emitted by cars and trucks, have been dramatically reduced between 1970 and 1996 in Ohio. Emissions of VOCs were reduced by 49 percent and NOx by 26 percent. Additionally, air toxins in Ohio were reduced from approximately 381 million pounds in 1987 to 144 million pounds in 1996. Due to these reductions, all 88 Ohio counties have met the national air quality standards. But this was not an easy battle.

The E-Check program was criticized because it required vehicle owners in smoggy areas to pay for annual emissions testing and to make the necessary repairs. Due to its unpopularity, Ohio's General Assembly passed a bill revoking the program. However, I stood up for the program and vetoed the bill because I believed it was an important and necessary step to cleaning up Ohio's air.

I believe hard choices like these are important. The conformity program has helped encourage cleaner air and transportation planning has benefited from coordination with the air quality planners.

As we move forward with the reauthorization of the Highway Bill we must reevaluate the conformity and CMAQ programs and be willing to make hard choices if we are not getting the benefits that we should be getting, or if the program should take on a new dimension.

Mr. Chairman, the National Academy of Sciences issued a good assessment on CMAQ. They have made some good recommendations and some constructive criticism and we should take their advice. In fact I wish they were testifying today.

I hope the committee will use this time for a good hard evaluation of the program and I would like to outline a few areas in which deserve attention today and in the coming months.

- First, we need to examine the timing issues between the Air Quality SIP (State Implementation Plan) process and the transportation TIP (Transportation Improvement Plan) process. We need to see if there is room for improvement between the two processes.
- Are the CMAQ projects getting us the best air quality reductions for the money we are spending, in other words are they cost-effective? The NAS study has recommended that we broaden the pollutants covered to include for example particulate matter and to allow more cost-effective programs such as vehicle scrappage programs be funded at the local level.
- If the typical CMAQ project is not cost-effective, are there more cost-effective measures such as using the funds to retro-fit diesel engines? So often we spend money on projects to make us all feel better. I always say we need to work harder and smarter and do more with less. Maybe its time we re-evaluate the types of projects we have been funding and shift the focus to deal more with existing air quality problems.

These are just a few of the topics I hope we can address before we move forward with the reauthorization of the highway program next year.

Senator JEFFORDS. Senator Clinton.

OPENING STATEMENT OF HON. HILLARY RODHAM CLINTON, U.S. SENATOR FROM THE STATE OF NEW YORK

Senator CLINTON. Thank you, Mr. Chairman. And thank you for holding this important hearing.

I'm glad that we're going to be looking at transportation as well as other sources of pollution that are stationary, so that as we gear up for the TEA–21 reauthorization we have a better idea of how to proceed. I'm also pleased we're going to be looking at some additional technological ways to deal with emissions. For example, in New York, Corning's environmental technology products and services are offering some leading, cutting edge solutions for emissions control changes.

I have a particular interest in today's hearing because of the terrorist attacks on the World Trade Center. Once again, we are dealing with consequences of the horror of September 11th. As some of you may be aware, as a result of the terrorist attacks on the World Trade Center, the State of New York and the New York Metropolitan Transportation Council are seeking a 3-year waiver from conformity in metropolitan planning requirements. The New York Metropolitan Transportation Council, commonly known as NYMTC, is responsible for preparing the area's conformity analysis.

Now, NYMTC's offices were located on the 82d floor of One World Trade Center. Obviously their offices, their equipment and their records, as well, sadly as the life of several staff members, were lost. While NYMTC is up and running again, they are faced with the challenge of establishing baseline regional travel patterns in emission conditions in the aftermath of September 11th without the records that they had compiled over many years.

Now, with everything that New York is facing, one might ask, why worry about a conformity determination? But concerns have been raised that a possible conformity lapse could hinder the rebuilding efforts in lower Manhattan, which are ahead of schedule and below budget at this point. And I think every one of us wants to do everything we possibly can to help in the rebuilding process. And I thank the members of this committee, particularly the chairman and the ranking member, for everything that they've done to

help New York. I especially appreciate the support of legislation that I sought to waive limitations on the use of the emergency highway funds to pay the cost of projects needed as a result of the September 11th attack.

I think we have a dilemma, though. We want to do everything we possibly can to help New York rebuild, but we also have to make sure that the health of New Yorkers is protected, particularly those who live and work in lower Manhattan. Now, I'm confident that with the leadership of this committee, we can strike the right balance to ensure that the rebuilding efforts move forward unimpeded, while at the same time ensuring that the air quality in the New York Metropolitan area improves. I am concerned, however, that a bill currently moving through the House has not yet achieved quite that right balance.

So I look forward to working with the committee, particularly again with the chairman and the ranking member, as we not only learn more about conformity in transportation and air quality issues in general, but in trying to address New York's ongoing needs because of the horrible, destructive attacks by the terrorists on September 11th.

I apologize, Mr. Chairman, I have to leave early to preside. But I have the testimony and I will, with consent, be submitting questions for the record as well.

Senator JEFFORDS. Thank you. And your questions will certainly be accepted.

Senator CHAFEE.

OPENING STATEMENT OF HON. LINCOLN CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. Thank you, Mr. Chairman, for holding this hearing. As many people have testified earlier, Senator Smith said earlier, we're making a great deal of progress since the 1970's. And Senator Inhofe said that he came here as a municipal official in 1966 talking about air quality issues. So we are making great progress, and I think we should continue to be aggressive on this issue. It's my belief not only for our own health, obviously, but also it's an industry that we can export, as we travel around the world and see some of the developing cities, as the world evolves from more of a rural population to an urban population, Mexico City, Beijing, Lagos, these are all issues that if we keep here in the United States aggressive on this, it's going to be an industry and an economy unto itself that will help us prosper here in the United States.

Thank you.

Senator JEFFORDS. Thank you. Thank you all for excellent statements.

We now will turn to our witnesses. Our first witness is Mary Peters. Thank you for coming, and we look forward to listening to you. Please proceed.

STATEMENT OF MARY E. PETERS, ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION

Ms. PETERS. Thank you, Mr. Chairman, members of the committee.

I appreciate the opportunity to discuss, this morning, transportation and air quality, two vitally important topics. I would ask that my written statement be entered into the record in its entirety, and I will confine my remarks to a few high points this morning.

Meeting the dual challenges of congestion relief and air quality improvement is a high priority for the Department of Transportation, as I know it is for members of this committee. Secretary Mineta has noted that one of the core principles of the Department's efforts to reauthorize TEA–21 will be to ensure an efficient infrastructure while retaining environmental protections that enhance our quality of life.

As indicated in the chart attached to my written statement, and as several members have referred to this morning, we have made remarkable progress over the last 30 years in reducing air pollution, especially from transportation sources. Since 1970, carbon monoxide emissions have been reduced by 43 percent, coarse particulate matter, or PM–10 emissions, by 33 percent, and volatile organic compound emissions by 59 percent, despite substantial increases in population, gross domestic product and vehicle miles traveled.

While this downward trend in emissions is expected to continue, some of the Nation's largest metropolitan areas still face challenges in meeting the current 1 hour ozone standard. TDM and TCM programs have not performed as expected in terms of air quality benefits. As we prepare to meet the challenges of implementing new air quality standards, we need to develop new strategies for dealing with these more stringent requirements.

We have gained considerable knowledge about the linkages between transportation and air quality, including that there is no one right way for the entire Nation to reduce congestion and improve air quality. The problem requires flexible, multi-level solutions. The CMAQ program provides State flexibility to fund transportation improvements that cross traditional Federal-aid program boundaries, including transit, ride sharing, bicycle and pedestrian, alternative fuels in vehicles, emission inspection and maintenance, and ITS implementation programs. In addition, CMAQ supports experimentation by States and MPOs to meet travel demand in the most environmentally sensitive ways, and has encouraged cooperation between transportation and air quality agencies.

As we approach reauthorization, I believe we must consider stakeholder concerns about the CMAQ program. One issue relates to the statutory apportionment formula. The current formula does not take into account areas that would be designated under the new air quality standards.

We now have almost a decade of experience in implementing the Clean Air Act's transportation conformity provisions. Stronger institutional links between transportation and air quality planning agencies have been created. While conformity provisions have been

very instrumental in fostering improvements to the modeling processes, models that lack precision are being used to predict precise emission levels to determine conformity.

We have heard concerns that transportation and air quality plans are not synchronized, and that this mismatch can cause unwarranted lapses in conformity and disruption to the transportation funding and planning processes. While transportation plans have very long planning horizons and are updated frequently, most air quality plans have very short planning horizons and are updated less frequently.

Important planning considerations and public participation may not get the needed emphasis because transportation planners must devote considerable time and resources to avoid conformity lapses.

Mr. Chairman and members of the committee, I assure you that the Department is committed to continue the collective progress that we have made in reducing motor vehicle emissions. Continued progress will require improved coordination of the transportation and air quality planning processes. The American public demands and deserves both mobility and healthy air. I believe that these are not mutually exclusive goals.

Mr. Chairman and members of the committee, that concludes my oral statement. I look froward to working with you as we prepare for reauthorization of the surface transportation programs, and would be pleased to address any questions that you may have. Thank you.

Senator JEFFORDS. Thank you very much for an excellent statement.

Next witness is the Honorable Jeffrey Holmstead, Assistant Administrator for the Office of Air and Radiation, U.S. Environmental Protection Agency. Please proceed.

STATEMENT OF JEFFREY HOLMSTEAD, ASSISTANT ADMINISTRATOR, OFFICE OF AIR AND RADIATION, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Mr. HOLMSTEAD. Good morning, thank you, Chairman Jeffords and members of the committee.

The innovative programs and funding provided by ISTEA and TEA–21 have established really for the first time a strong link between transportation planning and air quality planning. Congressional reauthorization of TEA–21, I believe, is an opportunity to reaffirm this connection.

It is also an important opportunity to improve parts of the program. I think we all recognize that, and I would like to thank you, Chairman Jeffords and the members of the committee, for initiating this discussion. At your request, I will briefly offer my thoughts on the two programs that deal with the link between transportation and air quality, as you have already mentioned, transportation conformity and the CMAQ program.

First, though, I would like to also take the opportunity to remind all of us about the enormous progress we have made as a Nation to reduce the air quality problems that arise from the transportation sector. As several of you have mentioned, since the passage of the Clean Air Act in 1970, we have been extremely successful in reducing emissions from what we refer to as mobile sources. For

example, new cars that we purchase today are more than 95 percent cleaner than cars purchased 30 years ago. Concentrations of the four criteria pollutants that are most affected by the transportation sector, carbon monoxide, nitrogen dioxide, ozone and particulate matter, have all declined substantially since 1970. These reductions help to protect public health by reducing incidents of premature mortality, asthma attacks and other health problems caused by air pollution. The other thing I would like to remind people is that cars, trucks and buses, and in fact virtually every type of engine used in this country will be substantially cleaner still within the next few years. Beginning in 2004, cars, light trucks, minivans and SUVs will all have to meet the same stringent new emission standards. Then beginning in 2007, heavy duty diesel trucks and buses will be required to reduce their emissions of particulates and NOX by 90 percent and 95 percent respectively. These dramatic improvements are made possible in large part because of new requirements for cleaner gasoline and diesel fuel.

Within the next 2 years, EPA will also be setting the same type of standards for non-road diesel engines, such as construction equipment, which are significant sources of air pollution that today are still largely uncontrolled. In the meantime, our voluntary diesel retrofit program encourages owners of diesel trucks, buses and nonroad engines to install modern pollution controls. Last year, we received commitments for about 70,000 diesel retrofits and by the end of this year, we plan to increase this number to 130,000 diesel retrofits.

Unfortunately, however, cleaner cars and cleaner fuels alone are not sufficient to achieve the kind of air quality improvements we need, in large part, as you've noted, because Americans today are driving more than ever. In 1970, collectively we drove about 1 trillion vehicle miles per year. By the year 2000, that number had jumped to almost 2.8 trillion, and as we all know, even much cleaner cars can contribute to air pollution.

Fortunately, Congress has recognized that a successful strategy for reducing emissions from mobile sources must include the vehicles we drive, the fuels we use, and the roads on which we travel. The two programs that have been created, conformity and CMAQ, are things that I think we believe should be looked at and improved if possible. But we think it's especially important to recognize that Congress created transportation conformity in order to coordinate transportation activity with air quality goals, there by requiring for the first time that State and local transportation and air quality officials work together.

There is widespread agreement among State and Federal officials that conformity has helped to maintain progress toward meeting air quality goals without compromising improvements in our transportation network. After over a decade of working with conformity issues, however, we recognize that the merging of two complex and lengthy processes, transportation planning and air quality planning, has created some concerns. And we are now working with the Department of Transportation to make conformity work better without weakening its contribution to air quality.

CMAQ, as you've mentioned, is another important tool for reducing mobile source emissions. CMAQ funds have helped to bring

bike lanes, transit systems and car pooling programs to communities struggling to meet air quality goals. Many of these projects have the added benefit of making communities more livable.

Despite CMAQ's benefits, there are some elements of the program that ought to be improved. Currently, CMAQ funding is allocated according to three factors: the number of carbon monoxide and 1-hour ozone non-attainment areas in the State, the severity of the pollution problem and the population within those areas. This system doesn't reflect the improvements we have made in reducing carbon monoxide pollution. Today, for example, there are only 13 areas in the country that are still in non-attainment for carbon monoxide.

It also does not reflect the importance of achieving new health based ozone and particulate matter standards. Although fine particulate matter is clearly the biggest health concern posed by air pollution, and is also clearly linked to motor vehicles, the current system does not specifically allocate CMAQ funding to address particulate matter improvement. In addition, regions that are able to make the leap from non-attainment to attainment receive considerably less funding from CMAQ. While it makes sense to provide less money to clean areas, the way in which this change currently occurs serves as a disincentive to cleaning up the air.

Our stakeholders have suggested a number of changes that may improve the CMAQ allocation process. For example, we've been asked to consider including the new fine particulate matter non-attainment areas and the new 8-hour ozone non-attainment areas in the funding formula. We've also been asked to consider changes to provide more stable funding for areas redesignated to attainment.

There are other improvements I know that we all ought to be talking about, and I look forward to working with this committee and with Mary Peters and her agency as we continue to work on how we can improve these important programs. Thank you.

Senator JEFFORDS. Thank you both for excellent statements. I want to assure you that we're going to be working very closely with you through the period of time when we prepare our bill.

Despite our progress on vehicle emissions technology, we are still having trouble attaining our national air quality standards. Estimates indicate that about 150 million people are currently breathing unhealthy air that's polluted by ozone and fine particulates. What is transportation's percentage contribute to the non-attainment problem? Either one or both.

Mr. HOLMSTEAD. I don't have the numbers at my fingertips. I do know that it's still significant. I believe the transportation sector accounts for roughly 50 percent of the NOX emissions and probably something upward of 50 percent of the carbon monoxide emissions. Its contribution to other problems is less than that, and its share of the pie is decreasing over time as the new standards come into place. But it certainly is fair to say that for many of the pollution problems that we face, the transportation sector is still a large portion of the problem, and in some cases, the biggest portion of the problem.

Senator JEFFORDS. I would appreciate if either or both of you would see if you can help us with answering that question.

Mr. HOLMSTEAD. We can provide exact numbers for you, yes.

Senator JEFFORDS. I would appreciate that. Thank you.

Ms. PETERS. Mr. Chairman, again, as Mr. Holmstead said, it varies depending on the type of pollutant. Approximately one-third of the ozone precursors on a regional scale are attributable to transportation sources, about 51 percent on CO. So it varies by the particular issue that we're dealing with. We would be happy, as Mr. Holmstead said, to follow up with you with specific details.

I would also take this opportunity to commend to you a very excellent book that was put together by staff on transportation and air quality that contains a number of selected facts and findings. We have worked very closely with EPA in producing this book.

Senator JEFFORDS. Of course, we'd be interested in the impact of the non-attainment, not just the emissions also, if you have data on that, we'd appreciate it.

According to a recent study by the Brookings Institution, public transportation produces a fraction of the pollution of private vehicles on a passenger per traveled mile basis. The study says it's about 95 percent less for carbon monoxide, 92 percent less for VOCs and 50 percent less for carbon dioxide. Have your agencies looked at the effectiveness of transit and other transportation control measures in reducing pollution?

Ms. PETERS. Mr. Chairman, yes, we have. And, as indicated earlier in my testimony, we've looked at both transportation control measures and demand management measures. While they have had some effectiveness in certain areas, and we absolutely want to continue to pursue transit as part of our transportation solutions, the benefits we get from some of those measures aren't as great as was mentioned in terms of overall emissions reductions. But clearly, they are important measures and ons, and considerations that we would suggest be considered.

Senator JEFFORDS. Mr. Holmstead, how important do you think transportation control measures will be in the future for achieving air quality goals?

Mr. HOLMSTEAD. Our sense is that they will continue to be important in certain areas of the country. As I think all of you have acknowledged, the contribution per vehicle mile traveled is much lower than it was even a few years ago, and will continue to get lower over time. The studies that we've seen, however, suggest that in specific areas transportation control measures will continue to be an important strategy for improving air quality. And collectively over time, they can make a significant difference.

Senator JEFFORDS. One of the problems we have heard about seems to be that States are not regularly revising or updating their SIPs. Is that truly a problem with the conformity process, and what should be done to correct it?

Mr. HOLMSTEAD. I think we all recognize that a better harmonization between the SIP process and the transportation planning process would be better. I think I agree with you that one of the things we ought to be considering is perhaps a more efficient way in which we update SIPs. SIPs, as you mentioned, tend to be a very long and cumbersome process, even more than transportation plans. And if there were ways that we could improve that process and make it happen more often, I think that would be an effective way to address some of these concerns.

Ms. PETERS. Mr. Chairman, I agree. I think the mismatch of the cycles sometimes causes planners to be focused more on process than on the outcome. The outcome ought to be good transportation plans that ensure good, healthy air quality in areas. I do commend the committee for conducting the survey that you did of the MPOs on a very bipartisan basis. I think it was important. The input that you got, as well as input that we received when we polled our district offices, indicates that getting those two cycles more in sync with each other can have benefits both in the quality of air quality plans and the quality of transportation plans.

Senator JEFFORDS. Thank you both. Senator Smith.

Senator SMITH. Thank you, Mr. Chairman.

I think this would be better for Administrator Peters, this question, but Mr. Holmstead, feel free to respond as well if you wish.

I talked about in the opening statement about the mismatch between the State implementation plans, conformity and transportation plans. It's a mess. I cited some of the letters. Let me just take a couple of excerpts from four cities, just to give you a feel for it, then I'd ask you to respond to it. This is Dallas. Generally more time is spent on replanning already approved plans than working on the implementation of specific projects. Denver, transportation and air quality agencies have had to expend an enormous amount of resources to coordinate the inconsistent federally mandated schedules. Houston, the overabundance of conformity triggers means that planning organizations are frequently performing conformity demonstrations with limited corresponding benefit. And L.A., a real potential exists for conformity lapse due to the mismatch of air quality and transportation planning schedules.

Just address for me if you would your concerns about this rigid conformity process and the effect it's having on transportation planning.

Ms. PETERS. I will, Mr. Chairman, and Senator, I will do that. As indicated in your survey and also a survey that we conducted of our division offices, we believed that we could do a much better job of transportation planning if those two processes were in sync. To share with you one of the comments that I received from our division offices, MPOs are forced to produce updates that simply push the planning horizon out and determine conformity to avoid a lapse, but don't address, as fully as we would like, other planning issues. They attribute this to simply chasing a conformity clock. Planners want to do a good job of ensuring that a region's transportation plans are comprehensive and deal with that area's needs on a very substantial basis. Of course, needs can differ from one area of the country to another. Or their desires can differ from one area of the country to another.

But clearly, healthy air is equally important. Having those two processes more in sync would allow, for example, very substantive public comment to be taken into account and incorporated into planning revisions. Whereas today, sometimes there simply isn't time to do that, because the conformity lapse would kick in. So, there again, chasing a conformity clock was the phrase that was used by some of the respondents.

Senator SMITH. Specifically, what flexibility do you have in invoking the penalty, if you will, of a conformity lapse?

Ms. PETERS. Sir, we do not have flexibility in invoking the penalty for a conformity lapse.

Senator SMITH. None whatsoever?

Ms. PETERS. No, sir.

Senator SMITH. Mr. Holmstead, you saw the chart that I put up in my opening remarks. Would you agree that the projections that I put up there are significant change that should warrant some adjustment in the transportation conformity framework?

Mr. HOLMSTEAD. I do agree with that.

Senator SMITH. As we move into the out years, the decline is even sharper.

Mr. HOLMSTEAD. Yes, I do agree with that. As I said, I think that that chart is quite striking. We ought to be acknowledging that the contribution of the transportation sector to air quality problems is decreasing over time.

I think it's important, and I think virtually everyone agrees, that the transportation conformity program has been a good thing, and that really for the first time, it required transportation planners and air quality planners to work together. I think what we all want to do is preserve the benefits of that sort of coordinated process while eliminating some of the problems that have been identified by you and Chairman Jeffords and others.

Senator SMITH. Could either of you give me an indication, as a follow-up to the previous question to you, Administrator Peters, what flexibility would you like to have, if we could do it legislatively, what would you like to have?

Ms. PETERS. Mr. Chairman and Senator Smith, and please know that I haven't discussed this with Secretary Mineta, but I think the flexibility that we would like to have goes to the point that you made, and I spoke to earlier as well. Models are very good, but they simply predict future results. Today's models require us to use something that can't be precise, because we're projecting into the future, to determine very precise levels of emissions into the future, and therefore conformity. I think some latitude in making that determination that would recognize the variability in the models might be beneficial, and that's certainly something some of our customers have related to.

Senator SMITH. Thank you very much. Thank you, Mr. Chairman.

Senator JEFFORDS. Senator Voinovich.

Senator VOINOVICH. Ms. Peters, the Transportation Research Board's assessed that the CMAQ program concluded that projects designed to change travel behavior may have been less successful than other CMAQ programs, such as inspection and maintenance. Can you comment at all on that, or some of the conclusions that came out of that report?

Ms. PETERS. Senator, I can. As the report indicated, while these measures were not ineffective, they were less effective on a cost benefit analysis, if you will, than programs that deal with emissions issues in a larger sense. Emissions control programs seem to be where we have achieved the best benefit. Some of those, such as emissions inspection programs, have been very, very effective in reducing emissions.

As Mr. Holmstead indicated, and the data shows, the fleet has become much cleaner, the fuels have become much cleaner. So transportation demand management programs or control measures have been less effective, not ineffective, but less effective than wider spread emission control programs.

Senator VOINOVICH. With the crisis that we have with our Federal budget, I would really be interested in having you folks come back and look at these programs in terms of their cost effectiveness, to give us some direction in terms of what we ought to be doing with this next budget that we're putting together. Everybody's calling for more money. And I'm not going to go into details with some of the CMAQ projects I know about. But a lot of them have helped subsidize some projects that one has to really question as to what impact are they really having on reducing the emissions that we're concerned about.

So I think that somebody ought to really look at those. As I say, too often, some of them get pulled off into other areas where they end up being, helping a project to be undertaken rather than having, the impact that it's having on reducing emissions is very little.

In reading the testimony of Mr. Stephenson, we learned that a study by the American Road and Transportation Builders Association estimates that $1.3 billion worth of highway projects were canceled or delayed in 2000 due to transportation conformity problems. Do you think that figure is accurate?

Ms. PETERS. Mr. Chairman, Senator, I don't know the basis for the figure, but it would seem to be reasonable to me.

Senator VOINOVICH. We had a real problem here about 2 years ago, I think, in terms of with the new emission standards coming out and the conformity. There were many projects that, well, a lawsuit was filed, and because States' SIPs were not in conformity, many projects were delayed. Do you have any information on where we are with that today? I guess the EPA did not come out with the new, with a map of the non-attainment areas based on the proposed ozone and particulate standards, and that that may have had something to do with changing that situation.

But I think it was a year or 2 years ago, there was widespread concern all over the country that many highway projects were going to be held in abeyance because of the fact that the State's SIP was not in conformity with what it should be, or their transportation was not in conformity with their SIP. Could you tell us where we're at?

Mr. HOLMSTEAD. I know that there were some concerns expressed about that. I think that those were largely, in fact, I think they were completely addressed by the agency. There is some concern in the future about the implications for conformity. As you know, Senator, we have not yet designated areas as either attainment or non-attainment under the new standards. We expect to do that fairly soon. But once that happens, then there is a need to do a conformity analysis, I think within a year afterwards. That's something that we're working on internally, we think it's something we can probably address administratively, to provide newly designated areas with the kind of flexibility that they'll want. But I do think that that continues to be an issue, once we newly designate these non-attainment areas.

Senator VOINOVICH. I'd like to be updated on it. Because if we're going to have the problem forthcoming, there may be something we can do in drafting this reauthorization that would respond to that particular problem. I understand that you're going to be designating more of your rural areas, in your testimony, small urban and rural areas may be designated non-attainment for the first time. What do you anticipate in terms of their compliance and the impact it's going to have on those areas?

Ms. PETERS. Senator, we do realize that when the new standards take effect, and as Mr. Holmstead indicated, the areas would then have 1 year to demonstrate conformity. We are working with, and look forward to continue working with, EPA as we approach reauthorization, and hope to jointly bring you some solutions or some suggestions in terms of the Administration's reauthorization proposal.

Senator VOINOVICH. The last thing I'd like to say is, I go to these hearings and in my opening statement, I mentioned that there are some significant reductions that we've had in Ohio as a result of our efforts. I might just mention for the benefit of the chairman that, we always just talk about our power plants. But we've made significant reduction in other things that contribute to ozone that, you know, some contend float in the direction of the Senator's State and others.

But I'd like to, and maybe, Mr. Holmstead, you can provide us with a big picture about where are we in the country in terms of reducing pollution from various sources, and what challenges remain? What basically are the sources of those challenges? I think we have something about transportation is contributing about 50 percent of the NOX problem that we have in the country. Obviously we've made some real progress, I guess, in transportation and NOX reductions, haven't we? And in other areas we haven't done as well. And the same way with carbon monoxide.

I think too often we just talk about that we have a major problem. But I think it's important that we know where we are, kind of a benchmark figure that I'd like to have, and I think it would be very, very helpful to this committee to really get a sense of where are we today in terms of the issue, what progress have we made and where are the areas that really need to continue to be addressed. So often, again, we have this tendency to, an issue comes up and you go in that direction, and then you're over here. When you look over here, you say, gee, that's even a much worse problem, but we're spending all of our time dealing with this one.

Mr. HOLMSTEAD. If I can just quickly address that, and we'll provide something for the record that I think will be of more use to you, every year the Agency does what we call an emissions trends report that provides in some detail information about the progress that we've made. And it gets relatively little attention, because it's good news. And it shows that air quality has improved in the country pretty dramatically since 1970. And we've had enormous economic growth, we've had a significant increase in population, we've had almost a threefold increase in vehicle miles traveled. And over that same time period, we have reduced aggregate emissions of the major pollutants, and we can say definitively that air quality is

better in virtually all parts of the country. We're trying to do a better job of helping people to understand that.

I think, and this is not meant to be a criticism of the media, but they tend to pay more attention to problems than they do to things that have gotten better over the years. But I think your point is very well taken.

I would say, though, that there are some major challenges that still lie ahead. As you and I have discussed, and the chairman and I have discussed, notwithstanding the improvements that have been made, pollution from power plants continues to be the biggest single source of air pollution in the country. Probably the second most important contribution has to do with emissions from nonroad diesel engines, something that we also are going to be addressing with a regulatory proposal in the next, probably in the next 6 months or so.

I think as you mentioned, NOX emissions from the transportation sector in particular, and diesel emissions, I'm sorry, particulate emissions from diesels, continues to be an issue. And the CMAQ program, in particular, I think, has been very helpful and can be helpful in addressing those problems. Everyone has examples of CMAQ programs that may be somewhat questionable. One of the things I think we've found is that it funds a wide variety of programs and allows people to look for innovative ideas. Some of the funding that has been used, for instance, for diesel retrofits, has been enormously successful and I think in terms of cost benefit analysis, would be very cost beneficial compared to many, many other strategies. So I think there is an important role for that program in helping us to address the continuing issues that we face.

Ms. PETERS. Mr. Chairman and Senator, if I could just briefly add, and I think Mr. Holmstead did a good job of outlining the issue, but really, using data I think helps us tremendously. Our collective challenge is not to let drop any of the progress that we have made in a number of areas, but let the data drive us where we have the best opportunity to make significant improvements. One of those areas that was mentioned was off-road mobile sources.

As you know, I was the director of the Arizona Department of Transportation prior to having the opportunity to have this job. It was very important to me, particularly in the urban area, because we had a number of projects ongoing, not transportation projects only, but a lot of building projects. Off-road mobile source was of particular importance to me in that area in trying to reach conformity. I think that using the data to drive us where we have the best opportunity for solutions is important.

Senator JEFFORDS. Thank you, Senator. Excellent questions. We appreciate it very much.

Ms. Peters, has any area lost their transportation funding due to conformity lapse?

Ms. PETERS. Sir, they have not lost their funding, Mr. Chairman, per se. They have, however, had to divert funding to different sources. States are very ingenious and very infrequently do they let funds lapse. But they have had to divert funds from planned projects to different projects because of conformity lapses.

Senator JEFFORDS. Mr. Holmstead, what is the Agency's schedule for making the new designations under the revised ozone and the fine particulate matter standards?

Mr. HOLMSTEAD. At present, we face a bit of a quandary. And it's related to the issue that we've been talking about here where there's not harmonization between the transportation planning process and the SIP planning process. Even within our own SIP planning process we have a challenge, and that is, because of the way the Clean Air Act works, we are under an obligation to do non-attainment designations for the new 8-hour ozone standard in the fairly near future. We have to go through a rulemaking, we hope to be able to do that and begin designations perhaps in 2003. But then we're not even allowed to do designations for the new PM–2.5 standard until 2004. And one of the things that we may be approaching the committee about is seeing whether there is a way that we can harmonize the designation dates, so that air quality planners can look at both ozone and PM–2.5 at the same time.

So the short answer to your question is, we are required to begin doing designations for 8-hour ozone in the very near future. There is still some debate about exactly when that is, perhaps as early as 2003. And yet we're not even allowed to do designations for PM–2.5 until 2004 and perhaps later. If we could figure out a way to make those designations all at the same time, so that State air quality planners could plan for both at the same time, we think that would be a useful thing.

Senator JEFFORDS. We will work with you on that. Thank you.

Ms. Peters, the average CMAQ obligation rate for States has been under 80 percent over the course of ISTEA and TEA–21. How can we expand the rate so that States are making better use of it? Like Connecticut with its laudable 94 percent obligation rate, should we sub-allocate these directly to MPOs in non-attainment areas to make sure that these funds are spent expeditiously? And should we protect the CMAQ program during the annual obligation limit distribution through proportional obligations?

Ms. PETERS. Senator, I think that our data indicates, at least in terms of TEA–21, that the CMAQ program has a slightly lower rate of usage than conventional Federal aid. Our data indicates that through 2001, approximately 80 percent of all CMAQ program funds were obligated. This is versus the total rate for the entire Federal-aid program of approximately 90 percent. And we are seeing the obligation rate for the CMAQ program continue to increase and, importantly, no CMAQ funds have lapsed. I think that's a very important consideration in the program.

In terms of sub-allocation, sir, as I have testified to before you on various occasions, my preference is to have less strings attached to the Federal dollars that go back to the States and local governments and more flexibility to use those dollars. So, while I would prefer to defer to our reauthorization proposal in terms of any further sub-allocation, let me say that I think the best transportation plans are developed in concert with State and local governments.

Senator JEFFORDS. To both of you, as you know, greenhouse gas emissions from the transportation sector account for about one-third of the U.S. total, or close to 8 percent of the world's total.

What are your agencies projecting for these emissions into the future, and how are we going to control them?

Mr. HOLMSTEAD. I'll have to respond to that question for the record. I know that we do have estimates of that, of what we're projecting over time those emissions will be. I can tell you that we are actually doing a number of things to address those. Within our transportation office, we have a number of programs that have been quite successful in trying to encourage things like commuter choice. We have a program that we work with Mary Peters' office on that encourages companies to provide a full range of commuter benefits to their employees to encourage things like mass transit and ride share and a number of other voluntary, non-regulatory programs that we think can help in that area. I would be happy to provide you with a more detailed list of all of those programs. But it's actually quite a substantial sweep of non-regulatory programs that we're implementing right now.

Ms. PETERS. Mr. Chairman, I would also prefer to respond in more detail in a question for the record. But, we are very actively working with EPA on programs about commuter choice and encouraging, through public education programs, things like trip chaining and other things. We are trying to get people to understand that cold starts are more detrimental than if they are able to chain trips together, so that they're making a consistent set of trips and then coming back home, as opposed to going home, stopping, coming back again. But again, we would provide a more comprehensive answer for the record.

Senator JEFFORDS. Thank you. Senator Voinovich?

Senator VOINOVICH. Getting back to this issue of the reductions that have occurred, it would be interesting also to know what contributed most to the reductions. And that is, for example, we're anticipating some significant reductions because you required that sulfur be removed from gasoline. And it looks like a big thing. The auto industry has done some great things with catalytic converters and all the other stuff that they have.

Then as we look down the road, we talk about fuel cells and the impact that they're going to have. I think that kind of information also would be valuable to us as decisionmakers on where we're going and what we're requiring to be done, and again, where we're going to be allocating our resources. I have to believe that my grandchildren, maybe my children, we may not be using oil, we may be using other sources of—I know we will, because it's coming, it's coming down the pike. It's like we have this Bjorn Lomborg, who's done a big book on the whole issue of greenhouse gases, and talking about allocation of resources and if we put all the money to comply with, say, Kyoto, going back to 1990 in terms of what Kyoto would require, that the cost of that would be astronomical, and that money would be better spent in the area of technology, for example, clean coal technology, that could be used to reduce pollutants and be sold overseas or given away. Then he talks about the money that could be made available also for Third World nations that are going to be most impacted negatively by greenhouse gases in terms of water and sewage and education and health care.

I think we don't do enough of that in terms of big picture things. And I'd really be interested, what made the big differences in terms

of reducing pollution? The Clean Air Act, obviously, and I know the acid rain provisions of the Clean Air Act, other things. Where have we really been getting the biggest bang for our buck or getting the biggest return on legislation that we've passed around here?

Mr. HOLMSTEAD. I can address, I think, that general question. And I think the first thing to say is, we all just need to recognize the remarkable technological advances that have been made over the last 30 years, spurred in large part by the Clean Air Act. Senator Bond I think wasn't quite right when he said cars are 100 percent cleaner than they were in the 1970's, but by the time this next round of emissions standards comes into place, cars will be 99 percent cleaner for hydrocarbons and 98 percent cleaner for NOX. And that sort of advance is just pretty remarkable.

Then if you look beginning in 2007, diesel engines will be 95 percent cleaner for NOX and 90 percent cleaner for particles. Probably the biggest advances that we've made in improving air quality have been from improvements in technology. And I, like you, am optimistic that we will continue to see those advances, whether fuel cells will be the answer or something else. But I'm convinced, and I think all of us who work in this area have been just really impressed at the innovation that can be spurred by legislative changes and regulatory changes, and in the transportation sector. I mean, if you look at the significant improvements that we've gotten over time in cleaning up our air, most of that is attributable to the transportation sector, and most of that is attributable to advances in things like catalytic converters, cleaner fuels. The fuel industry has done its part by initially getting lead out of gasoline to enable the use of catalytic converters, and more recently by reducing the sulfur levels.

But it really is quite a success story, and we'd be happy to provide you more information on that.

Senator VOINOVICH. One last thing, and that is the issue of diesel fuel. The Europeans really use a lot of diesel fuel. It's my understanding that in terms of miles per gallon you get a tremendous amount more out of diesel than you do out of our gasoline. The tradeoffs that are there, I understand if you use diesel you've got more pollutants, but you get better gas milage. I still can't understand why more of our auto companies aren't producing more diesel powered vehicles, especially since there has been some significant improvement in diesel fuel.

Any comment on that?

Mr. HOLMSTEAD. I think the people who have looked at this issue believe that the biggest reason the Europeans have so much more usage than we do of diesel fuel is the differential in the price of fuel. The fact that the taxes are so much higher on fuel in Europe means that, I believe that fuel prices are about twice as high. So they have a very strong economic incentive to use more fuel efficient vehicles. And as you mentioned, diesel is much more efficient in terms of providing power for transportation.

We believe at EPA that we will see significant increases in diesel fueled vehicles over the coming years. I've mentioned a couple of times the Tier 2 rule, it will actually for the first time require diesel powered vehicles and gasoline powered vehicles to meet the same emissions standards. So beginning in model year 2004, the

technology will be available, partly because of the cleaner fuel and partly because of advances in hardware on cars and trucks. But there will be technology available to allow diesels to be basically as clean as cars, or as gasoline powered vehicles.

Our hope is that the combination, once people understand that diesels are not dirtier, that they can be as environmentally clean as other vehicles, that we will see significant increases in the amount of diesel used, and again largely because of the fact that you can get increased fuel efficiency from diesels as compared to gasoline powered vehicles.

Senator JEFFORDS. It sounds very interesting. Thank you. Good question.

Thank you. I have some additional questions for you in writing, as you know, but we want to get on to the next panel. Thank you very much for very helpful testimony, and we look forward to working with you.

Thank you. I want to welcome the next panel. We have a very interesting group of individuals who will help us understand better the problems that we face.

We have the Honorable Scott Johnstone, Secretary of the Vermont Agency of Natural Resources. We're pleased to have you here from Waterbury, Vermont. The Honorable Ron Harris, the County Judge from Collin County, Texas. Lynn Terry, the Deputy Executive Officer of the California Air Resources Board from Sacramento, California. James Stephenson, President of Yancy Brothers Company, Atlanta, Georgia, on behalf of the American Road and Transportation Builders Association. And Michael Replogle, the Transportation Director of the Environmental Defense Fund, Washington, DC. Good to see you as well.

Scott, please proceed.

STATEMENT OF HON. SCOTT JOHNSTONE, SECRETARY, VERMONT AGENCY OF NATURAL RESOURCES

Mr. JOHNSTONE. Thank you for this opportunity to appear before this committee to offer comments on the relationship between transportation and air quality, and particularly on the congestion mitigation and air quality program.

Vermont, the Green Mountain State, is known for its lush green hills, maple syrup, autumn colors and beautiful lakes. Less known is the fact that Vermont does suffer adverse effects from air pollution. While we are the only State in the northeast which is in attainment for all of the health based criteria pollutants regulated under the Federal Clean Air Act, the health of Vermont citizens and our environment are adversely affected by air pollution. Indeed, Vermont has long suffered disproportionately from the impacts of acid rain and regional haze.

We are also concerned about public exposure to toxic emissions and about global issues such as the depletion of the ozone layer and climate change. Many of these threats have a direct link to vehicular emissions that can be addressed through reauthorization.

Surface transportation remains the largest in-State source of air pollution in Vermont. On a per capita basis, Vermonters drive more miles in a year than residents in 39 other U.S. States. Besides the criteria pollutants, such as ozone, that CMAQ has focused on in the

past, other air pollution problems need to be addressed, such as fine particulate matter, toxics and greenhouse gases. Air toxics contribute significantly to the formation of ground level ozone, and in Vermont, represent the area of air quality where we do not meet some of our own air quality standards. Greenhouse gases contribute significantly to overall air pollution problems and to climate change.

The importance that our State places on the control of dangerous motor vehicle emissions is reflected in the number of control programs we have put in place over the past decade that go beyond the Federal minimum requirements. For example, Vermont is one of only four States in the U.S. to voluntarily adopt the California low emission vehicle program in lieu of the Federal Motor Vehicle Standards, including the zero emission vehicle sales mandate. To support this regulatory program the State created E-Vermont to promote the development and deployment of advanced electric vehicles.

CMAQ funds have been of great assistance to Vermont and other States in the region. Over the life of TEA–21, CMAQ has been funded at approximately 4 percent of the total Federal surface transportation program. Given the air quality impacts of surface transportation and the fact that it is the only transportation program designed to reduce air pollution, CMAQ should not only be reauthorized, it should be expanded to represent a larger percentage of the overall transportation budget.

While the CMAQ program was conceived to address both congestion and air quality, great weight has been and should continue to be given to air quality improvement goals. The transfer of CMAQ funds to non-air quality uses as currently allowed should be examined so that the air quality improvement goal may be met. Further, the CMAQ allotment scheme should be modified to provide weight to factors such as high per capita vehicle miles traveled, areas that are in attainment but at risk of slipping into non-attainment due to mobile source emissions, and areas with disproportionately high percentage of emissions from mobile sources.

A reauthorization bill should require CMAQ to consider fine particulate matter, air toxics and greenhouse gases in both allocation and eligibility. Greenhouse gas reduction goals and incentives could also be incorporated into reauthorization by tracking the vehicle miles traveled of all major transportation projects and by providing incentives for transportation projects which promote smart growth and reductions of greenhouse gas emissions and vehicle miles traveled.

The committee should also consider the inclusion of programs to reduce particulate and toxic pollution from diesel powered vehicles in the CMAQ program. Reducing diesel emissions is of critical importance to protect public health. Diesel school buses, non-road equipment, trucks and transit buses emit particulates and other toxics in close proximity to children, workers and the public. As these engines last as long as 30 years, progress in cleanup that relies on normal fleet transition will be slow. Thus, consideration should be given to include a mechanism in CMAQ that encourages transit agencies and school districts to replace or retrofit their bus fleets with clean buses.

I suggest the committee also look at the broader funding system for transportation projects. Much of our air quality and congestion problems come from the very poor use of land that has come to pass over the past decades, the practice we now call sprawl. I suggest to you that in part, it has come about due to our method of funding transportation projects. Communities do look at funding sources in designing their land use systems. We ought not be surprised that strip zoning and sprawling development is most often associated with the highways eligible for State and Federal funding. What occurs is sprawl, and the transportation cure, little to no local cost to fix the problem by increasing lanes or building new highways.

I suggest you consider what would occur if we provide incentives instead for grid patterns and public transit. I believe the result would be better land use, less congestion, better air quality and ultimately smarter growth. The use of CMAQ funds should be encouraged for programs which simply make sense, regardless of an area's attainment status. One such program is vehicle onboard diagnostic system inspection and maintenance. Such a program is cost effective and relatively simply to implement as it relies on technology already installed in the vehicle, as opposed to requiring expensive investments in emissions testing and equipment.

In closing, in Vermont as elsewhere, CMAQ has encouraged environmental and transportation agencies to talk, to plan and to work with each other. It is a program that has helped achieve important progress in the fight against air pollution. But much remains to be done and CMAQ must be updated to reflect our evolving understanding of the real risks society faces from vehicle related air pollution. Vermont's environmental future and the health of our citizens requires such attention.

Thank you for this opportunity to testify.

Senator JEFFORDS. Thank you very much.

Ron?

STATEMENT HON. RON HARRIS, COUNTY JUDGE, COLLIN COUNTY, TEXAS

Judge HARRIS. Thank you. I am very pleased, quite frankly, to sit in and listen to some of the comments that have been made this morning from an elected official's viewpoint. Because we sometimes feel that we're abandoned out there at the local level, because things get too weighty and bureaucratic in trying to accomplish these goals. But it sounds like this committee, and certainly from the testimony we've heard this morning, are headed in our direction to clean up the air and provide good mobility.

And with that, a lot of my speech was taken away, which should be good news. But certainly, what Mr. Holmstead indicated this morning, as well as Ms. Peters, pretty well reflects the concerns of North Texas, and indeed, the State of Texas, as we attempt to clean up our air. We are very aggressively working as a result certainly of the leadership of our last legislature group of individual cities and counties that represent 37 of our counties, which indeed represents 67 percent of the population, 71 percent of the jobs in Texas, called the Texas Clean Air Working Group, where we brought people in from TexDOT, the EPA and the Texas Natural

Resources Conservation Commission, to study how we're all working toward using congestion mitigation air quality funds, and how we can learn from each other and through partnerships. It is really with the lead of Greg Cook, who's our regional EPA administrator, that has encouraged a lot of us to work on these.

I would encourage you, as you put this together, to find ways to create these partnerships. Because people tend to like to work together more than they do to feel someone up on high is pushing something, and the natural urge, I think, not being a psychologist, but only as an individual is to react, to push back. I think the efforts of CMAQ have really been a significant help to us in the north Texas area in particular with our HOV lanes, which are some of the highest used in the State, and I think even in the Nation. Signalization, which is one of my pet peeves and I'm sure yours too, sitting what is really probably a matter of 45 seconds at a stop light, but to you and me, that's 10 to 15 minutes of our lives that we feel is wasted.

Certainly in working with free right turns, bus lanes, these are pieces that really can continue to help in air quality performance. We've also, with the CMAQ funds, used them in what certainly we've seen in visiting California and some of their really good programs as well as Atlanta, Georgia, on motorist assistance. Truly 80 percent of our incidents on the roads that cause tremendous rubberneckers and slowdowns are secondary incidents to the first accident or overheated vehicle. In our area, again, the North Texas Turnpike Authority, the Dallas Area Regional Transit Authority, TexDOT, and our MPO have worked together to make this work.

Another piece that would really be of significant help in technology would be encouraging intelligent transportation systems on our roadways and coordinating multiple jurisdictions. We have, like many cities and counties across the Nation, multiple cities who, as I refer to when I talk about the courthouse, are like herding butterflies, that they're all beautiful in their own sight. But it's very difficult to control them as they go.

The EDS commercial on cats during the Super Bowl is a very good example, sometimes, of coordinating local government. They're all trying to serve their citizens, but they have some difficulty in working together, which we're very fortunate, certainly, in Collin County, that we have these partnerships and that they do move us forward without that. North Texas would not have been able to come up with our State implementation plan that we indeed came up with.

We would encourage whatever you can do to focus more assistance on cleaning up the off-road equipment. I think that will be through technology and I think it will be through lower sulfur diesel, if you can move that forward. We would also suggest an assistance, and maybe through CMAQ funds, to do what the Texas legislature has started, and we have to come back for more funding, because their source got ruled unconstitutional, as it has in five States, for incentives to retrofit diesels. I know my own brother-in-law is in the diesel business in dirt moving, and I daresay his equipment is probably approaching 20 or 30 years old. When it breaks down, he simply goes in and does a lot of work that I don't think I would care to do, but that's his company. And I think if we

can make incentives to the small business people, I think the big ones will turn over their fleets, and certainly if these new equipment standards come down, they will hit that.

Conformity, as you have heard, is a very big issue. It's consistent with the testimony you've already heard.

With that, I do appreciate being invited to come down, I consider it an honor and hope that we can work together with you and your staffs to continue to clean up the air and provide mobility. Thank you.

Senator JEFFORDS. Thank you. We appreciate your being here and working with you.

Lynn?

STATEMENT OF LYNN TERRY, DEPUTY EXECUTIVE OFFICER, CALIFORNIA AIR RESOURCES BOARD

Ms. TERRY. Good morning. And it really is morning in California.

Thank you for the opportunity to comment on California's experience in integrating air quality and transportation planning. Over the years, we have been able to meet the Clean Air Act transportation conformity requirements through a cooperative effort with local, State, Federal agencies. At the same time, we are encountering some process challenges that do need to be addressed. We look at this issue in the context of our overall air quality program in California, which now includes global warming gases due to some recent legislation signed by the Governor.

The concept of transportation conformity is a simple one. Air pollutant emissions from the transportation sector must be consistent with air quality plans. This is critical to ensure that health based standards are met in the required timeframes. The process itself requires looking at emissions today as well as in the future. This is necessary to make sure that we continue clean air progress into the future as our population and economy grows.

Over the last 20 years, reducing air pollution from the transportation sector has been essential to California's dramatic process in improving air quality in the Los Angeles region, historically the Nation's smoggiest region. As discussed earlier, for transportation that progress has been largely due to cleaner vehicle technology. A new car in 2010 will omit only one-tenth the ozone forming pollution of even a 1990 model vehicle. As a result, transportation control measures that reduce travel have shown less benefit than anticipated.

Also, there is little flexibility for transportation agencies in terms of implementing transportation control measures once they are in an air quality plan. This discourages innovation because new, more effective measures can't replace a measure that appears to be infeasible. In terms of complying with the conformity requirements, we believe the focus should be on emission reduction goals, rather than the implementation of specific transportation control measures.

In addition to TCMs, another important mechanism to address air pollution is CMAQ. We strongly support these funds as a way for transportation agencies to provide significant emission reductions in a cost effective way. There are many cleaner technologies,

diesel has been widely discussed that can be funded to reduce both ozone and particulate pollution from the transportation sector.

For us, the most difficult problem with the current conformity process is the inability to take new information into account in a workable way. SIPs must define the emission target needed to achieve clean air as defined by the national ambient air quality standards. That emission target is based on the state of the science at the time the air quality plan is done. Once approved by EPA, the SIP is the federally enforceable benchmark for conformity.

There is no requirement to update a SIP prior to the deadline for meeting air quality standards. On the other hand, transportation plans are routinely updated and as a practical matter, changes in individual transportation projects in major urban areas are frequently proposed. These changes typically trigger a process that requires new information to be used in the conformity analysis. When the SIP has not been updated with that same information, the inherent consistency can derail the process.

In California, we face this issue virtually statewide in urban areas. As a result, we will be revising 23 SIPs over the next year or so. And while this will put us back on a consistent process track in the near term, it's a major undertaking that in itself doesn't provide air quality benefits. What we want to avoid in the future is the triggering of comprehensive SIP revisions each time new information becomes available. Under today's rules, this is the only way to avoid conformity problems as the science improves.

We believe it is more appropriate to comprehensively revise air quality plans when the underlying facts have changed so substantially that the approach to meeting air quality standards needs to be revised. Otherwise, we need an option of a streamlined mechanism to respond to new information.

For example, a streamlined mechanism could make sense when a region is close to meeting a standard, when emissions are declining and when all the measures in the SIP are being implemented. In this type of transitional situation, a reconciliation of old and new vehicle emission estimates would make more sense than a comprehensive plan update.

For regions that have a long way to go to meet air quality standards, more frequent SIP updates are clearly needed. For example, we recognize the air quality plan for the Los Angeles region needs a comprehensive update, and that is in progress. A number of new studies are available, including improved data related to motor vehicle emissions and travel. From a process standpoint, what these situations demand is an ability to link timing and transportation plans and conformity with the completion of new SIPs.

In conclusion, California is pursuing statewide SIP revisions as a means to provide the necessary consistency between air quality and transportation plans. But we want to use our resources effectively to protect both our Federal transportation dollars and the integrity of our clean air plans. We believe that with some focused process changes, we can accomplish both.

Thank you for the opportunity to be here today.

Senator JEFFORDS. Thank you.

James?

STATEMENT OF JAMES STEPHENSON, PRESIDENT, YANCY BROTHERS COMPANY

Mr. STEPHENSON. Thank you, Mr. Chairman.

Conformity is an issue I have taken a very personal role in as a board member of the Georgia Regional Transportation Authority, which was established in 1999 to tackle Georgia's massive conformity problems. Our current regional transportation plan calls for congestion to get 30 percent worse as we invest $36 billion over the next 25 years. We're going to spend $36 billion to lose that game.

This conformity issue is of utmost importance to ARTBA, which has spent significant resources over the past 3 years helping Government agencies to defend their planning process in court. As you know, the transportation sector is really the only sector that pays a price when an area is not meeting air quality standards. Mr. Chairman, there is no doubt that we've made great progress over the past 30 years in improving the Nation's air quality. Most of the success has been achieved from the transportation sector in spite of a very large increase in vehicle miles traveled. This came not from transportation control measures, but through technology advancements in better engines and better fuels.

In Atlanta alone, we added a million people in the last 10 years with their cars. We went from 3 million to 4 million people. Yet we reduced air pollution over that time.

Mr. Chairman, when the Clean Air Act amendments of 1990 were enacted, they were based on a mistaken premise that increases in vehicle miles traveled would overwhelm the emissions reduction capacity of technology advances. Quite the opposite has happened. One of the programs that was based on this mistaken premise is CMAQ. Most CMAQ funded programs have not yielded significant emissions reductions. We need accountability built into this program. Please spent the money on activities that produce quantifiable results.

The conformity process was based on the same mistaken premise. There are two things I hope you take from this hearing today, one, that Government agencies must have more flexibility in administering the conformity process; and two, the public needs more predictability in the planning process. One of the major problems with the conformity process is that people have tried to turn it into an exact science when it is anything but. Conformity lapses don't occur due to severe clean air problems. They occur because of missed deadlines and paperwork problems. The conformity process has become more of a game of "gotcha" rather than engaging the public in true transportation planning.

One court decision striking down the longstanding practice of grandfathering had a devastating impact in my home town of Atlanta. At the time of the decision, Atlanta was in a conformity lapse, and 54 of 71 major priority projects that had been vetted through years of planning were put on hold.

Mr. Chairman, while many of the professional environmental groups talk about wanting a more inclusive transportation planning process, the facts are really quite different. Since ARTBA started its litigation alliance to help defend the planning process, the Sierra Club and many of its colleague organizations have fought relentlessly to keep ARTBA out of the process. The truth is

that these organizations do not want an inclusive process. They want to trump the planning process through court proceedings where they and they alone can drive the process. When the planning process is allowed to be hijacked by any one individual viewpoint, bad decisions result.

Please don't forget, delays in transportation improvement projects have tragic consequences. Forty-two thousand people are killed each year on our Nation's highways, 15,000 of these due to substandard roadway conditions, obsolete designs, or roadway hazards. Delay is not harmless, delay kills.

Delays also have other costs as well. Besides increased congestion, when an area is in a conformity laps, it can be sanctioned with a loss of Federal highway and transit moneys. This happened in Atlanta for about a year and a half. Rather than penalizing areas that failed to meet air quality standards, Congress should consider rewarding those communities that make the greatest progress in cleaning their air. Using sanctions that cutoff badly needed transportation improvement funds only exacerbates the problem, resulting in increased congestion and worsened air quality. Couldn't we try using a carrot instead of a stick?

Finally, Mr. Chairman, we are headed for another conformity train wreck when EPA implements its new, tighter standards for ozone and particulate matter. Several hundred counties are going to get an expensive education in court in the conformity process.

Mr. Chairman, I have included more detailed comments, as well as some proposed legislative fixes in my written testimony. I look forward to any questions you may have.

Senator JEFFORDS. Thank you.

Michael?

STATEMENT OF MICHAEL REPLOGLE, TRANSPORTATION DIRECTOR, ENVIRONMENTAL DEFENSE

Mr. REPLOGLE. Good morning, Mr. Chairman and members of the committee. Thank you for the opportunity to appear today. I'm Michael Replogle, Transportation Director of Environmental Defense. I'm testifying today also on behalf of Sierra Club and the Surface Transportation Policy Project.

Vehicles account for a large share of the air pollution that kills tens of thousands of Americans each year and injures millions. Pollution cuts from cleaner cars have been in part offset by growth in driving. Over 160 million Americans still live in areas with poor air quality, 14 million with asthma gasp for air when ozone levels rise. Those living near big roads can face cancer risks as high as 1 in 500 from air toxics. And transportation greenhouse emissions are up 9 percent since 1990.

DOT estimates the health effects of air pollution costs us $40 billion to $65 billion a year, dwarfing the $27 billion in Federal transportation spending. This hidden tax of over $600 a year per household falls most heavily on our children, elders and infirm. Responding to the failures of air quality controls between 1970 and 1990, Congress required transportation decisions to conform with SIPs. This has improved air quality accounting and spurred investments in cleaner fuels, vehicles and maintenance, transportation choices and smart growth that cuts traffic and pollution.

But conformity has only just gotten into gear since many ozone attainment SIPs were adopted only last year. Failure of transportation plans to comply with SIPs is why most areas failed to meet ozone standards in 1987. Many areas again failed to attain by 1999, because vehicle emissions weren't cut to levels needed for attainment. While conformity is working, it faces challenges that could again cause SIPs to fail. Congress should require the use of best modeling practices to estimate future travel and emissions with clear DOT and EPA responsibilities to identify best practices, audit regional models and when timely, correction of deficiencies in these accounting systems.

Congress should fund enhanced data collection, evaluation and analysis methods and create a transportation environmental research program. CMAQ should be reauthorized at a much higher level, recognizing the larger population in non-attainment areas. States have failed to spend one in four out of all CMAQ dollars, almost $3 billion. Let's sub-allocate these funds to MPOs and get them spent.

Congress must ensure priority funding for transit and economic incentive programs needed to attain air quality. Barriers to planning and implementing facilities and services needed for attainment should be lowered. Non-attainment areas should get priority access to funds, such as projects to fund such projects using unprogrammed minimum guarantee funds and funds proposed for flex between funding categories by the States.

Before 1990, some States cooked their books with unfunded promises of transit to offset pollution from new roads. The roads got built, the transit didn't, and vehicle emissions soared, contributing to the failure of SIPs in the 1970's and 1980's. Today conformity and SIPs are undermined by lack of local match funds for transit, weak accounting for funds, lax Federal oversight of planning requirements. Project costs are widely underestimated. FHWA's failure to lapse fund balances unspent by the States as required by law exacerbates a growing fiscal mess.

Congress should assure the frequency of conformity supports timely attainment. Less frequent analysis means bigger surprises and less timely model updates. A 3- or 5-year cycle may fail to catch and correct fast growth in traffic or emissions. Schedule coordination must flow from good interagency coordination, not from less frequent checks and balances.

EPA is already obligated by law to track and report non-attainment area emissions every 3 years, and assure remedial measures in SIPs are implemented when emission reduction targets aren't met. SIPs will again fail if areas don't consider long term impacts of major projects.

Congress should ensure conformity lapses don't block conformity exempt or emission reducing transportation projects from being added to non-conforming TIPs and transportation plans. FHWA should mitigate the adverse health impacts suffered by communities exposed to air toxics caused by expansion of major highways. Congress should boost incentives for employer paid transit benefits, road pricing and use based car insurance, and investments in rail, bus, rapid transit, pedestrian, bicycle and intermodal travel, which can cut traffic and emissions growth by a quarter from trends and

boost transportation system performance in a very cost effective way.

During the Atlanta Olympics, Georgia brought in a thousand more buses, promoted travel alternatives and incentives, and cut morning traffic and ozone by a quarter, cutting asthma incidents by 42 percent. We can replicate that success story elsewhere.

I close by presenting you with letters from 16 national health and environmental leaders, asking Congress and the Administration to enhance accounting for the effects of transportation on health, air quality and the environment. We look forward to working with you on the reauthorization of TEA–21. I have more detail in my written testimony. Thank you.

Senator JEFFORDS. I believe you.

[Laughter.]

Senator JEFFORDS. Thank you all for very excellent statements. This is obviously an extremely important area that we're looking at for the future of this Nation. So I will have some questions.

Given the challenges posed by implementation of the revised ozone and fine particulate standards, should we increase the funding for CMAQ and if so, by how much?

We'll start with Scott and move on down.

Mr. JOHNSTONE. As I said in my testimony, I certainly think that CMAQ funding should be increased. I think it goes with the widening range of issues that we need to deal with, whether it's ozone, particulate matter, greenhouse gases, air toxics. There's more to do. Obviously it should be spent in ways that are thoughtful, in ways that will produce results. But there is real need to get our air clean. And this is a great program and a great way to make progress on that front.

So I think we certainly should see an increase in the percentage of the transportation budget going to this work.

Judge HARRIS. Mr. Chairman, we would concur, but there are uses that increases could allow more participation in. As you've heard and all of you know, particularly in our area, 80 percent of the problem on mobile is caused by about 10 percent of cars, which works out to be 40 percent, running through all those numbers, of our emission problems. And we've started something called the LIARP, which is low income assistance and repair or replacement program that the legislature authorized and will be kicking off September 1st. It's funded through some fees on inspections of vehicles. And it's to help those who really are the backbone of all of our cities and areas in this country that do the very physical work most times of brick laying, of various construction projects, servers are McDonald's, Wendy's, wherever. They are the least able, again, to help themselves when faced with a $300 repair bill to get their vehicle into compliance. And our inspection stations are even worse, a vehicle that's diagnosed as costing too much, which could be in excess of $600 to $1,000, to be repaired.

So they need assistance, you know, $1,000 won't buy a vehicle. But we feel this is a way to help address some of the most polluting, and certainly we could have the ability to then use some of the CMAQ funds, again, not all of them, I think, back into partnerships. Certainly the State of Texas has put forward and effort, and

if some moneys could be put together to help that, I think it would really benefit the entire country to get those cars off the road.

Ms. TERRY. We certainly agree that we need more CMAQ dollars. Given the health effects of particulate pollution an increased emphasis there is absolutely essential. As we look at the health effects, we see from the studies that the "safe levels" continue to be even more difficult to achieve than we had thought previously. So combining additional CMAQ moneys with that focus, and with a really long term vision for continuing the declining emissions, while progress has been tremendous, we still have a very long way to go.

Mr. STEPHENSON. My view would be that an increase would be appropriate to the extent that you have an increase in the overall investment in transportation in the country. And further, to the extent that you have quantifiable results and measurable accountable programs that you're funding with it.

Mr. REPLOGLE. I think the CMAQ program is a very effective program and one that should be increased proportionate to the increase in population in non-attainment areas. In 1999, there were about 54 million people living in areas that didn't meet the 1 hour ozone standard, which is the basis for allocating CMAQ dollars today. According to EPA's latest data, 123 million people live in the 333 counties that violate the 8-hour ozone standard, and 82 million live in 173 counties that violate the PM fine standards.

So together, when EPA makes its designations, there's likely to be somewhere between 150 and 165 million people living in non-attainment areas that ought to be fully eligible for those CMAQ dollars. So we really need a several fold increase in this program, simply to avoid diluting the level of effort in current non-attainment areas.

Senator JEFFORDS. Thank you. Scott, thank you for taking the time to come down and be with us today. Assuming that we can get power plant pollution under control at some point soon, what else can Vermont do to address the other air quality problems of vehicles?

Mr. JOHNSTONE. First let's hope we get the former taken care of, and we'll continue on the work to get that done through the lawsuits we're a party to. There are other sources in Vermont, and clearly, surface transportation is where we have to start. It's almost half of our in-State sources come from vehicles. So that's where we've got to start. And whether it's continuing with the California low emission program, whether it's promoting the light rail and various train service that we've got, even in a rural State like Vermont. Park and rides most people think don't work in rural areas. But look around Vermont. Every place we've got one, it's full.

So we can make great progress. And I would add too that I am more convinced every day that critical to solving the air quality problem is finally addressing the issue of how we grow. It's not a question of do we grow or don't we grow from my perspective. It is how we grow. If the sprawl that we face is what creates this increased mileage that everyone is talking about that we travel in our cars, it's how we grow. And that really comes back to how we fund projects, from my perspective. In Vermont, we're using up our

land at a rate that's two or three times that which our population growth is growing. That's not sustainable, and it's really an issue we've got to address if we're going to meet our air quality goals. And frankly, have a sustainable Vermont that people want to live in.

So those are the primary sources. Then after surface transportation, we've got to meet our residential heating and our business sector needs by replacing energy sources that are fossil fuel today with cleaner technology and different technology.

Senator JEFFORDS. Thank you. Lynn, unfortunately, the Administration and Congress are not in a rush to take any steps to significantly reduce greenhouse gases from the transportation sector. So I'm glad to see that California has stepped up to the plate. Can you please tell us about the California program to reduce greenhouse gas emissions from mobile sources?

Ms. TERRY. Certainly. Governor Davis just signed a bill that will require the Air Resources Board to adopt regulations by January 1st of 2005 to reduce greenhouse gas emissions to the maximum extent feasible in a cost effective manner. It requires the board to look at passenger cars and that includes everything that people typically drive, from small sedans, sports cars, to SUVs, and look at ways to reduce greenhouse gas pollutants. We're required to look at alternatives, to provide flexibility, to look at consumer costs. But other than that, we're free to look at the gamut of technological solutions.

We also have clear directions from the legislature not to prohibit certain vehicle types, not to address speed limits, gasoline pricing, those kinds of strategies. It is very much a technology focus.

So we will be integrating those kinds of regulations with our technology assessments that we're doing to address those on a particulate pollution. So it will be looked at in that context. The legislature, recognizing the innovative approaches that were possible, has asked us to provide a year for formal review by the legislature, including legislative hearings. They do not have veto power over the regulations, but certainly they have the opportunity to consider legislation if they want to go to different directions.

But we see this whole approach as very compatible with our longstanding history of technology advancement in the vehicle sector. So we have a lot of work to do.

Senator JEFFORDS. We appreciate the work you are doing.

Michael, your in-depth knowledge on the topic has been of great assistance to the committee in the past, and we look forward to your help in the future. How can we get better resources to the States and the planners, to ensure that the successes continue to outnumber the failures in the area?

Mr. REPLOGLE. I think it's important to increase the setasides for planning, for metropolitan planning, and perhaps to create a new setaside for State planning, to create integrated transportation natural resource and growth management plans. A lot of the problems that I think we see in the disconnect between air quality and transportation come because for decades transportation was a world of its own that developed a system to meet the externally developed forecasts for growth of land use.

Today, over the last decade, we have begun to change that, so the transportation planners and air quality planners are sitting down routinely, coordinating their activities. I think we can extend that to other areas of water planning, greenhouse gas emission reduction planning, protection of sensitive habitats and other natural resources and historic resources, so that we can make sure that transportation projects, as they move into the environmental review process, are the right projects that have avoided adverse impacts by recognizing where sensitive resources were, and by recognizing what kinds of things we ought to be investing in to minimize damage to our environment and to maximize benefits for our society and cost effectiveness in our spending of transportation dollars.

In that way, we can minimize the costs of pollution cleanup, because we won't have to clean up as much pollution. This is where markets make real sense and information makes real sense. Integrating the activities of our agencies to meet broader societal goals beyond just mobility is a key part of making sure that we get the right intelligence.

We also need some help at the national level. I think creating a national program for transportation environmental research as the National Academy of Sciences committee just recently recommended would be an excellent step in the right direction. It's a program that needs $15 million to get started.

We need to be investing in a clearinghouse for better transportation modeling and emission modeling practices. The U.S. DOT today still spends a fraction of what was spent even 20 years ago on developing appropriate modeling techniques to evaluate travel behavior changes as a result of transportation. We need a new generation of models that help us to do better decisionmaking and support elected officials and the public with good information.

Finally, I'd say we need to make sure that the transportation planning process at all levels is looking at alternative scenarios, instead of just looking at one size fits all, one approach, business as usual track, we need to make sure that transportation plans and programs also consider system management strategies that can help meet our needs for mobility with less vehicle miles of travel, less land consumption for urbanization and less emissions.

Senator JEFFORDS. Thank you. Ron, your testimony was that there should be consistent, submitted frequencies for SIPs and TIPs. Do you have any specific solutions in mind?

Judge HARRIS. I think we would be working these out purely with the technicians that understand this. But I do know in our area that it has become increasingly difficult to map out transportation projects that ultimately will reduce congestion, which I believe does reduce air emissions for cars running versus stop and start. And we've been working very hard to be in conformity and to clean up the air. With this movement around, for instance, right now we're facing, and I think the legislature will fix this funding shortfall, which has jeopardized our current proposed SIP.

And if that should happen, then 60 to 90 days later, we would be in a conformity freeze, even though we are doing just about everything we can do, and the citizens are behind us, businesses are behind us. We wouldn't even have time to rearrange those plans to make it work. And yet we've been working on these conformity

plans diligently for years. Just this little blip could throw us out of conformity. I think this is not untrue across the Nation, as you've heard this morning. But that's our imminent piece, and of course, we're working to not get to that point.

But still, beyond that, for consistency in planning, it would help if we could marry up those dates.

Senator JEFFORDS. James, you said that one of the best ways to achieve the goals of better air quality and reduce congestion is by reducing bottlenecks on the Nation's roads. Are you aware of any recent studies which show that those kinds of projects would improve the quality in the short and long term?

Mr. STEPHENSON. It would improve air quality?

Senator JEFFORDS. Air quality.

Mr. STEPHENSON. Reducing bottlenecks, you mean a study as opposed to just using common sense and understanding that cars going through an intersection instead of stopping and starting produce more pollution?

Senator JEFFORDS. Yes.

Mr. STEPHENSON. I'm not aware of one. I'll see if I can get one and send it to you. I know there are studies that show that cars produce less pollution at about 40 or 50 miles an hour than they do either idling or when they're accelerating or from a stop.

Senator JEFFORDS. Scott, as you said, Vermont is lucky to be an attainment State. You suggested some changes to the CMAQ formula, so that Vermont could stay in attainment. Does this change become increasingly necessary as the revised standards go into effect?

Mr. JOHNSTONE. I think it does, because we will have more and more challenges in Vermont, both as standards get harder over time, which ought to happen, and as we face continued problems of other air pollution sources. We've got a hard job to stay in attainment. We are there, and I'm proud to say that. We're not there by much. And I don't want Vermont to be facing non-attainment.

So we need to take this issue on, that's why we take it so seriously. I sometimes get folks in Vermont saying, why do you guys work so hard on air quality? We are in attainment. Well, that's exactly the point. We want to stay there. And there are major challenges. As our vehicle miles traveled just continue to balloon, we are in danger of falling out of attainment. So it's really important for us to face that challenge and stay where we're at, because it's a lot better to be in attainment than non, from my perspective.

Senator JEFFORDS. We're ready to help in any way we can, without cheating.

Mr. JOHNSTONE. Of course.

[Laughter.]

Senator JEFFORDS. Michael, what should Congress do while EPA considers revising its rule on mobile source air toxics?

Mr. REPLOGLE. I think one of the important steps to take is to first of all, make CMAQ dollars available to communities to help deal with air toxics problems. Second, make sure that the Federal Highway Administration is considering and avoiding or mitigating the impact, the health impacts of air toxics on communities affected by increased air toxics caused by expansion of highways.

This is an issue that's coming up in Las Vegas and a number of other places around the country.

Third, I think make sure that there is continued timely progress to implement cleaner diesel technologies and no backsliding on the programs that have been put in place for that. I think fourth, do everything possible to encourage early adoption and availability of low sulfur diesel fuel, and the provision of incentives and programs for States to adopt to reduce the off-road diesel emissions, which are a significant contributor to air toxics. There are a lot of things that need to be done.

Senator JEFFORDS. Thank you. Lynn, you mentioned that California will be revising 23 SIPs over the next year. What kinds of resources does it take to manage that kind of effort? And do you think it will all be done in time to avoid a conformity lapse?

Ms. TERRY. It will be done in time to avoid a conformity lapse. It will be a long year. Fortunately, some of those SIPs are for carbon monoxide, and it really does amount to a reconciling of emission inventories. But the sort of technical aspects aside, the reality is we still have to go through, in California, a local level process of public comment hearings, again at the State level, and then EPA has to approve those plans. So it's a workload at all three levels. And U.S. EPA Region IX has been terrific in sitting down with us and trying to prioritize and work through the timeframes. But it's a huge resource burden for all of those levels of Government. And what we'd really like to do is focus on those areas that are far from meeting the standards, have a long way to go and we really need to come up with new, innovative control strategies.

So that was really the heart of our comments about a streamlining mechanism, and we're going to try to develop one as we go through this process in the next few months. I think that will give us some very specific recommendations that we'd like to put into the record in terms of when streamlining makes sense and when a comprehensive revision is really unnecessary, so that this fundamental concept of conformity does work.

Senator JEFFORDS. I want to welcome Senator Carper here. The questions are yours now.

OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Thanks, Mr. Chairman.

I apologize for not being here earlier. We have, as you know, a number of hearings that are going on in this building, and I've been trying to get to all of them. I'm just glad that you're still here.

The question I have relates to the use, providing States and local governments with some discretion in using congestion mitigation funding from the Federal Government for passenger rail purposes. Have any of you discussed this in any of your comments? Has it been raised at all in your comments today?

[Witnesses respond in the negative.]

Senator CARPER. Before I joined Senator Jeffords, I was Governor of Delaware for 8 years, and involved in the National Governors Association. I always thought it was peculiar that we in the States could use our congestion mitigation money for bicycle paths, we could use it for freight railroads, we could use it for roads, high-

ways, bridges, but we could not use it, didn't have the discretion to use any of our congestion mitigation money for inter-city passenger rail, even if that made sense in terms of reducing congestion.

The Senate has passed, I suspect with the vote of our chairman on a couple of occasions, legislation providing flexibility to Governors and others in States to use their congestion mitigation money and some other Federal transportation moneys more flexibly to support not only bicycle paths, freight railroads, building roads, highways, bridges, but also provide some additional funding for passenger rail service, if that made sense in the discretion of chief executives in our States. I would just ask if any of you care to comment on that notion. Is that a good idea, bad idea? Is that an idea whose time has come, has gone?

Mr. REPLOGLE. I think it's an artificial restriction. I think the funds should be available for passenger rail, and I think States should also be looking at opportunities for more widespread use of the national highway system funds to support passenger rail services. Because usually passenger rail is in fact operating to serve the same markets that are served by the national highway system.

Ms. TERRY. And we certainly support flexibility in the use of CMAQ funds. A lot of the discussion this morning has been about cost effectiveness. But certainly in California, air quality is a very long term problem. So passenger rail in our view really needs to be part of the long term future.

Mr. JOHNSTONE. I certainly would support that flexibility from Vermont's perspective. But with the notion, and I think it would be an easy test, for any passenger rail service I can think of. I just don't want it to come back to some nexus with improvement in air quality, which I think would be an easy test to accomplish.

Judge HARRIS. I think, Senator, any time you can allow the local folks to focus on issues that are specific to their areas, we're all better off. Certainly trains, we've got a couple moving between cities in Texas that do take a lot of people off, I've watched them and been at those stations. But again, the word flexibility is always an outstanding attribute for any legislation.

Senator CARPER. Mr. Stephenson, I see you're with the American Road and Transportation Builders Association.

Mr. STEPHENSON. Yes, sir.

Senator CARPER. I would welcome any comments that you have, pro or con.

Mr. STEPHENSON. My perspective is, I think, similar to Judge Harris's, that flexibility is good. I would urge that any restrictions that were placed on that flexibility be in the nature of calling for quantifiable and measurable results in terms of not just emissions, but that first word that the C stands for, which is congestion.

Senator CARPER. Mr. Chairman, I'm glad you and the witnesses were still here, and I appreciate very much the chance to raise some questions.

Senator JEFFORDS. Well, we were waiting for your arrival.

[Laughter.]

Senator CARPER. Why didn't that first panel wait, too? No, I'm just kidding. Thank you. Thank you all.

Can I ask a question of Mr. Johnstone? Are you from Vermont?

Mr. JOHNSTONE. I am.

Senator CARPER. My recollection is that Vermont uses its local and State moneys to fund some passenger rail services. Is that correct?

Mr. JOHNSTONE. I believe that's true, yes.

Senator CARPER. President Bush, in his recommendations to Congress with respect to Amtrak, deals with the use of States, the ability of States to use their own money. In fact, I think there's an expectation that the present Bush Administration has, as we go forward with passenger rail service in the 21st century, to the extent that the Federal Government continues to play a role, the States should play a role, too. I would just note for the record that Vermont is one of the States that's been very active in providing its own funds to help support inter-city passenger rail service. I think it may go on to Canada, as I recall. I'm not sure.

Mr. JOHNSTONE. I don't think it does through rail at this time. The rail connects to bus service. But the direct rail connection is something that over the past few years hasn't been able to be continued.

Senator CARPER. I think part and parcel, if we're going to act on that aspect of the President's recommendation, in which we would expect States to do more to support train service, it may not make money, it may not be finished. In my own judgment, it simply makes sense to give States some additional flexibility with respect, for example, to their congestion mitigation money to help make ends meet. But not to require that, but to give States and Governors that flexibility and those tools.

Thank you, Mr. Chairman.

Senator JEFFORDS. I agree with you on that. Vermont used to have a direct train service to Montreal, but union problems made it impossible. So they bus them up from the end in Vermont.

Senator CARPER. We even had a name for that train. It's called the Montrealer.

Senator JEFFORDS. Yes, those were the good old days. Maybe some day it will come back.

Well, thank you. This has been a very exciting time for me to talk with people that really are involved and knowledgeable and enthusiastic. Thanks. It made my day. I hope it helped yours. Thank you.

[Whereupon, at 11:55 a.m., the committee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. JON S. CORZINE, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Thank you, Mr. Chairman, for holding these continuing hearings on the reauthorization of the Transportation Equity Act for the 21st Century—TEA–21, and I'd like to join you in welcoming our witnesses.

The issue of air quality is very important to me. Most of the state I represent—New Jersey—is designated as a "non-attainment area" for the Clean Air Act criteria pollutants. This degree of air pollution affects the health and well-being of our residents, especially the young, the elderly and the infirm. While much of our air pollution comes from out-of-state sources, there is no doubt that the cars on our roads contribute as well.

To its credit, New Jersey has taken steps to help itself. We've instituted such congestion reducing measures as EZ-Pass. We've invested heavily in new rail systems

to help get more drivers off the roads. And we've revamped our motor vehicle inspection system to help ensure that cars meet tougher Federal air quality standards.

But New Jersey and states like it need more help, Mr. Chairman. We need assistance from the Federal Government in programs like the Congestion Mitigation and Air Quality Program. I look forward to an ongoing dialog in the committee as to how to make this good program even better as we re-authorize TEA–21. And we need to look into other measures that will help states help themselves.

But we also need to do more to reduce vehicle emissions by requiring automakers to raise gasoline efficiency standards. I was disappointed when Congress failed to include an increase in CAFE standards as it considered the Energy bill. I hope we get the chance to do so again.

Thank you again, Mr. Chairman, for holding this hearing and I look forward to hearing from our witnesses.

STATEMENT OF MARY E. PETERS, ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

Mr. Chairman and members of the committee, thank you for this opportunity to discuss implementation of the transportation and air quality provisions of the Clean Air Act (CAA) and the Transportation Equity Act for the 21st Century (TEA–21).

Meeting the dual challenges of congestion relief and air quality improvement is a high priority for all of us at the Department of Transportation, as I know it is for members of this committee. In TEA–21, you gave us new tools and authorities to assist us in achieving this goal, and we are proud of the progress that has been made. In reauthorization, the Department wants to continue to buildupon the successes of TEA–21 and the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). Yet, as Secretary Mineta stated at a hearing before you earlier this year, we have an obligation to do much more to address surface transportation concerns. Secretary Mineta has also noted that one of the core principles of the Department's reauthorization efforts is ensuring an efficient infrastructure while retaining environmental protections that enhance our quality of life.

In my testimony today, I will address three main points. First, I want to assure you that progress has been made in reducing transportation-related emissions of pollutants, and that the Department of Transportation is committed to doing its part to ensure progress continues. Second, I will describe how the Congestion Mitigation and Air Quality Improvement Program (CMAQ) has assisted States and localities in addressing their mobility, air quality, and quality of life concerns. Finally, I want to restate the commitment of the Federal Highway Administration and the Department to work with our transportation planning and air quality planning partners for effective coordination of the transportation and air quality planning processes.

CONTINUED FOCUS ON AIR QUALITY IMPROVEMENTS

As a Nation, we have made remarkable improvements in reducing air pollution, especially pollution that comes from transportation sources. Where transportation is a significant source of pollutants, the Environmental Protection Agency (EPA) reports that ozone (formed by the reaction of volatile organic compounds (VOC) and oxides of nitrogen (NOx)), carbon monoxide (CO), and particulate matter (PM), have all decreased substantially since 1970. A majority of the areas designated as nonattainment since 1990 now meet national air quality standards. Air quality monitoring data through 2000 shows that 76 out of 78 carbon monoxide nonattainment areas, 69 out of 85 coarse particulate matter (PM_{10}) areas, and 81 out of 101 ozone areas no longer show air pollution levels that exceed the national ambient air quality standards. And, while the CAA has led to reduced pollutant emissions from all air pollution sources, the greatest success can be found in the reduction of motor vehicle emissions: CO emissions have been reduced by 43 percent since 1970, PM_{10} emissions reduced by 33 percent, and VOC emissions by 59 percent from motor vehicles (see Attachment). While NOx emissions increased by 16 percent over the period, the rate of increase was less than the increase from all sources (21 percent). And, NOx emissions from automobiles (excluding sport utility vehicles (SUVs) and light trucks) decreased by 31 percent. For VOC and CO, motor vehicle emission reductions were greater than the reductions from all other sources. Thus, motor vehicle emissions now make up a smaller percentage of total emissions. In 1970, motor vehicles contributed 59 percent of total emissions of carbon monoxide, NOx, VOCs, and PM_{10}, when compared to stationary, area, and non-road mobile sources. However, by 1999, the motor vehicle portion of emissions of these pollutants dropped to

48 percent. Most of these emissions reductions have resulted from stricter emissions standards, improved engine technology, and cleaner fuels.

It is especially important to note that these reductions in emissions were accomplished during a period of 33 percent increase in population, 147 percent growth in gross domestic product (GDP), and 143 percent increase in vehicle miles traveled. The automotive, fuels, highway, and transit communities have managed to achieve this success in improving air quality while at the same time working to address increasing demands to improve mobility.

The downward trend achieved in emissions is expected to continue into the future. Engines and fuels are to become even cleaner under recent EPA-issued regulations for emissions standards and cleaner fuel requirements. Between 2004 and 2007, more protective tailpipe emissions standards will be phased in for all passenger vehicles, including SUVs, minivans, vans, and pick-up trucks. This regulation marks the first time that larger SUVs and other light-duty trucks will be subject to the same national pollution standards as cars. In addition, the EPA tightened standards for sulfur in gasoline, which will ensure the effectiveness of low-emission control technologies in vehicles and reduce harmful air pollution. When the new tailpipe and sulfur standards are implemented, Americans will benefit from the clean-air equivalent of removing 164 million cars from the road. These new standards require all passenger vehicles sold after the phase-in period to be 77 to 95 percent cleaner than those on the road today, and will reduce the sulfur content of gasoline by up to 90 percent.

We expect that motor vehicle emissions will be reduced as new heavy-duty vehicles that meet the 2004 emissions standards for heavy-duty engine standards enter the fleet. Beginning with the 2007 model, heavy-duty engines for trucks and buses must meet even tighter emissions standards, and the level of sulfur in diesel fuel must be reduced by 97 percent by mid–2006. As a result, after a phase-in period, each new truck and bus will be more than 90 percent cleaner than current models. In addition to tighter standards, the Federal Transit Administration (FTA) has been working with industry to develop and demonstrate low-and zero-emissions advanced propulsion technologies for transit buses, including hybrid-electric, battery electric, and fuel cell-powered buses. Under FTA/DOT leadership, a national program is underway to accelerate the development and commercial viability of these advanced technologies.

However, despite dramatic improvements in air quality, some of the nation's largest metropolitan areas still face challenges in meeting the current ozone standard (also known as the 1-hour standard due to the averaging time for the ozone concentration levels). Furthermore, the Nation as a whole, and the transportation community in particular, face additional challenges as new air quality standards are implemented. The new 8-hour ozone and fine particulate ($PM_{2.5}$) standards will be more stringent, and many areas across the eastern U.S. and in California have pollution levels now exceeding these standards. Some of these areas, including small urban and rural areas, may be designated nonattainment for the first time. Other existing nonattainment areas may become larger and involve more jurisdictions under the new standards. The Department and EPA are working with these areas to increase their capacity to deal with new nonattainment designations.

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM

We have learned a great deal about transportation and air quality over the last 30 years, and over the last 10 years in particular. One thing we have learned is that there is no one "right way" to address transportation needs that meets the requirements of the entire nation. The transportation needs of Houston differ markedly from those of Chicago. This is doubly true when trying to reduce congestion and improve air quality. We have also learned that if we are to address our mobility and air quality needs simultaneously, we must incorporate national approaches, State and local planning, and project-level investments.

The CMAQ Program was established in 1992 by ISTEA as one of the programs designed to provide States and metropolitan areas flexibility to better address their particular needs. The CMAQ program is the only Federal transportation program specifically targeted at air quality improvements. Through this program, we have provided $6 billion during the life of ISTEA and $8 billion under TEA–21 (1998–2003) to States and local governments for innovative programs and projects that demonstrate an air quality benefit and contribute to attainment of a national ambient air quality standard.

The concept of the CMAQ program is to provide needed flexibility to fund transportation improvements, whether they be highway, transit, shared ride, bicycle and pedestrian or other types of projects. This flexible approach allows for investments

that cross traditional boundaries of the Federal-aid program to support projects focused on transit systems, alternative fuels and vehicles, intermodal highway facilities, emissions inspection and maintenance (I&M) programs, and a host of other projects.

The CMAQ program has also supported more highway and systems management improvements that contribute to emissions reductions through traffic flow enhancements or other means, and has been an important funding source in the implementation of Intelligent Transportation Systems (ITS). In Arizona, for example, CMAQ funding accounted for 87 percent of the Federal funds used for ITS investments.

Overview of CMAQ-Funded Projects

Through fiscal year 2001, about $9.5 billion had been obligated under the CMAQ program. According to the latest data, the majority of CMAQ funding goes for new and enhanced transit services and traffic flow improvements that ease congestion, reduce starts and stops, and reduce emissions. These two categories are the backbone of any metropolitan area's transportation system, but they are also the most capital-intensive of the types of projects eligible under the program.

A breakdown of CMAQ funding is provided in the table below.

CMAQ Funding by Type of Project

1992–1999

Type of Project	Amount Obligated ($ Millions)	Percent
Transit	$2,700	43 percent
Traffic Flow	$2,042	32 percent
Shared Ride	$260	4 percent
Demand Management	$214	3 percent
Bicycle/Pedestrian	$198	3 percent
Inspection and Maintenance and Other	$445	7 percent
States with no Nonattainment or Maintenance Areas	$430	7 percent

In recent years, there has been a significant increase in the amount of CMAQ funding used for emissions I&M programs. Both Illinois and New Jersey have used CMAQ funding extensively for this purpose. In fact, 75 percent of New Jersey's recent CMAQ funding has been used for its I&M program. This is noteworthy because I&M programs have proven to be important strategies for meeting Federal air quality standards, demonstrating relatively large emission reductions, especially in acute ozone nonattainment areas.

The Benefits of the CMAQ Program

Some CMAQ projects and programs, for example those supporting vehicle I&M programs, have registered notable emissions reductions. According to the States' annual CMAQ reports, I&M programs can yield about 5 tons per day in VOC in Illinois to over 40 tons per day in New Jersey. Regional projects, like traffic management centers and other projects that contribute to a modern, intelligent transportation system, also demonstrate larger emissions reductions than local or corridor level projects. Finally, we foresee greater potential for projects that advance new vehicle and fuel technologies. On the transit side, funding for bus replacement, removing older higher polluting vehicles from city streets in favor of newer models, has shown results, as have heavy-duty diesel retrofit programs and the introduction of alternative fuels.

Further, even the more traditional transportation control measures (TCMs), such as High Occupancy Vehicle Lanes (HOV), turn lanes, and new buses, funded under the CMAQ program can help our State and local partners achieve other goals in addition to improving air quality. They improve our quality of life, by reducing pollution, by relieving congestion, and by allowing us to walk or bike in a more pleasant environment.

Finally, the flexibility of the CMAQ program supports experimentation by our partners in the States and metropolitan planning organizations (MPOs) to meet travel demand in the most environmentally sensitive ways. In addition to ITS services, intermodal projects, and I&M programs, the CMAQ program has funded:

- Station cars and car-sharing programs
- Telecommuting
- Parking cash-out programs
- New vehicle technologies, including fuel cell vehicles
- Alternative fuels

- Public-private partnerships
- Transit-oriented development

The National Academy of Sciences (NAS) recently released a comprehensive assessment of the CMAQ program. A number of findings and recommendations were offered, with the study concluding the program is valuable to State and local governments and should be continued. The assessment highlighted in particular the importance of the program's flexibility, encouragement of innovative approaches to reduce emissions, and support for new partnerships across jurisdictions.

Recent Issues

In recent discussions, our stakeholders have raised several issues about the CMAQ program and its role in the overall surface transportation program. The first involves concerns about the CMAQ funding formula. The statutory formula apportions funds to the States based on the population living in nonattainment and maintenance areas and the severity of the ozone and CO pollution problem. However, the statutory formula does not include factors for the EPA's new air quality standards. Thus, a State whose nonattainment population will grow under the new EPA standards will receive no comparable increase in CMAQ funding. The NAS report and others in the air quality community have also pointed out the importance of addressing the new fine particulate matter standard, because of the mortality impacts associated with this type of pollution.

Expanding the eligible use of CMAQ funding for operating assistance constitutes a second issue. One of the current strengths of the program is the focus on improvement projects, which could be diminished by providing assistance for routine operations. Currently, we provide operating assistance for up to 3 years under the CMAQ program for new services to help them get established

A third issue that has been raised is whether to expand CMAQ funding to areas outside of existing nonattainment and maintenance areas. In January of this year, we published a Federal Register notice maintaining our current policy of limiting funding to nonattainment and maintenance areas, but allowing projects to be funded that are in close proximity to, and primarily benefiting, a nonattainment or maintenance area. Comments to the docket revealed that our stakeholders are divided on the issue of funding outside of existing nonattainment and maintenance areas, although the majority of States and MPOs favored retention of our current policy.

We will consider these issues as we develop our reauthorization recommendations.

THE TRANSPORTATION CONFORMITY PROCESS: COORDINATING TRANSPORTATION AND AIR QUALITY PLANNING

Conformity refers to a requirement of the CAA that is designed to ensure that federally funded or approved highway and transit projects conform to the air quality goals and priorities established in a State's implementation plan (SIP). For programs administered by the Federal Highway Administration and the Federal Transit Administration, we determine whether highway and transit projects conform to a State's SIP by comparing the total expected air quality emissions from the whole transportation system within the nonattainment or maintenance area, including the expected emissions that would result from projects contained in the transportation plan and transportation improvement program (TIP), with the emissions budget for motor vehicles in the SIP.

A failure or inability to make a conformity determination by the required deadline is referred to as a "conformity lapse." During a conformity lapse, the use of Federal highway and transit funds is restricted. Currently, most areas of the country are in conformity. But, as of July 22, 2002, five areas are in a conformity lapse.

Fulfilling the transportation conformity requirements has created stronger institutional links between two sets of agencies—transportation and air quality—that operated quite independently of each other prior to enactment of the Clean Air Act Amendments of 1990 (CAAA). This interagency consultation has played a crucial role in the development of more realistic and achievable transportation and air quality plans. In addition, the transportation conformity provisions have been instrumental in fostering improvements to the travel demand and emissions modeling processes, because of the specificity of data necessary to meet conformity requirements.

We now have almost a decade of experience in implementing the transportation conformity provisions of the CAAA and, despite successes, our stakeholders indicate that there remain opportunities to improve the transportation conformity process. Transportation conformity was intended to form strong linkages between the transportation and air quality planning processes. However, there is a concern among

transportation agencies-and even some air quality agencies-that transportation plans and SIPs are not synchronized with one another due to different planning horizons and update frequencies. This sometimes causes "lapses" in conformity, often disrupting the transportation funding process. While transportation plans have very long planning horizons and have to be updated frequently, most air quality plans have comparatively shorter planning horizons and are updated less frequently.

TEA–21 and the CAA require that transportation plans must cover at least 20 years and be found conforming for that entire time period. However, air quality plans have much shorter planning horizons, often only 5–10 years, resulting in a "mismatch" in which transportation plans must consider emissions controls in the absence of comprehensive air quality planning. Without comprehensive air quality planning, there is no analysis of the most cost-effective emissions controls across all sources beyond the end of the SIP timeframe. If an MPO has a conformity problem in the timeframe beyond that covered by the SIP, it has limited options for achieving substantive emissions reductions with programs over which the transportation agencies have control. Traditional TCMs have little impact on regional emissions levels, and such strategies will provide even fewer reductions in the future, as technology continues to reduce total mobile source emissions. Although MPOs bear the responsibility of assuring that plans conform to air quality budgets, they do not have the authority under current law to establish more effective measures, like I&M programs or reformulated fuels. That process of identifying future control strategies is the intended purpose of the SIP.

This "mismatch" can be further aggravated by differences in the frequency with which transportation plans and air quality plans are updated. Conformity determinations for transportation plans must be made at least every 3 years, must be based on the latest demographic and travel information, and must use the latest emissions estimation model. However, air quality plans are not updated on a regular cycle, and may reflect out-of-date assumptions or may have been developed using an outdated emissions estimation model. When a conformity analysis is performed in such a situation, it is impossible to determine whether the emissions associated with the transportation plan are truly consistent with the emissions budget in the air quality plan. This may be because the transportation plan emissions were estimated under one set of assumptions and model, while the emissions budget was developed under another. Our stakeholders have reported that such situations have occurred and are likely to happen again with the recent release of a new emissions estimation model.

EPA, in coordination with U.S. DOT, has allowed a 2-year grace period before States have to use the new emission model, MOBILE6, for conformity. EPA also requires that SIPs that are started after the official release use MOBILE6. While the Clean Air Act does not require SIP updates in all cases, EPA guidance encourages States to evaluate the effects of MOBILE6 early to plan for any needed SIP updates to accommodate change.

Our stakeholders indicate that conformity lapses have occurred because areas could not complete the complex, comprehensive transportation planning and conformity processes within the required timeframes, even though they met their emissions budgets. Data collection, model development, public outreach, and consensus building can all take a considerable amount of time and resources. MPOs also face other daily challenges of ever-increasing congestion, transportation needs due to economic growth, protection of water quality and other environmental resources, efficient freight management, safety, and security.

Many of our stakeholders have suggested bringing the planning horizons and frequency of updates of both the transportation plans and air quality plans much closer together. Some have suggested a shorter planning horizon, and less frequent updates, while others have suggested a longer air quality planning horizon. We note that some area have opted to voluntarily extend their air quality planning horizons.

In any case, some stakeholders have suggested it is in the best interests of an effective, integrated process that the air quality plans and the transportation plans are both using the latest, and most consistent, set of planning assumptions, and that the air quality plans include the necessary control measures to ensure timely attainment of the standards. Stakeholders have stated that this would also help us anticipate air quality problems and correct them in a more proactive and coordinated transportation and air quality planning process.

The "mismatch" issue also extends to the consequences associated with an area's failure to demonstrate conformity versus an area's failure to submit or implement an adequate SIP. When an area is unable to demonstrate conformity and enters into a conformity lapse, the consequences of the lapse on federally funded or approved highway and transit projects, as well as regionally significant non-Federal projects, can be immediate. Alternatively, under the CAA, if an area fails to submit or imple-

ment an adequate SIP, there is a range of time, a minimum of 18 to 24 months, before sanctions are imposed, during which the State can remedy any problems. Some of our stakeholders suggest that a similar delay in impacts should be considered for the conformity process.

The Department recognizes the value of transportation conformity, and is committed to reducing motor vehicle emissions. Over the years, we have worked closely with EPA and our State and local stakeholders to improve the transportation conformity process. We are committed to better coordinating the transportation and air quality planning processes and will continue to work with EPA and our stakeholders to identify ways to remedy the mismatch issues, including consideration of possible remedies in the development of our reauthorization proposal.

CONCLUSION

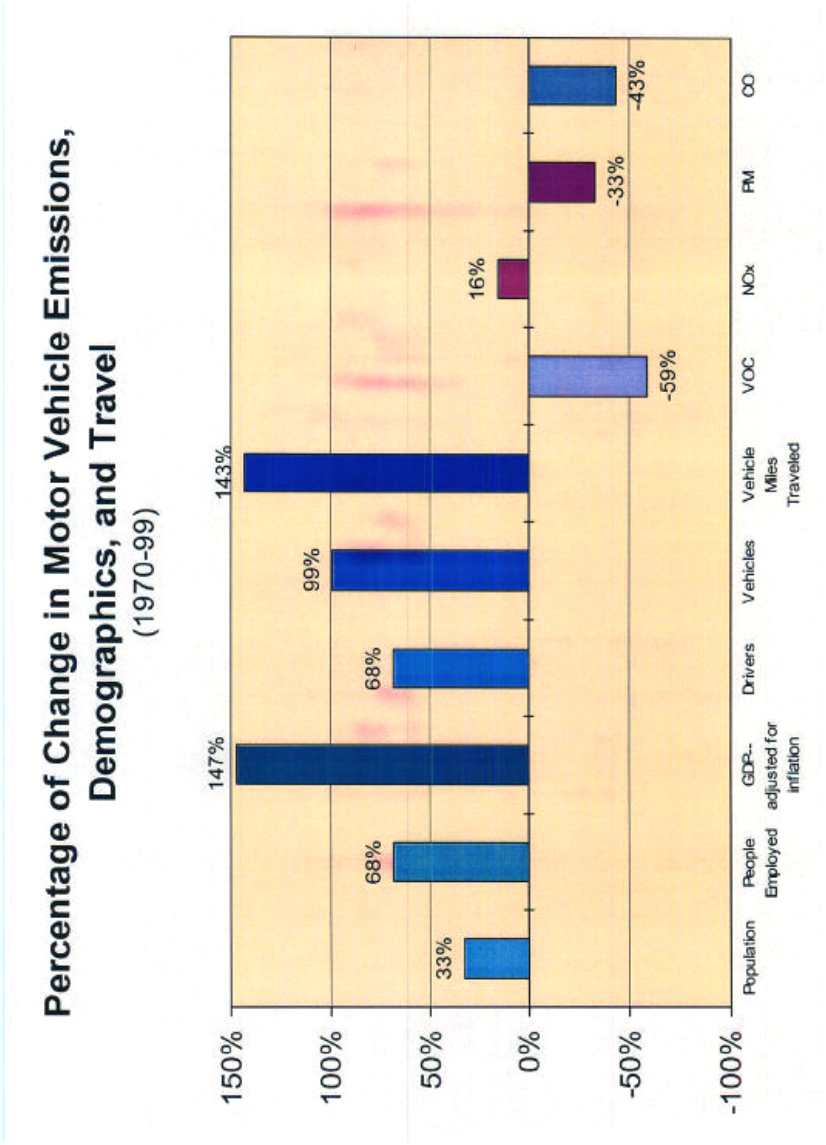
In conclusion, the Department of Transportation is committed to continuing the progress made over the last 30 years in reducing motor vehicle emissions and strongly supports the goals of the Clean Air Act's transportation conformity provisions. Improving transportation safety and mobility, while protecting the environment and enhancing the quality of life for all of our communities, are compatible goals. I am proud of the successes we have achieved under the CMAQ program by providing flexible funding for innovative transportation projects that improve air quality and by improving interagency cooperation between transportation and air quality agencies. However, I also recognize that additional improvement in the coordination of the transportation and the air quality planning processes can be achieved.

Integrating transportation and environmental decisionmaking can effectively advance environmental stewardship and improve our efficiency in meeting our nation's mobility needs.

The American public demands and deserves both mobility and clean air, and we must remain focused on providing the highest level of service and environmental protection that we can provide.

Mr. Chairman and members of the committee, this concludes my statement. I again thank you for the opportunity to testify today and I look forward to working with you as we prepare for reauthorization of the surface transportation programs.

I will be pleased to answer any questions you may have.



RESPONSES OF MARY PETERS TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1a. Questions were raised at the hearing by Mr. Replogle about the quality of traffic and emission forecasts for SIPs and conformity analysis. Please identify how well the estimated regional VMT related to each conformity determination made since January 1, 1995 has corresponded to the estimated observed regional VMT to date.

Have forecasts of 1999/2000/2001 traffic made in 1994/1995/1996 been modified as time went on?

Response. Yes. Metropolitan Planning Organizations (MPOs) in designated non-attainment and maintenance areas are required to determine conformity of their

long-range transportation plans and transportation improvement programs (TIPs) no less frequently than every 3 years, but often do so more frequently. When metropolitan areas update their long-range plans, they incorporate updated information on population and employment forecasts, changes in the transportation network, and other factors. In metropolitan nonattainment and maintenance areas, conformity determinations on transportation plans and TIPs must be based on the latest planning assumptions which include estimated regional vehicle miles of travel (VMT). The travel models use these updated data to produce revised forecasts that better reflect changes that have occurred since the last plan update. The transportation planning and conformity processes are iterative processes that are continually being updated with the latest information. This represents good planning practice, and the Federal Highway Administration (FHWA) strongly encourages such updates. In January 2001, FHWA issued joint guidance with the Federal Transit Administration (FTA) and the Environmental Protection Agency (EPA) clarifying the requirements for use of the latest planning assumptions in transportation conformity determinations. The guidance strongly encourages areas to review, and strive toward, regular 5-year updates of planning assumptions. This guidance can be accessed at: http://www.fhwa.dot.gov/environment/cnfplngg.htm.

Question 1b. Please provide copies of submitted conformity analyses and a summary of the pattern in the quality of forecast versus observed VMT growth.

Response. We conservatively estimate that well over 700 individual conformity analyses have been conducted since the transportation conformity rule was promulgated in November 1993. Many of the conformity reports and their related technical documents are very voluminous and in a wide variety of formats. In addition, these analyses may be incorporated into the transportation plan or TIP. Also, even if they are separate documents from the plan and TIP, it may be necessary to review the plan and TIP as well to perform any analysis. For example, the documents supporting the most recent conformity determination on Houston's Plan and TIP conformity determination totaled about 790 pages, with MOBILE6 input files and associated tables (e.g., project tables) used to run the emissions analyses comprising much of this documentation. The plan and TIP themselves account for approximately 292 and 455 additional pages. (Source: http://www.hgac.cog.tx.us/transportation/pubs.html.) Below is a list of some MPO websites where conformity documents are available.

Other MPOs with conformity documents on their websites include:

- Maricopa Association of Governments: http://www.mag.maricopa.gov/project.cms?item=131
- Southern California Association of Governments: http://www.scag.ca.gov/rtp/webpdfs/appendix—H.pdf
- Metropolitan Washington Council of Governments: http://www.mwcog.org/trans/aqcsummaryrpt.html
- Miami-Dade MPO: http://www.co.miami-dade.fl.us/mpo/docs/MPO—2025—mdtp—aq—20011206.pdf
- Atlanta Regional Commission: http://www.atlreg.com/mobilityair/PlansPrograms/cdr.html

FHWA does not centrally collect conformity analyses. Our 52 Division Offices act on these analyses, and documents are filed locally. However, even the current conformity analyses are not sufficient to do an analysis of forecast versus observed VMT growth. To do this sort of analysis, previous and archived technical analyses would need to be retrieved, and would require a substantial amount of effort, not only by FHWA, but most likely also by the MPOs and the State Departments of Transportation, as FHWA may not have archived technical data in its files. Even if we could collect the data, a national pattern would be difficult to establish or justify, as the factors affecting forecasts vary significantly from one urban area to another (see our response to the next question for more details). A precise comparison of forecasted versus observed VMT on a national level is not possible due to limited data. At least in some instances, forecast VMT as used in SIPs and reported in transportation planning documents may underestimate observed VMT. Finally, it should also be noted that even though areas collect travel data, this "observed" data is based on sampling; it must be expanded, through estimation and modeling, to reflect total VMT for an area.

Question 1c. How much of the difference in forecasts has been due to changes in estimated population and employment, changes in motor vehicle use, changes in transit fares and transportation costs, improvements in transportation models or other factors?

Response. Differences in forecasts can be attributed to a variety of factors, including changes in estimated population and employment and their distribution within

a metropolitan area, changes in service availability and transportation costs (i.e., fuel prices, transit fares, parking costs, etc.), and improvements in travel models, to name a few. In addition, changes in how VMT is measured can also impact the difference in forecast vs. "observed" VMT. Because these factors can vary significantly from one urban area to another and the difference in forecasts, to a large extent, is due to the interaction among all these factors, there are no simple quantitative measures relating the proportional contribution of each factor to the overall difference between forecast and observed VMT. However, as a general rule, differences in the regional distribution of population and employment can have a significant impact on forecasts of regional travel behavior. In most areas across the Nation, population and employment location are influenced by larger societal trends over which transportation agencies have limited or no regulatory authority. The time-span of data used for developing a trend—i.e. the number of years of estimated observed VMT used to estimate VMT growth—also has a noteworthy and significant effect on forecasting VMT.

In most cases, regional travel demand forecasting models simply may not adequately account for shifts in population and employment resulting from the addition of new transportation facilities, and subsequently the increase in travel activity due to these shifts. While the exact amount of travel growth resulting from induced demand is uncertain, there is growing consensus in the transportation planning profession that the induced travel is a reality.

Question 2. Recent peer-reviewed research papers published by TRB showed an average observed elasticity of regional vehicle miles traveled (VMT) with respect to regional lane miles of capacity of 0.83. Has FHWA reviewed and evaluated the adequacy of regional travel models used for conformity analysis with respect to this important measure of induced traffic, which can have a profound impact on forecast traffic and motor vehicle emissions? If not, what steps will FHWA take in the next months to assure timely progress in assessing regional travel models against this scientific benchmark and to assure timely correction of MPO models that do not now adequately reflect induced traffic effects?

Response. We are very aware of the issue, its complexity, and potential impact on travel demand analysis. A comprehensive study on the relationship between highway capacity expansion and mobile source emissions is contained in the Transportation Research Board (TRB) report entitled, "Expanding Metropolitan Highways; Implications for Air Quality and Energy Use" (Special Report 245 (1995), TRB/National Research Council (NRC)). This report states that:

> "The complex and indirect relationship between highway capacity additions, air quality, and energy use, which is heavily dependent on local conditions, makes it impossible to generalize about the effects of added highway capacity on air quality and energy use, even with improved models. On the basis of current knowledge, it cannot be said that highway capacity projects are always effective measures for reducing emissions and energy use. Neither can it be said that they necessarily increase emissions and energy use in all cases and under all conditions."

Later studies have considered the issue of induced demand. Using data sources and applying them to a dataset from the Milwaukee area, Kevin Heanue, in an article entitled "Highway Capacity and Induced Travel: Issues, Evidence and Implications," concluded that 78 percent to 94 percent of VMT increases are caused by social, and economic factors such as population, employment, and household sizes. (Highway Capacity Expansion and Induced Travel, Transportation Research Circular, No. 481 (1998), TRB/NRC.) Noland and Cowart (1999) found that, depending on the metropolitan area, there was a range of between 15 and 45 percent of increase in VMT attributable to induced travel. From a statewide analyses, Noland (1999) found approximately 21–29 percent of VMT growth attributable to induced travel, while Cowart (2001) comparably found approximately 26–31 percent of VMT growth attributable to induced travel for urban areas over 1 million. The TRB has also published numerous papers that have attempted to develop elasticity measures of induced travel. These elasticity measures have varied depending on the location, time period of analysis, and data sources used. While these more recent examples do find that induced travel has the potential to be a factor in some cases, we still believe that current modeling practice is inadequate to fully address the complex questions regarding induced demand.

In February 2001, FHWA, EPA, and the Eno Foundation co-sponsored a national symposium of experts to discuss induced travel. The findings of this symposium are summarized in a forthcoming publication from the Eno Foundation. In addition, nearly all participants agreed that changes in transportation services that reduce travel time or costs will (and should) result in increased use of that service. This increased use resulting from improved service is generally defined as "induced de-

mand." While participants agreed on some aspects of induced demand, other issues remain unresolved, such as the magnitude and the effect of this increase. There was also disagreement about what methodologies are applicable where, and consequently about which elasticity values are appropriate in different contexts. Furthermore, there is substantial disagreement about whether a capacity elasticity that has no time component is a meaningful indicator.

The relationship between changes in highway service (capacity) and increases in vehicle miles traveled and "induced travel" is very complex. The analyses cited above employed different approaches and definitions making their interpretation and comparison challenging. Induced travel may include longer routes, change in travel mode, changes in trip destination and an increase in trip making. New highway capacity may also shift the time of day of travel, though such a shift should not be interpreted as induced travel. Regional growth may occur, accompanied by a corresponding increase in travel. This may also be interpreted as induced travel but many in the transportation community would disagree.

Induced travel may also occur across modes, that is changes in one mode may induce travel in another. For example, commuter rail service into areas previously unserved by transit may support new residential development which in turn brings increased use of the highway system. Or, a new highway that connects to a rail station may promote increased use of the transit system.

Some induced demand may be accounted for in forecasts made by regional travel models. The extent to which travel models account for induced demand depends on many factors, including the size of the transportation improvement, the timeframe of the forecast, the accuracy of the assumptions on population and employment growth, and the sophistication of the travel models themselves. As such, concerted effort and considerable sophistication is needed to both develop the data and operate the models for this purpose. Even under the best of circumstances, accurately assessing induced demand is a difficult process.

FHWA is a strong advocate for improving travel models to better address transportation planning issues, including induced demand. FHWA's Travel Model Improvement Program (TMIP) conducts research, and provides training and technical assistance to State DOTs and MPOs to improve the current state-of-the-practice in travel modeling. Current research projects are investigating methods for incorporating commercial vehicle movements and departure time considerations in current travel models. The TMIP Program also oversees the development of a new generation travel model, the Transportation Analysis and Simulation System or TRANSIMS, which uses microsimulation techniques to better represent the travel activity behavior of individuals in response to the capacity and system characteristics of the regional transportation system. The microsimulation can also represent vehicle operational characteristics that may lead to more precise estimates of emissions. TRANSIMS is currently being tested in Portland, Oregon, with additional deployments to other metropolitan areas beginning in 2003. When fully implemented, we expect that TRANSIMS will make the incorporation of induced demand impacts easier to model.

Question 3. For each metropolitan area classified as a serious, severe or extreme ozone nonattainment area or serious PM–10 nonattainment area, please identify the dates when conformity determinations have been made for the regional transportation plans and/or transportation improvement programs adopted by any MPO, and where conformity has lapsed for any period of time within any such nonattainment areas, and identify the dates when the conformity lapse commenced and when a new conformity determination was made. Also, please identify the dates when current conformity determination lapse.

Response. Table 1 presents the most recent conformity determinations on Plans and TIPs in MPOs that are located in nonattainment areas classified as serious and above for ozone or serious for particulate matter of under 10 microns (PM–10). Conformity determinations must be updated no less frequently than every 3 years.

Table 1: Metropolitan Areas, Serious and Above for Ozone and PM–10

Area	States	Classification		Latest Plan Conformity Determination	Latest TIP Conformity Determination
		Ozone	PM–10		
Atlanta		Serious.			
Atlanta Regional Commission	GA			7/25/2000	11/28/2001
Baltimore		Severe.			
Baltimore Metropolitan Council	MD			2/2/2002	2/2/2002

Table 1: Metropolitan Areas, Serious and Above for Ozone and PM–10—Continued

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Area	States	Classification		Latest Plan Conformity Determination	Latest TIP Conformity Determination
		Ozone	PM–10		
Baton Rouge		Serious.			
Capital Region Planning Commission	LA			5/15/2001	5/15/2001
Boston, MA-NH		Serious.			
Boston MPO	MA			6/18/2002	10/1/2001
Old Colony MPO	MA			11/12/2001	10/1/2001
Southeastern Massachusetts MPO	MA			1/12/2001	10/1/2001
Montachusett MPO	MA			1/12/2001	10/1/2001
Cape Cod MPO	MA			1/12/2001	10/1/2001
Merrimack Valley MPO	MA			1/12/2001	10/1/2001
Northern Middlesex MPO	MA			1/12/2001	10/1/2001
Central Massachusetts MPO	MA			1/12/2001	10/1/2001
Salem/Plaistow MPO	NH			8/26/2002	8/26/2002
Southern New Hampshire Planning Commission	NH			8/26/2002	8/26/2002
Nashua Regional Planning Commission	NH			8/26/2002	8/26/2002
Chicago		Severe.			
Chicago Area Transportation Study	IL			11/2/2000	6/6/2002
Northwestern Indiana Regional Planning Commission	IN			2/26/2001	2/26/2001
Dallas—Fort Worth		Serious.			
North Central Texas Council of Governments	TX			10/19/2001	10/19/2001
El Paso		Serious.			
El Paso MPO	TX			7/18/2001	7/18/2001
Greater Connecticut		Serious.			
Central Connecticut Regional Planning Agency	1CT			3/2/2001	10/1/2001
Capitol Region Council of Governments	CT			5/10/2001	10/1/2001
South Central Regional Council of Governments	CT			3/2/2001	10/1/2001
Southeastern Connecticut Council of Governments	CT			3/2/2001	10/1/2001
Council of Governments of the Central Naugatuck Valley.	CT			3/2/2001	10/1/2001
Midstate Regional Planning Agency	CT			3/2/2001	10/1/2001
Houston		Severe.			
Houston-Galveston Area Council	TX			6/4/2002	6/4/2002
Las Vegas		Serious.			
Regional Transportation Commission of Southern Nevada.	NV			3/27/2001	13/27/2001
Los Angeles South Coast Air Basin		Extreme	Serious.		
Coachella Valley (Riverside County)			Serious.		
Ventura County		Severe.			
Southeast Desert Modified AQMA		Severe.			
Southern California Association of Governments	CA			6/28/2001	9/26/2001
Milwaukee—Racine		Severe.			
Southeastern Wisconsin Regional Planning Commission	WI			3/14/2002	3/14/2002
New York-Northern New Jersey-Long Island, NY-NJ-CT.		Severe.			
Housatonic Valley Council of Elected Officials	CT			4/30/2001	10/1/2001
South Western Regional Planning Agency	CT			11/19/2001	10/1/2001
Greater Bridgeport/Valley MPO	CT			3/2/2001	10/1/2001
Newburgh-Orange County Transportation Council	NY			9/28/2001	12/15/2000
New York Metropolitan Transportation Council	NY			9/30/1999	9/26/2001
North Jersey Transportation Planning Authority	NJ			9/20/2002	9/20/2002
Philadelphia—Wilmington—Trenton, PA-DE-MD-NJ.		Severe.			
Delaware Valley Regional Planning Commission	PA			7/6/2001	7/6/2001
Delaware Valley Regional Planning Commission	NJ			6/27/2002	6/27/2002
South Jersey Transportation Planning Organization	NJ			7/22/2002	7/22/2002
Dover/Kent County MPO	DE			7/20/2001	7/20/2001
Wilmington Area Planning Council	DE-MD			4/13/2000	9/9/2002
Phoenix		Serious	Serious.		
Maricopa Association of Governments (MAG)	AZ			8/5/2002	8/5/2002
Portsmouth—Dover—Rochester		Serious.			
Seacoast MPO	NH			8/26/2002	8/26/2002
Providence		Serious.			

Table 1: Metropolitan Areas, Serious and Above for Ozone and PM–10—Continued

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Area	States	Classification		Latest Plan Conformity Determination	Latest TIP Conformity Determination
		Ozone	PM–10		
State Planning Council	RI			11/26/2001 ..	2/20/2000
Reno		Serious.			
Regional Transportation Commission of Washoe County	NV			12/12/2001 ..	12/12/2001
Sacramento		Severe.			
Sacramento Area Council of Governments	CA			7/24/2002	10/5/2000
San Diego		Serious.			
San Diego Association of Governments	CA			4/13/2000	10/6/2000
San Joaquin Valley		Severe	Serious.		
Kern County Council of Governments	CA			9/25/2001	9/25/2001
Council of Fresno County Governments	CA			2/22/2002	2/22/2002
Merced County Association of Governments	CA			9/25/2001	2/22/2002
Stanislaus Area Association of Governments	CA			12/21/2001 ..	12/21/2001
San Joaquin County Counicl of Governments	CA			2/22/2002	2/22/2002
Tulare County Association of Governments	CA			2/22/2002	2/22/2002
Santa Barbara—Santa Maria—Lompoc.		Serious.			
Santa Barbara County Association of Governments	CA			6/4/2002	9/19/2000
Springfield (Western MA)		Serious.			
Berkshire Regional Planning Commission	MA			1/12/2001	10/01/2001
Pioneer Valley MPO	MA			1/12/2001	10/01/2001
Washington, DC-MD-VA		Serious.			
Fredericksburg Area MPO	VA			1/22/2001	1/22/2001
National Capital Region Transportation Planning Board	DC-MD-VA			1/22/2001	1/22/2001

Conformity lapse information was not collected on a regular basis before 1999, but it was collected on an ad-hoc basis. Therefore, we are providing lapse information for serious and above ozone and PM–10 areas since that time. Table 2 shows a record of transportation conformity lapses in serious and above ozone and PM–10 areas since July 1999 (as of September 17, 2002).

Table 2: Conformity Lapses in Serious and Above Ozone and PM–10 Nonattainment Areas Since July 1999

Location	Dates of Lapse
Atlanta, GA	01/17/98–07/25/00
Baton Rouge, LA	10/30/00–04/09/01
Coachella Valley and Mohave portions of LA Metro Area (SCAG), CA	06/09/01–08/03/01
Dover (Kent County), DE	07/05/99—08/12/99
Greater Bridgeport & Valley, CT	03/03/01–03/15/01
Houston-Galveston, TX	11/99–04/00
Manchester, NH	10/01/00–11/27/00
Nashua, NH	10/01/00–11/27/00
Philadelphia (DVRPC), NJ portion	04/10/01–05/21/01
Reno, NV	10/01/01–11/29/01
Santa Barbara County, CA	01/18/99—10/21/99
South Central, CT	03/03/01–03/15/01
South Jersey (SJTPO), NJ	04/10/01–06/18/01

Although only information on serious and above ozone and PM–10 areas was requested, it is important to note that transportation conformity applies to all areas that are designated nonattainment or maintenance for the criteria pollutants: ozone, carbon monoxide, nitrogen dioxide and PM–10. Therefore a failure to demonstrate conformity of a metropolitan plan or TIP in any of these areas also results in a conformity lapse. Since the implementation of the conformity program under the 1990 Clean Air Act Amendments, a number of lapses with various lengths and degrees of impacts have occurred in these other nonattainment and maintenance areas.

Question 4. Despite our progress on vehicle emissions technology, we are still having trouble attaining our national air quality standards. Estimates indicate that about 150 million people are currently breathing unhealthy air that's polluted by

ozone and fine particles. What is transportation's percentage contribution to this non-attainment problem?

Response. FHWA's "Transportation Air Quality Selected Facts and Figures," (see: http://www.fhwa.dot.gov/environment/aqfactbk/index.htm) as referenced by Administrator Peters in her testimony, notes that in 1999 on-road mobile emissions nationally accounted for 29 percent of volatile organic compound (VOC) emissions, 34 percent of the nitrogen oxide (NOx) emissions, 51 percent of the carbon monoxide (CO) emissions, and 10 percent of the PM–10 emissions.

These are national estimates, and percentages for specific nonattainment areas could be higher or lower. For example, in the Atlanta serious ozone nonattainment area, on-road mobile source emissions contribute approximately 47.3 percent of VOCs and 62.5 percent of NOx as compared to other sources, according to air quality modeling data from 1999. This data, as well as data for all other counties, is available on the EPA Air Data web page, located at http://www.epa.gov/air/data. Also, it is important to note that emissions do not have a direct linear relationship with actual pollutant concentrations in the air. Other factors, including meteorology and topography, can have a great influence on nonattainment.

Where transportation is a significant source of pollutants, the EPA reports that ozone (formed by the reaction of VOC and NOx), CO, and PM–10, have all decreased substantially since 1970. (Presented by Jeff Clark, Director, Policy Analysis and Communications Staff, Office of Air Quality, Planning and Standards, U.S. EPA at the "National Energy, Environment and Transportation Summit", May 15–17, 2002, New York City.) A majority of the areas designated as nonattainment since 1990 now meet national air quality standards. Air quality monitoring data through 2000 shows that:

- 76 out of 78 CO nonattainment areas,
- 69 out of 85 PM–10 areas, and
- 81 out of 101 1-hour ozone areas

no longer show air pollution levels that exceed the current national ambient air quality standards. And, while the Clean Air Act (CAA) has reduced emissions from all air pollution sources, the greatest success can be found in the reduction of motor vehicle emissions: CO emissions have been reduced by 43 percent since 1970, PM–10 emissions reduced by 33 percent, and VOC emissions by 59 percent from motor vehicles.

The one exception to this consistent, downward trend in criteria pollutants from motor vehicles since 1970 is a 16 percent increase in NOx emissions, even though emission rates per vehicle have decreased due to increasingly cleaner technology. Looking across vehicle types, total NOx emissions from light-duty passenger cars decreased 31 percent since 1970, while NOx emissions from light-duty trucks and SUVs increased 28 percent, NOx emissions from heavy-duty gas trucks increased 65 percent, and NOx emissions from heavy-duty diesel trucks increased 116 percent.

It is significant to note that all of these changes in emissions from transportation sources have occurred during a time period where population increased 33 percent, gross domestic product increased 147 percent, and vehicle miles traveled increased 143 percent.

To establish what impact transportation sources will have on future air quality trends, it is important to understand how mobile source emissions are determined. EPA recently released its new motor vehicle emissions model, MOBILE6, that in simplest terms calculates total emissions from transportation sources by multiplying vehicle miles traveled by a relevant emission factor. Such emission factors take into account emission reductions achieved from technological and Federal measures, as well as some local control measures. On a national basis, emissions estimates calculated from MOBILE6 show that all emissions, including NOx, will decrease significantly through 2020 based on the emission reductions achieved primarily from existing Federal regulations.

Specifically, engines and fuels are to become even cleaner under recent EPA-issued regulations for emissions standards and cleaner fuel requirements. These new standards require all passenger vehicles, including higher emitting SUVs, sold after the phase-in period to be 77 to 95 percent cleaner than those on the road today, and will reduce the sulfur content of gasoline by up to 90 percent. Also, after a phase-in period, each new truck and bus will be more than 90 percent cleaner than current models. This will lead to substantial emissions reductions, not just per vehicle, but also in total. For example, NOx emissions from passenger vehicles are projected to decrease 61 percent by 2030, and NOx emissions from heavy-duty trucks are projected to decrease 88 percent by 2030. (The passenger vehicle projection assumes a VMT growth rate of 1.7 percent per year from 2007 to 2030. Source: Cleaner Vehicles and Cleaner Gasoline Tier 2 / Gasoline Sulfur Rule, December 22,

1999, Regulatory Impact Analysis, http://www.epa.gov/otaq/regs/ld-hwy/tier–2/frm/ria/chiii.pdf. The heavy-duty truck projection assumes a variable growth rate for VMT by Heavy-Duty Diesel Engines that averages 2.5 percent per year. Source: Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements, Regulatory Impact Analysis (EPA420-R–00–026), http://www.epa.gov/otaq/regs/hd2007/frm/ria-ii.pdf.)

It should be noted that although information is presented above for the current national ambient air quality standards, similar information in not yet fully developed for the new PM and ozone standards. Corresponding information will be developed for the new standards as part of the implementation process associated with those standards.

Question 5. Does the Administration plan to propose any substantial changes to either the CMAQ program or to conformity, as we go forward with reauthorization? If you do, I hope you'll get all the major stakeholders on board first.

Response. The Administration is still in the process of formulating its legislative proposal. As part of the development process, FHWA has met with literally dozens of organizations and groups representing a wide range of interests in the highway and transit programs. We are evaluating this diverse stakeholder input as we develop the legislative proposal. We are also evaluating the recommendations of the National Academies of Science (NAS) study of the Congestion Mitigation and Air Quality program (CMAQ).

The major stakeholders have raised a significant number of issues affecting the air quality aspects of the transportation program and there is a great diversity of opinion on what changes should be implemented. Some of the more significant issues include:

CMAQ's air quality benefit analysis requirement—Some find it burdensome and would replace it with categorical listings, while others endorse technical analysis and would prefer that it be used to rate and rank projects as well as to find them eligible.

Suballocation of CMAQ funds—Some stakeholders would require that CMAQ funds be suballocated to metropolitan areas, but others wish States to have greater authority in deciding where the funds should be used.

Congestion mitigation—Some stakeholders believe that congestion mitigation and bottleneck relief would be air quality beneficial and would use CMAQ to fund some limited amount of single occupant vehicle capacity expansion, which conflicts with those who believe that any congestion relief leads to induced travel demand and should not be funded at all.

CMAQ apportionment formula—A number of stakeholders believe that the CMAQ funding formula should be revised to support the nonattainment areas that EPA is expected to designate for the new air quality standards; but they are also concerned about diluting the available funds.

CMAQ authorization levels and project priority—Various stakeholders have requested more funding for transit, for freight, for bicycle projects, for clean fuels, and for congestion mitigation, among other proposals, or that such activities be given priority for funding. Others cite the program's flexibility as one of its greatest assets and argue against a "one size fits all" approach.

Coordination of the planning and conformity processes—Some stakeholders indicate that there remain opportunities to improve the transportation conformity process. They cite the fact that transportation plans and SIPs are not synchronized with one another due to different planning horizons and update frequencies. Others are concerned that any changes may eventually create additional problems for achieving air quality goals.

Although final decisions have not been made on approaches to address the air quality aspects of the transportation program, to the greatest extent possible, we will address these stakeholder concerns in the final Administration reauthorization proposal.

Question 6. According to the recent report from the Transportation Research Board, it seems that air quality agencies don't have a big role in making decisions about State expenditures of CMAQ funding. What incentives can we provide so that State DOTs open this process up more?

Response. In our experience, the extent to which air quality agencies have input into the CMAQ project selection process varies. The CMAQ program apportions funds to States to provide support to over 100 nonattainment and maintenance areas for ozone and/or carbon monoxide. State and local officials may develop their own project selection processes, as long as they keep within the statutory require-

ments. Some employ very open and decentralized processes while others maintain tighter control over the funds.

While there is no standard model, some States and MPOs have air quality committees that serve a number of functions including assisting with SIP development, coordinating conformity determinations, and reviewing CMAQ proposals. State and local air quality officials, as well as Federal personnel, are routinely represented on these committees. How big a role is played by the air quality officials depends on many local factors such as the size and membership of the committee, the importance of air quality issues in the metropolitan area, and the project selection procedures set up by the MPO Board of Directors.

As noted in the NAS report, the CMAQ Program Guidance has consistently promoted close collaboration with air quality agencies. On page 162, the panel concluded, "Program regulations encourage consultation with State and local air quality agencies in the development of appropriate project selection criteria and the agencies' involvement in project selection and program funding decisions." We agree that greater participation would likely enhance the process and may improve the effectiveness of some projects funded under the program. When we commented back to the NAS panel on this point, they made it clear that their recommendation did not extend to a process of reaching consensus with air agencies over projects selected for funding. Nonetheless, we intend to reinforce the need for consultation with air quality agencies in our future communications with State Departments of Transportation (DOTs) and MPOs, consistent with the NAS recommendation.

Question 7. Since many surface transportation projects are already targeted at congestion mitigation, should we split off that purpose from the CMAQ program and focus more on air quality?

Response. The CMAQ program is already targeted at air quality improvement. Only projects that demonstrate an air quality benefit may be funded. This is evidenced by the statutory requirements tying eligibility for funding to direct air quality benefits or to inclusion in a strategy to reduce air pollution. A demonstration of such benefits is required under the program before funding is authorized. Congestion mitigation in the CMAQ program is addressed primarily by the recognition that many transportation control measures (TCMs) aimed at reducing emissions will also have congestion reduction benefits by either reducing vehicle use or improving the efficiency of the transportation system. Congestion relief is an ancillary benefit that can enhance the attractiveness of such projects. For many projects-including traffic flow improvements, transit, ridesharing, pricing strategies, and even bicycle and pedestrian projects-emission reduction and congestion relief can be closely related, but not all congestion relief projects will reduce emissions.

The need for TCMs has been legislatively recognized for a long time. The CAA and title 23 of the United States Code (USC) include provisions promoting TCMs for both their air quality and congestion relief benefits, especially traffic flow improvements. Section 108(f)(1)(A)(v) of the CAA identifies, "traffic flow improvement programs that achieve emissions reductions" as one of the transportation control measures, and the Intermodal Transportation Efficiency Act of 1991 (ISTEA) required that they be given priority for funding. The 108(f) TCMs are eligible for funding not only under the CMAQ program but also under the Surface Transportation Program. And the CAA makes TCMs one of the few project categories exempt from highway funding sanctions. Finally, Section 149(b)(5) of title 23 makes traffic flow improvements explicitly eligible under the CMAQ program.

The greatest potential for air quality gains is through cleaner fuels and vehicles (especially diesel powered vehicles), faster fleet turnover of older vehicles, and maximally effective inspection and maintenance (I/M) programs. Some of these activities are eligible for CMAQ funding and some States, like New Jersey, Illinois, California and Connecticut have used their CMAQ funding to good advantage for I/M and diesel retro-fit programs. Some, like scrappage programs, are legislatively prohibited. But the largest impact, that of new vehicle standards and mandated cleaner fuels, is largely outside the realm of Federal transportation funding.

Traditional TCMs like transit and traffic flow improvements have small air quality impacts because their benefits are realized at the corridor level and are much less significant at the regional level. Based on the CMAQ annual reports, no category of traditional TCMs shows significantly greater emissions reductions over any of the others. The emissions impacts of traffic flow improvements, for example, are no worse than the other types. At least for regional pollutants like ozone, what appears to be an important determinant is the size of the project. This is not obviously true for PM–10 due to the localized nature of the pollutant. Larger, more regionally focused projects, like traffic management control centers, have concomitantly larger benefits.

Smaller projects can have some decided advantages. Some congestion relief projects that also demonstrate emission reductions can be implemented quickly. This can be crucial to a nonattainment area facing a short term CAA deadline of 2005 or 2007 and is even more important to those whose deadlines have passed. And CMAQ-funded projects that reduce emissions and relieve congestion have been important to meeting conformity determinations in several areas.

Question 8. In general, would you agree that conformity is spurring investments in transportation strategies and technologies that reduce air pollution and create better interagency cooperation?

Response. The purpose of transportation conformity is to ensure that transportation activities that receive Federal funding and approval are consistent with air quality goals. It ensures that transportation activities in nonattainment and maintenance areas will not create new violations of the Federal air quality standards, will not increase the frequency or severity of existing violations of the standards, or will not delay attainment of the standards. It is not, however, the purpose of conformity to serve as an emission reduction program. It is actually the role of the State air quality implementation plan (SIP) process to develop control measures that will be needed to reduce emissions and meet the National Ambient Air Quality Standards (NAAQS).

Transportation conformity was intended to form strong linkages between the transportation and air quality planning processes. Fulfilling the transportation conformity requirements has created stronger institutional links between two sets of agencies—transportation and air quality—that operated quite independently of each other prior to enactment of the Clean Air Act Amendments of 1990 (CAAA). This interagency consultation has played an important role in the development of more realistic and achievable transportation and air quality plans.

The vast majority of emissions reductions from motor vehicles have come from and will continue to come from technological advances: engine emissions standards and cleaner fuels that are the direct result of other requirements of the Clean Air Act. Thus, these emission reduction programs cannot be directly attributable to transportation conformity. However, the benefits of these regulations are accounted for in the SIP's mobile source budgets used for conformity and/or in the conformity determinations for transportation plans and TIPs.

Although it is difficult to segregate the impacts of potential changes in the transportation-air quality linkage, FHWA believes that funding flexibility—especially the CMAQ program-initiated under ISTEA and continued in the Transportation Equity Act for the 21st Century (TEA–21) has been a major factor in spurring investments in transportation strategies that reduce motor vehicle emissions. To date, over $11 billion in CMAQ funding has been invested to reduce transportation emissions, about $4.8 billion of which has been used for transit. An additional $3.1 billion in Surface Transportation Program (STP) funding has been used for transit purposes as well.

Question 9. In general, what is the general ratio of spending on planning in the States for air quality versus transportation planning?

Response. For fiscal year 2002, FHWA and FTA apportioned $836 million to the States for metropolitan and statewide transportation planning and research. In addition, National Highway System (NHS), STP, and Minimum Guarantee funds may also be utilized for transportation planning. FHWA does not collect information regarding expenditures of State and local funding on transportation planning. However, it can be assumed that these expenditures will vary widely from State to State, and city to city. The portion of transportation planning dollars spent on conformity analysis varies from area to area. But in some areas it can be a significant portion.

The costs of air quality planning accrue from both the overall air quality planning by State and local air agencies as well as costs incurred by MPOs and State Departments of Transportation in the development of the mobile source portion of air quality plans. FHWA does not collect any information regarding funding for air quality planning. We defer to the individual States and metropolitan areas to provide this information.

Question 10. As you noted, emissions per vehicle mile traveled have dropped. But it seems to be taking longer on average for a car to travel a mile because of congestion. Does this increase in "idling time" offset the emissions reductions from control technologies?

Response. The relationship between congestion and air quality is complex. But generally, if we reduce congestion in the lower speed ranges, which is where congestion typically occurs, vehicle emission rates will be reduced. For example, NOx and CO emission rates per vehicle will generally decrease as speeds are increased up

to approximately 35mph, at that point these emission rates will start to slightly increase.

VOC emissions, on the other hand, appear to uniformly decrease as speed is increased and congestion is reduced.

The above is based on current models. However, current models do not adequately assess the full benefits of reducing the number of stops and starts and idling emissions. Rather, they tend to use average speeds. Recent research, funded by EPA and FHWA, indicates that reducing the number of accelerations, a byproduct of reducing congestion, can reduce emissions at the corridor level. Reports from the Georgia Institute of Technology and University of California at Riverside show that emissions increase greatly under hard accelerations and thus can be reduced by smoothing traffic flow. On a regional basis, the emissions reductions will be smaller, as has been our experience with most TCM-type projects.

Retrospectively, it has been correct to say that generally as speeds increase, and as the smoothness of flow of traffic improves, the rate of emissions attributable to an average in-use vehicle will decrease, albeit with different profiles for the different pollutants. But as speeds increase and likelihood of congestion delay decreases, there will also be some measurable increase in the total number of vehicles using the system at those places and at those times where the flow/speed improvement have occurred. Whether the reduction in the specific rate of emissions caused by the speed/flow increase is offset by the increase in volume of vehicles producing emissions is an open question that can only be answered by studying the particular conditions of specific instances (and even there, many question whether current modeling capabilities can adequately address such a question). These points are fundamental to understanding whether or not increases in idling time or congestion will offset improved emission rates from emission control technology. At any rate, it cannot always be asserted that increases in speeds or improvements in flow of traffic reduce overall emissions of local pollutants or contribute to an improvement in air quality.

There is a particularly significant reason why the air quality benefit from congestion relief measures, including traffic flow, transit and other types of improvements, will decline in the future. As a result of EPA's Tier II emissions performance regulations, new passenger cars and light trucks will need to meet stringent emission standards. EPA reports that not only will the average emission rates be much lower, we will also not see significant differences in emission rates versus speed. As such, emission rates for vehicles under all driving conditions, including heavy stop and go traffic, are expected to be significantly cleaner. The difference between emission rates for congested conditions and free flow traffic will decline.

RESPONSES OF MARY PETERS TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. During the hearing, I asked about the small urban and rural areas that may be designated as non-attainment for the first time. I have a few more questions about this matter. What particular challenges do these areas face in terms of transportation and air quality planning and the conformity process? Are there going to be massive conformity problems resulting in delays or highway projects because of new designations? What can specifically be done to help these communities?

Response. The new 8-hour ozone and fine particulate matter (PM–2.5) standards will be more stringent, and many areas across the eastern U.S. and in California have pollution levels now exceeding these standards. Some of these areas, including small urban and rural areas, may be designated nonattainment for the first time. Other existing nonattainment areas may become larger and involve more jurisdictions under the new standards. The Department and EPA are working with these areas to increase their capacity to deal with new nonattainment designations.

Some of the challenges these areas face include a lack of resources (i.e., funding and staff), a lack of technical expertise, a lack of knowledge and experience, and the fact that many are the more complex nonattainment areas such as those that encompass multiple States and multiple MPOs.

It is too early to tell the magnitude of transportation and air quality planning and conformity issues that might surface following implementation of the new standards. However, based on our experience when the 1990 Clean Air Act amendments were implemented, we would expect these areas to face challenges in the early years. Therefore, DOT and EPA will be considering ways to make the integration of the two planning processes as workable as possible.

DOT and EPA have worked closely in providing technical assistance to areas to address conformity and transportation air quality issues. In anticipation of the num-

ber of new areas designated nonattainment for the first time, DOT has embarked on a number of activities to prepare the areas for this challenge:

1. FTA worked closely with FHWA and EPA in developing a basic transportation conformity training course. The course was offered six times during fiscal year 2002 and was attended by about 230 people representing both public (Federal, State, and local governments) and private sectors of both transportation and air quality disciplines.

2. FHWA and EPA co-funded 6 MOBILE6 training courses after the release of the model in January 2002. All the training courses were well attended. In addition, FHWA Resource Center staff was in great demand in providing MOBILE6 training.

3. FHWA and EPA field staff have held numerous workshops across the country on conformity, CMAQ and other topics in transportation and air quality.

4. In May 2002, FHWA launched a Transportation Conformity Community of Practice website to allow for free exchange and discussions on topics related to conformity among practitioners.

5. FHWA and FTA are working on the development of three different training courses which will be available through National Highway Institute next year:

- Estimating Regional Mobile Source Emissions,
- CMAQ Program: Purpose and Practice, and
- The Implication of Air Quality Planning on Transportation.

6. FHWA, FTA, and EPA have implemented a public education and partnership-building initiative, "It All Adds Up to Cleaner Air," in response to State and local governments' requests for help in meeting their traffic congestion and air quality goals under TEA–21 and the Clean Air Act. The program is instrumental to the formation of The Alliance for Clean Air and Transportation (ACAT or the Alliance), a national coalition of public and private organizations working together to advance solutions for the nation's traffic congestion and air pollution challenges.

"It All Adds Up" is designed to inform the public about the connection between their transportation choices, traffic congestion, and air pollution. The program emphasizes simple and convenient actions that people can take to improve air quality and reduce traffic congestion, while saving themselves time, money, and stress. During the demonstration phase of the initiative, 14 communities implemented the initiative locally and more than 60 others requested materials and information for use in their regions.

7. EPA and DOT jointly funded a cooperative agreement with the National Association of Regional Councils that includes a number of outreach efforts (newsletter, website, workshops) aimed at transferring knowledge about integrating transportation and air quality planning from experienced MPOs to those MPOs that will be facing the challenges for the first time.

Question 2. As I mentioned during the hearing, the current Federal budget crisis demands that we look at the cost-effectiveness of our government's programs. Could you provide detailed information to put in perspective how cost effective transportation and air quality projects have been?

Response. The NAS report refrained from making statements concerning the cost-effectiveness of CMAQ projects because the basic data needed to carry out such an analysis are not available. The lack of data is primarily due to the wide variety of projects funded with CMAQ dollars, and the fact that evaluations are based on projected rather than actual outcomes.

Even with similar projects it is difficult to make meaningful comparisons across projects because of differences in assumptions and methods, as well as background conditions. Therefore, there is a wide range of cost-effectiveness results for TCMs, even for the same type of CMAQ strategy, which suggests that performance depends largely on context, that is, on where and how the projects are executed. The report reviewed previous studies on cost-effectiveness. It showed a huge range, from costs of about $1,000 per ton of hydrocarbon removed for a ridesharing project to almost $10,000,000 for a telework project. To lesser extents, each TCM category studied showed broad but less dramatic ranges, usually from about $10,000 a ton to several hundred thousand dollars per ton of VOC reduced.

The NAS noted that "the limited evidence available suggests that, when compared on the sole criterion of emissions reduced per dollar spent, approaches aimed directly at emission reductions (e.g., new-vehicle emission fuel standards, well-structured inspection and maintenance (I/M) programs, vehicle scrappage programs) generally have been more successful than most CMAQ strategies relying on changes in travel behavior." We concur with this conclusion. Fuel standards will affect every new vehicle purchased, and all vehicles over time will conform to these standards. Similarly I/M programs typically affect nearly all of the vehicles in the region. And, based on our experience, I/M programs are more effective than other projects. For

example, the I/M program in New Jersey is funded in large part by the CMAQ program and is estimated to reduce volatile organic compounds (VOCs) by 40 tons per day. States like New Jersey, Illinois, and Connecticut have devoted large sums of CMAQ funding to their I/M programs. By contrast, many investments (transit, traffic flow) may be limited to corridor level improvements whose benefits will have a limited impact on the region as a whole. These may be very effective projects, but their small size limits their regional impact.

There are two other types of projects that appear to be more cost-effective in comparison to other projects. Advancing new technology in the vehicle fleet through the use of alternative fuels, diesel retrofits, and the purchase of new buses (both clean-diesel and alternative fuel) appears to be a cost-effective strategy. In fact, a 1998 California Air Resources Board (CARB) study estimated that buses fueled by compressed natural gas (CNG) have a cost effectiveness of $10,000 to $12,000 per ton of NOx reduced, much better than many traditional transportation investments.

Also, regional programs, such as ridesharing, tend to show more cost-effective benefits. For example, the cost-effectiveness of a ridesharing program can range from a low of $1,200 to a high of $16,000 per ton of VOC, due both to the relatively low cost and regional focus of such programs. And, while not a part of the NAS study, there is reason to believe that Intelligent Transportation systems (ITS) improvements when implemented on a regional scale, like a traffic management center, can have relatively larger benefits. Some regional freight projects, like those funded in Ohio, might also fall into this category.

Cost effectiveness numbers have not been collected in a rigorous way for CMAQ-funded projects. FHWA/FTA have allowed and even occasionally required the use of program funds for evaluation in the case of experimental pilot projects, but this is the exception rather than the rule. As such every dollar used for evaluation purposes is employed at the expense of additional transportation investments, and transportation and air quality agencies have shown a reluctance to redirect investment funding for evaluation purposes.

One alternative would be to use Federal research funds for evaluation purposes, but this is currently infeasible. The costs of rigorously evaluating transportation projects can be quite high. The National Highway Cooperative Research Program Report 462, "Quantifying Air Quality and Other Impacts of Transportation Control Measures" noted that, in some cases, the costs of evaluation could exceed the costs of the project itself. The costs of the evaluation, which would need to account not only for the changes in usage to the transportation network, but also for local and regional changes in the economy, opening/closing of activity centers, wind patterns and other changes in emission rates from stationary and area sources, could overwhelm the surface transportation research budget, leaving little or no funding for the many other environmental needs. Report 462 from the National Highway Cooperative Research Program found that, "[the evaluation costs] may be comparable to or even greater than the costs of the TCMs themselves."

Methods for measuring the effects of many CMAQ-funded projects on emissions and air quality are limited at present, and few evaluations have been conducted following the completion of transportation projects to determine whether modeled estimates have been realized. In addition, virtually all strategies are affected by modeling uncertainties. These uncertainties are magnified for TCMs, which require predicting the travel as well as the emission effects of projects.

We are continuing to evaluate the NAS report, the last two recommendations of which concern project evaluation and national program evaluation, both leading to development of more information on the effectiveness and cost-effectiveness of CMAQ-funded projects.

RESPONSES OF MARY PETERS TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. While the National Academy of Sciences did a good job on the CMAQ report, they did not answer one fundamental question: What is the effectiveness of the CMAQ program? In other words, what has been the emission reduction from projects funded by CMAQ?

Response. In its report, the NAS noted how difficult it would be to identify the effects of numerous small projects. One of the findings of the report is that it is not possible to undertake a credible scientific quantitative evaluation of the cost-effectiveness of the CMAQ program at the national level. The lack of data is primarily due to the wide variety of projects funded with CMAQ dollars and the fact that evaluations are based on projected rather than actual outcomes.

Even with similar projects it is difficult to make meaningful comparisons across projects because of differences in assumptions and methods as well as background

conditions. Therefore, there is a wide range of cost-effectiveness results for TCMs, even for the same type of CMAQ strategy, which suggests that performance depends largely on context, that is, on where and how the projects are executed. The report reviewed previous studies on cost-effectiveness. It showed a huge range, from costs of about $1,000 per ton of hydrocarbon removed for a ridesharing project to almost $10,000,000 for a telework project. To lesser extents, each TCM category studied showed broad but less dramatic ranges, usually from about $10,000 a ton to several hundred thousand dollars per ton of VOC reduced.

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There are two other types of projects that appear to be more cost-effective in comparison to other CMAQ projects. Advancing new technology in the vehicle fleet through the use of alternative fuels, diesel retrofits, and the purchase of new buses (both clean-diesel and alternative fuel) appears to be a cost-effective strategy. In fact, a 1998 California Air Resources Board (CARB) study estimated that CNG-fueled buses have a cost effectiveness of $10,000 to $12,000 per ton of NOx reduced, much lower than many traditional transportation investments.

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Cost-effectiveness is not the only measure that is relevant to transportation investments. For CMAQ-funded projects, an additional indicator is the extent to which a strategy might be significant in achieving the air quality standards. For example, a strategy to promote cleaner fuels can be very cost-effective, but to employ this strategy in the broad vehicle fleet requires that a substantial number of vehicles in any given metropolitan area run on clean fuels. While such projects are an important element in our efforts to clean the air, alternative fuel vehicles represent a small share of the total vehicle fleet. Nationally, there are just 400,000 of them out of a fleet of about 200 million.

Cost effectiveness numbers have not been collected in a rigorous way for CMAQ-funded projects. FHWA/FTA have allowed, and even occasionally required, the use of program funds for evaluation in the case of experimental pilot projects, but this is the exception rather than the rule. Because every dollar used for evaluation purposes is used at the expense of additional transportation investments, transportation and air quality agencies have shown a reluctance to redirect investment funding for evaluation purposes.

One alternative would be to use Federal research funds for evaluation purposes, but this is currently infeasible. The costs of rigorously evaluating transportation projects can be quite high. The National Highway Cooperative Research Program Report 462, "Quantifying Air Quality and Other Impacts of Transportation Control Measures" noted that, in some cases, the costs of evaluation could exceed the costs of the project itself. The evaluation costs would overwhelm the surface transportation research budget, leaving little or no funding for the many other environmental needs.

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We are continuing to evaluate the NAS report, the last two recommendations of which concern project evaluation and national program evaluation, both leading to development of more information on the effectiveness and cost-effectiveness of CMAQ-funded projects.

Question 2. Based on the CMAQ data from Federal Highway's web site, which I understand has some limitations, CMAQ projects were estimated to reduce emissions by around one-half million tons of VOCs from 1992–1999. During this same time, EPA reports that total emissions of VOC from vehicles decreased by about 1.8 million tons. It would appear that CMAQ reductions equaled about 28 percent of the total reductions. This sounds impressive, but these reductions are primarily from inspection and maintenance programs and signalization.

Would you agree that efforts to reduce vehicle miles of travel have not been as effective as these technology-based programs?

Response. We cannot reproduce the numbers cited in the question.

But, we would point out that the emissions estimates contained in the CMAQ annual reports have, as you note, serious limitations for this kind of analysis. First, they are predicted estimates, rather than results from before and after studies that must be evaluated carefully. There are many possible sources of error, including the assumptions employed about service utilization and emission rates. Second, in many cases individual project sponsors develop these estimates, and may have a tendency to overstate some estimates. While these estimates may individually fall within reasonable parameters, collectively they may project higher emission reductions than are likely to occur. Third, and perhaps most significant, the data base contains many instances of double counting which would require a substantial effort to eliminate. This double counting occurs when a project is funded over multiple years. Since emission reductions are realized only when the project is completed, current program guidance requires that any request for funding carry an emission reduction estimate for the whole project. Thus, each request for funding over multiple years will carry the same emissions estimate and is likely to be double counted.

Nonetheless, we would agree with your overall conclusion. In our experience, projects that accelerate the introduction of cleaner technologies or maintain the operating condition and emissions characteristics of the current fleet, such as I/M programs, have been much more successful than efforts to reduce vehicle miles of travel. I/M programs are estimated to reduce VOC emissions by as much as 40 tons per day, while most transportation control measures, including traffic signalization projects, yield but kilograms per day.

Demand for travel has grown as population and economic prosperity have increased. Most traditional transportation investments, including those designed to reduce emissions or relieve congestion, are small in comparison to the total network and carry concomitantly small benefits when viewed regionally, even if these projects may be important for individual corridors. However, it should be noted that larger, more regional projects could also have larger impacts since they affect a greater portion of the existing transportation network.

Question 3. As you know, Congress established a 1-year grace period before newly designated non-attainment areas must demonstrate conformity. However, EPA will give these areas from three to 4 years to develop a SIP with an emissions budget. Since the goal of conformity is to encourage better coordination between transportation and air quality plans, would it make more sense to coordinate the conformity demonstration grace period with development of the SIP motor vehicle emissions budget?

Response. We have heard this comment from some of our stakeholders, including the American Association of State Highway and Transportation Officials, as well as during the comment period on EPA's August 6, 2002, rulemaking that incorporated the 1-year grace period into the conformity rule (67 FR 50808). When considering these comments on the rulemaking, both DOT and EPA agreed at that time that the statutory language precludes EPA from extending the conformity grace period, as the October 2000 Clean Air Act amendment specifically provides newly designated areas with a 1-year grace period, after which conformity applies.

However, the Administration has not yet taken a position on the suggestion that the Clean Air Act be amended to allow for a longer grace period. That said, FHWA does support simplifying Federal transportation programs and continuing efforts to streamline project approval and implementation when such efforts provide for environmental stewardship. It is the policy of the Administration, as noted in the recent Executive Order on Environmental Stewardship and Transportation Infrastructure Project Reviews, that the development and implementation of transportation infra-

structure projects in an efficient and environmentally sound manner is essential to the well-being of the American people and a strong American economy.

STATEMENT OF JEFFREY HOLMSTEAD, ASSISTANT ADMINISTRATOR, OFFICE OF AIR AND RADIATION, ENVIRONMENTAL PROTECTION AGENCY

Thank you, Mr. Chairman and members of the committee, for the invitation to appear here today to discuss the Congestion Mitigation and Air Quality Improvement (CMAQ) program and the transportation conformity program in the context of reauthorization of the Transportation Equity Act for the 21st Century (TEA–21). There has been considerable progress in achieving better air quality for Americans since the passage of the Clean Air Act Amendments in 1990. In addition, building on the fundamental structure of ISTEA, TEA–21 further emphasized the importance of transportation in fulfilling environmental goals, as well as significantly contributing to the social and economic well-being of our Nation.

Achieving and maintaining healthy air quality remains an important national priority. EPA sees the reauthorization of TEA–21 as an opportunity to employ all tools available to improve air quality, including transportation, in ways that could help cities across the country make progress toward attainment under both the pre-1997 and the new health-based standards for ozone and fine particulate matter.

Air quality monitoring data show that in the period from 1991 to 2000, concentrations of all six criteria pollutants have declined, including the four criteria pollutants that are most affected by the transportation sector: carbon monoxide, nitrogen dioxide, ozone (smog), and particulate matter (soot). For example, air quality concentrations of carbon monoxide declined 41 percent and concentrations of coarse particulate matter declined 5 percent.

These air pollution data are good news, and are attributable to the transportation and air quality programs currently in place. However, there are approximately 35 million Americans living in 46 counties that are not achieving the old 1-hour ozone ambient air quality standard, and 8.3 million people living in 10 counties that are not achieving the old standard for coarse particulate matter. Furthermore, when we begin to implement the new, more health-protective standards for ozone and particulate matter and designate the areas that are not attaining the standards, the number of people living in areas with air quality considered unhealthy will dramatically increase. Although EPA has not formally identified areas that fail to meet these standards, it appears that more than 80 million people live in 233 counties not meeting the new 8-hour ozone standard, and 75 million people live in 144 counties not meeting the new fine particulate matter standard.

The Criteria pollutant emissions from transportation sources have a significant impact on the health of Americans. Particulate matter is linked to aggravation of pre-existing respiratory ailments, reductions in lung capacity, and a significant number of premature deaths. Ozone can impair lung function, cause chest pain and coughing, and worsen respiratory diseases and asthma. Carbon monoxide can aggravate angina (heart pain).

Even though emissions have been dramatically reduced, on-road mobile sources continue to be a major portion of some of our pollution problems. In 1999, motor vehicles accounted for 51 percent of the total carbon monoxide emissions, 29 percent of the ozone precursor of volatile organic compounds (VOCs), 34 percent of the ozone precursor nitrogen oxides (NOx), and 10 percent of the traditionally inventoried direct emissions of particulate matter nationwide. On a regional scale, motor vehicles can be an even larger portion of an area's inventory. For example, in 1999, on-road vehicles accounted for 48 percent of NOx in Atlanta, Georgia. According State air quality plans for these areas, on-road vehicles account for 63 percent of the area's total NOx in Springfield, Massachusetts; 56 percent of the area's total NOx in the Los Angeles region in California; and 80 percent of the area's total carbon monoxide and 53 percent of the area's total coarse particulate matter in Las Vegas, Nevada. Although emissions reductions from stationary sources are important in many areas throughout the country, these data demonstrate the continuing need to reduce air pollution from motor vehicles . As a Nation, our techniques for reducing motor vehicle emissions have to encompass both technology improvements to vehicles and fuels, as well as programs that encourage other, less polluting, transportation choices.

Technology has provided significant air quality benefits in the past and will continue to do so into the future. Emissions from today's new cars have been reduced by more than 95 percent relative to new cars 30 years ago. EPA's new Tier 2 vehicle standards program is designed to reduce the emissions of new passenger cars and light trucks even further. The rule combines these requirements with requirements

for much lower levels of sulfur in gasoline. By 2020, NOx produced by vehicles will be approximately 70 percent lower as compared to what the levels of NOx would have been without the Tier 2 program in place.

EPA's new clean diesel program for large trucks and buses is another technology-based program. It will achieve emissions reductions based on the use of high-efficiency exhaust emissions control devices coupled with changes in diesel fuel sulfur levels. This program will result in particulate matter and NOx emissions levels that are 90 and 95 percent below the current standards for heavy duty engine emissions in effect today.

A third example of emissions reducing technologies is EPA's Voluntary Diesel Retrofit Program, which is designed to help owners of trucks, buses, and off-road equipment install innovative and cost-effective emission control technology on their diesel engines. These technologies can result in significant reductions of particulate matter and volatile organic compounds (which are a precursor to ozone).

But technology cannot do it alone. Although emissions per vehicle have declined dramatically, the number of miles Americans are driving continues to increase. In 1970, Americans traveled just over one trillion vehicle miles per year; in 2000 it was almost 2.8 trillion. Growth in vehicle miles traveled (VMT) has far outpaced population growth. From 1970 to 1999, population grew 33 percent, but VMT grew 143 percent. These trends are continuing. A conservative national estimate of VMT growth is approximately 2 percent per year. However, in many cities, particularly in the southern and western States, VMT is growing much faster than this average. For example, in the early 1990's, Charlotte's VMT grew about 4.9 percent per year, Denver's VMT grew 4.5 percent per year, and Salt Lake City's VMT grew by 4.3 percent per year. Las Vegas projects that its VMT will increase more than 4 percent per year through the year 2020. The integration of transportation planning and air quality planning is the means to preserve and continue the progress we have made in ensuring that Americans breathe healthy air.

The growth in vehicle traffic also leads to congestion. Traffic congestion cannot be relieved only by adding more road capacity—either building more roads or widening the existing ones. Recent studies have estimated a wide range of VMT growth that is attributed to increases in roadway capacity. . In areas with poor air quality, decisions about how to reduce congestion and improve mobility in a way that will not worsen air pollution must be addressed proactively.

Programs that are based on providing travel choices are also important in achieving better air quality. For example, the Commuter Choice Leadership Initiative is a new and successful non-regulatory approach to achieving emission reductions. Built around the tax-free commuter benefits in TEA–21 and modeled after the Energy Star partnership programs, the Commuter Choice Leadership Initiative is an EPA and DOT voluntary partnership with business to reduce traffic and traffic-related emissions. In just 1 year, 300 companies from 25 States have signed voluntary agreements to offer 500,000 employees commuter benefits meeting a national standard of excellence. EPA projects that if half of U.S. employees worked for employers that offered commuter benefits at the national standard of excellence promoted by the Commuter Choice Leadership Initiative, air pollution and traffic would be cut by the equivalent of taking 15 million cars off the road every year.

The Congestion Mitigation and Air Quality Improvement Program

The CMAQ program, initially begun under ISTEA, provides funding for transportation projects to improve air quality and reduce congestion. The CMAQ program is a valuable transportation funding tool for air quality improvement because the pool of potential projects is largely restricted to areas with poor air quality, (non-attainment areas), or those that had poor air quality in the past (maintenance areas). Unlike many other Federal-aid transportation programs, it is not limited to traditional highway uses, and can fund Travel Demand Management (TDM) programs such as park and ride lots, car and van pool programs and public education. CMAQ also funds unique Transportation Control Measures (TCMs) and other measures such as alternative fuel vehicles and facilities, diesel engine retrofit programs through public/private partnerships, and certain costs for vehicle Inspection and Maintenance programs. If TCMs are included in a State's air quality plan, those projects are given funding priority.

An EPA analysis of the benefits of TCMs, such as those funded by the CMAQ program, documents the range of emission reductions from 22 different shared ride, bicycle and pedestrian, traffic flow, transit and demand management programs. While the projects individually produce relatively small emission reductions, cumulatively these projects can add up to larger reductions over the life of an air quality plan. CMAQ projects can be important for helping a State to meet air quality planning and conformity requirements. The benefits of the CMAQ program, and particularly

projects that reduce VMT or manage system capacity, extend beyond emissions reductions. Other benefits include roadway congestion relief, energy conservation, greenhouse gas emission reductions, as well as economic development and community livability. By requiring the project to be implemented in nonattainment areas, more local government and public involvement in transportation investment decisions has been encouraged.

EPA and DOT have documented CMAQ's numerous benefits in reports, brochures and fact sheets available to transportation and air quality planners. From EPA's perspective, there is little doubt that the program is beneficial for air quality and is an important program for nonattainment areas that want to address transportation emissions. As directed by Congress, a National Academy of Science study undertaken by the Transportation Research Board, draws similar conclusions. The findings of "Special Report 264. The Congestion Mitigation and Air Quality Improvement Program: Assessing 10 Years of Experience" were generally favorable, but the report did make recommendations to Congress on how to improve the program. In particular, the report emphasized the need to focus CMAQ expenditures on projects that improve air quality.

While EPA generally agrees with the NAS recommendations, there are two additional important issues to which I will direct the committee's attention. These considerations fall into two main categories—apportionment and project eligibility.

According to some stakeholders an important apportionment issue is that the amount of available CMAQ funds may decrease when air quality improves and they are redesignated to attainment status. Although originally intended for use in nonattainment areas, CMAQ funds now continue to be available to areas that have been redesignated to attainment status and have an approved maintenance plan. However, an area's redesignation to maintenance could also result in a reduction in CMAQ funding which has been used to reach attainment. Many TDM strategies are long term initiatives that must maintain small but steady levels of funding over a longer term than capital investment types of projects.

For example, Illinois estimates their apportionment of CMAQ funds would decrease by approximately $32 million if the Chicago area were redesignated from severe nonattainment for ozone to attainment. It is not clear that Chicago would have adequate funding for its continuing needs after such a loss. Illinois included many of the CMAQ funded projects in its State Implementation Plan as transportation control measures. These projects now total 5–6 tons per day or over 1500 tons per year of reductions in VOCs. Consideration should be given to an apportionment formula that recognizes the need for an adequate source of funding for air quality beneficial transportation projects after a nonattainment area redesignates to maintenance.

As EPA begins implementation of the new 8-hour ozone standard, several changes regarding nonattainment areas are anticipated. A change in the classification of nonattainment areas, or the number of areas, will likely change the amount of CMAQ funds apportioned to each State and available to nonattainment areas. Given the current statutory language in TEA–21, nonattainment areas designated under the 8-hour ozone standard would be eligible for CMAQ funding, but the funds apportioned to the States would not account for the new areas and would not be available to help reduce transportation emissions. The issue needs to be addressed in the apportionment formula.

Strategies to reduce the very small but hazardous particulates known as $PM_{2.5}$ will increase in importance. Generally, both diesel and gasoline powered vehicles emit fine particulate matter as well as NOx and VOCs that lead to its formation. Both near and long-term emission reduction programs need to be planned. The focus of most TCM strategies has been the reduction of VOCs and NOx, and the effectiveness of TCMs for reducing $PM_{2.5}$ is less understood. However, there is optimism that some travel demand strategies, new technologies and cleaner fuels can produce reductions in concentrations of $PM_{2.5}$. The CMAQ program offers the opportunity for regions to explore innovative strategies to address this pollutant. Consideration should be given to amending the apportionment formula to target some of the CMAQ funds to this emerging air quality issue.

CMAQ funding can be useful to all nonattainment areas and maintenance areas, classified in accordance with the 1990 Clean Air Act amendments. All ozone, carbon monoxide and particulate matter nonattainment areas should be considered for inclusion in an apportionment formula that directs CMAQ funds to nonattainment areas based on the greatest air quality need. EPA is working with DOT to assess how the apportionment formula could be adjusted to fund projects equitably in all these areas.

TEA–21's flexible guidelines allow DOT to issue project eligibility guidance that cuts across traditional modal boundaries and makes the funds available for high-

way, transit and non-traditional program areas. The overarching criteria for eligibility are that the transporation project be implemented in an area designated nonattainment or maintenance for ozone, carbon monoxide, or particulate matter, and that the project reduce emissions. An examination of CMAQ program spending reveals that two project categories, traffic flow and transit, account for over 75 percent of the obligated funds.

These traditional transportation projects have historically been funded under transportation funding programs other than CMAQ. EPA and DOT need to continue our collaborative work with areas to encourage that projects selected for CMAQ funding will be tailored to the area's particular air quality needs.

Operating expenses for new CMAQ projects are currently limited to 3 years of eligibility. As the CMAQ program has grown and evolved, there has been more interest in extending the eligibility period or eliminating the restriction altogether. Local transit agencies have long expressed concern over the shortage of funding to sustain existing transit services. These agencies argue that as long as the project is producing emission reductions, it should be eligible for CMAQ funds. State DOT's have expressed interest in expanded use of CMAQ funds for operating ITS to facilitate traffic monitoring, management and control. However, the operating expense restriction was included in the program for the express purpose of stimulating innovation and to avoid obligating all the available funds to existing programs. The benefit of testing new ideas, especially in light of the changing air quality context under the 8-hr ozone and fine particulate standards, needs to be weighed against the benefit of maintaining the operating costs of ongoing projects for which other transportation funds are designated.

Transportation Conformity

Transportation conformity was established by Congress in the Clean Air Act Amendments of 1990 and was designed to help ensure that an area's transportation activities are consistent with its air quality goals. EPA is responsible for writing the conformity regulations and the Department of Transportation (DOT) must concur with all conformity rules, as DOT is our Federal partner in the implementation of the program. EPA first published the conformity rule in November 1993. We subsequently streamlined and clarified the rule in August 1997, based on extensive discussions with State and local air pollution officials, transportation planners, and other stakeholders, as well as the experience of both DOT and EPA in the field. In March 1999, however, a decision from the D.C. Circuit Court of Appeals changed several aspects of the 1997 conformity rule. In response to that decision, we have proposed, and will soon finalize, a modification improving flexibility consistent with the court decision. We also plan to incorporate EPA and DOT's existing guidance implementing the court decision into the conformity regulations.

The transportation conformity program requires that the impact of new transportation activities on air quality is evaluated on a regular basis. Areas that have air quality worse than the national standards (nonattainment areas) or that have violated the standards in the past (maintenance areas), are required to examine the long-term air quality impacts of their transportation system to ensure that such systems are compatible with clean air goals. In the simplest terms, conformity serves as an "accounting check" to assure that a nonattainment or maintenance area's future transportation network conforms to thearea's air pollution reduction plan.

The benefit of conformity accounting is that it requires State and local governments, and the public, to consider the air quality impacts of the planned transportation system as a whole and over the long term—before transportation plans are adopted and projects are built. Billions of dollars every year are spent on developing and maintaining our transportation system. Conformity helps ensure that these dollars are not spent in a manner that would worsen air quality, as that outcome would only necessitate spending additional money to reverse the air quality impact. Certainly it makes sense to examine future impacts of what are essentially permanent decisions.

Prior to the 1990 Clean Air Act, transportation planners and air quality planners often did not consult with one another or even use consistent information regarding future estimates of growth. As a result of this disconnect, the 1990 Clean Air Act Amendments explicitly linked the air quality planning and transportation planning processes in a manner that had not previously existed. Above all, transportation conformity has compelled the two planning agencies to work together through the interagency consultation process to find creative and workable solutions to air quality issues. Most everyone agrees, that consultation is an important benefit of conformity. A 1999 Harvard study on the conformity program that was jointly funded by DOT and EPA confirmed this benefit.

Consultation is meaningful because air quality and transportation planners have a common goal: transportation activities that conform with the State's air quality goals. A State's air quality plan (a State implementation plan, or SIP) establishes emissions ceilings, or budgets, for the various types of sources that contribute to air pollution problems. Conformity makes State and local agencies accountable for keeping the total motor vehicle emissions from an area's current and future transportation activities within these air quality plan budgets.

Communities have choices about how to address their transportation and air quality needs. When a transportation plan's emissions are greater than the allowable budgets in the air quality plan, areas can decide whether to revise the transportation plan or revise the air quality plan. For example, some areas have added transit programs to reduce the emissions of their transportation plan, while others have gone back to the State air quality plan to see if other sources of pollution could be further controlled to allow the transportation sector's emissions budget to grow. An area can choose to build transportation projects that increase emissions, as long as the net effect of the total system is consistent with the State air quality plan. Most areas have been able to continue adding to their transportation network and still stay within their clean air budgets.

At the heart of the conformity accounting process are computer models of an area's transportation system that estimate the emissions that are produced. In many areas, modeling begins with the area's own travel demand model that calculates the number of vehicle miles traveled on the area's transportation network, and at what speeds vehicles are traveling. This information is then used in EPA's MOBILE model to determine how much pollution will result from the on-road transportation sector.

Some of the conformity stakeholders have said that the uncertainty in both the transportation and air quality emissions modelsshould be taken into account in the conformity process. I would like to address this comment. Although there is no way to know exactly how emissions will change as a result of changes to the transportation system and travel patterns, models help planners make reasonable estimates. All the models used in this effort are surrogates of reality, and like all predictions, some degree of uncertainty will always be inherent. Because sound transportation and emissions modeling is essential to support planning, the challenge lies in developing models that use current and accurate dataand can consistently represent how changes in travel activity and vehicle operational dynamics affect emissions. EPA and DOT work together continuously to upgrade our models to meet this challenge.

While modeling will always have inherent uncertainty, the appropriate response to this fact is not to abandon modeling, but to continue to improve it. The 1999 Harvard study, "Linking Transportation and Air Quality Planning: Implementation of the Transportation Conformity Regulation in 15 Nonattainment Areas," funded jointly by DOT and EPA, found that conformity has encouraged improvement in modeling and the necessary data collection. The better the information going into the modeling, the more reliable the results. Transportation and air quality modeling has improved in the few years that conformity has been in place. For example, Charlotte, NC, is collecting new data about travel patterns of households in the area. New York, New Jersey, and Connecticut also have recently partnered to collect new household travel data. Portland, OR, is working on a new method of modeling their transportation system that relies on simulating actual vehicle trips.

Furthermore, EPA's MOBILE model was updated this year. The current version of the model, MOBILE6, incorporates our recent knowledge about how cars and trucks function, as well as the effects of new air quality programs that will be in effect in the future, such as Tier 2 vehicle standards. These improvements in data collection as well as in the models themselves yield progressively better results both in States' air quality plans and in conformity determinations.

The new air quality standards for ozone and particulate matter may necessitate changes in the conformity program. EPA plans to propose rules and guidance for implementing the 8-hour ozone standard by the end of the year, and we anticipate that it will then take us about eight to 10 months to respond to comments and finalize the rules and guidance. For the fine particulate matter standard, we plan to propose implementation rules and guidance in spring of 2003 and finalize them in 2004. EPA intends to designate areas as attainment, nonattainment, or unclassifiable with respect to the 8-hour ozone standard in late 2004. EPA expects to designate areas with respect to fine particles starting in 2004.

Areas designated under the new standards will have to prepare a conforming transportation plan after a 1-year grace period that was recently added to the Clean Air Act. A few issues related to the new standards will have to be resolved for implementing conformity. For example, some areas that will be designated as nonattainment for the 8-hour standard are currently nonattainment with respect to the

1-hour standard. EPA intends to address the process and basis for determining the 1-hour standard no longer applies in an area in its implementation rules and guidance, considering input from stakeholders and the public. This will occur prior to designating areas so that the conformity requirements as well as impacts of such a change on CMAQ apportionments will be clear well before areas are subject to them. EPA and DOT, as well as stakeholders across the U.S., have a wealth of experience in implementing conformity. Newly designated areas will benefit from our collective experience, and EPA and DOT will provide timely guidance to these areas before and as they implement the program under the new standards.

We understand that there are two aspects of the conformity process that some transportation planning stakeholders would like to change via the TEA–21 reauthorization process. The first is how often conformity is required. The Clean Air Act requires that conformity be determined when a transportation plan or transportation improvement program (TIP) is adopted, and no less frequently than every 3 years. In addition, EPA's conformity rule requires conformity within 18 months of certain "SIP triggers." If an area cannot meet a conformity deadline, then only certain types of activities can proceed (e.g., projects necessary to improve safety).

An added requirement to determine conformity is derived from the transportation requirements. The Clean Air Act requires transportation plans and TIPs to conform before they are adopted. Transportation plans must be updated every 3 years, but TIPs must be updated every 2 years. Adopting a new TIP every 2 years means that conformity determinations must be done at least this often.

According to some transportation planners, conformity is required too often, leaving them with little time to focus on planning. Some air quality planners, however, are concerned that changing the minimum frequency of conformity would delay the use of new information in modeling. Model inputs that affect total emissions, such as population growth, and the percentage of sport utility vehicles, trucks, and minivans in an area's vehicle fleet, have been rapidly changing in the last decade. Some air quality planners think that a frequency of every 3 years is important for introducing new information into the conformity process, so that trends can be seen early before their impact is great and to leave time to accommodate new information in the process. Additionally, some air quality planners also appreciate the benefits of updating their SIP and emission inventories to reflect latest planning assumptions or other new information in a timely manner.

EPA intends to eliminate some of the 18-month "SIP triggers" in the conformity rule in an upcoming rulemaking. Though further discussion must occur on the issue of how often conformity must be done, amending the rule would simplify the process and address some of the concern.

The second aspect of conformity that some transportation planners would like to see changed is the timeframe over which conformity must be demonstrated. Currently, the conformity process examines the amount of pollution that is projected to occur over the entire life—20 years—of a transportation plan. Therefore, in conformity, emissions from the last year (in most cases, the 20th year) are examined and compared to the motor vehicle emissions budgets in an area's air quality plan. However, air quality plans cover a period of 10 years or less.

Transportation planners suggest it is unfair to determine conformity for the 20 year life of the plan when the air quality plan is at best, only half as long. They explain that since the air quality plan ends before the transportation plan, the burden of growth that occurs in the years that make up the remainder of the transportation plan solely rests with the transportation sector.

On the other hand, air quality planners are concerned that if transportation plans are 20 years, but conformity is done for a shorter period, the responsibility for mitigating transportation pollution in the future will rest on their shoulders alone. That is, if transportation projects are approved and built today without regard to their long-term impacts on air quality, the transportation planners will be dictating the size of the budget in future years to the air quality planners. Air quality planners feel they would be left to figure out how to accommodate a predetermined budget within the overall air quality reductions from transportation as well as from other sources that will be necessary to attain or maintain the air quality standards in years to come.

Several air quality planners and environmental groups also point to the time scale of land use decisions a as reason for retaining the 20 year conformity analysis. They indicate that land use decisions take many years to have an effect on air quality, and only when examining air quality 20 years into the future can the effects of different plans for land use be seen. They point to areas across the country that have examined long term implications of land use, including Portland, Oregon; Charlotte, North Carolina; Sacramento, California; and Denver, Colorado. For example, as a result of conformity, Charlotte, North Carolina, realized that their air quality would

be jeopardized in the future. During the period of time where they could not meet conformity, Charlotte focused on developing a coordinated land use and transit plan, and Charlotte's citizens voted for a sales tax to help fund the new transit system. Charlotte realized that in order to stay a competitive city for business, it needs to remain an attractive place for people to want to work and live. Another example where the impact of land use decisions have been recognized is Atlanta, GA. Atlanta has made decisions about land use and investing in transit that will have long term benefits for the area.

In conclusion, EPA is committed to partnering with DOT to continue our progress in meeting both transportation and air quality goals as the nation's transportation system is developed. CMAQ, conformity, and our programs for new vehicle standards and fuels are all important tools in achieving clean air. Thank you again for this opportunity to testify today and discuss our programs with you. I would be happy to respond to any questions that you may have.

RESPONSES BY JEFFREY HOLMSTEAD TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. The Northeast States are not happy with the Mobile Source Air Toxics rule. They believe it is not sufficiently protective of public health. As Mr. Johnstone's testimony points out—air toxics from mobile sources are expected to exceed Vermont's standards for the next three decades. What is the current status of the review of this rule?

Response. EPA estimates that its programs will reduce mobile source air toxics by over one million tons by 2007. However, because of the continuing concern about the potential health impacts of public exposure to air toxics, EPA also committed in the 2001air toxics rule to prepare a Technical Analysis Plan designed to improve our understanding of the risk posed by air toxics to public health and welfare, and evaluate potential control strategies to further reduce risk. Based on the information developed through this Technical Analysis Plan, we will evaluate the need for additional control.

EPA is currently following through on our commitment to carry out this Technical Analysis Plan, and we are in the process of collecting and analyzing the data that will help us address specific data gaps identified in the plan. We recently briefed States on our progress in carrying out this plan. We are evaluating additional controls and will continue to work with our stakeholders on completing this reevaluation.

Question 2. Does the Administration plan to propose any substantial changes to either the CMAQ program or to the conformity [rule], as we go forward with reauthorization? If you do, I hope you'll get all the major stakeholders on board first.

Response. CMAQ: The Administration has not finished developing a final proposal. EPA and DOT are currently discussing whether refinements to the program would be appropriate. We are also reviewing the recommendations of the National Academy of Sciences CMAQ study to determine whether to propose changes in response to these recommendations. Since CMAQ eligibility and apportionment are tied to the air quality status of an area, we are concerned about how to account for States' need to implement the new 8-hour ozone and PM2.5 air quality standards. Under active consideration is a proposal that maintains a balance between making the program available to new nonattainment areas and continuing to provide support to the existing nonattainment and maintenance areas.

EPA is in the process of reaching out to our stakeholders to get their views on the issues. Air quality agencies support the program and desire a more definitive and consistent role in project evaluation and selection.

Transportation Conformity—: The Administration has not yet finished developing a final proposal. EPA believes that transportation conformity continues to serve its purpose of ensuring that new transportation activities are consistent with areas' clean air goals. However, some stakeholders believe that targeted improvements, perhaps through TEA–21 reauthorization, may be warranted. While we have heard some views and recommendations for changing the conformity program, EPA is still reviewing information from the full spectrum of stakeholders. EPA is committed to considering options and recommendations from the full range of conformity stakeholders prior to forming final positions on specific issues.

Question 3. Since many surface transportation projects are already targeted at congestion mitigation, should we split off that purpose from the CMAQ program and focus more on air quality?

Response. We believe no additional benefit would be gained from eliminating congestion mitigation from the program in the law. Statutory language and the program guidance developed jointly by DOT and EPA clearly establish emission reductions as a requirement for project eligibility. Congestion mitigation projects are eligible, but only if they produce emission reductions in addition to their effect on traffic flow. While there may be disagreement as to the efficacy and permanence of traffic flow improvement projects, there is wide agreement that some traffic flow improvement projects, if designed and implemented with air quality improvement as a primary purpose, can produce emission reductions.

Those who oppose using CMAQ funds for congestion mitigation projects have focused most of their attention on what they perceive to be a bias toward funding traffic flow projects. This category of projects accounts for approximately 33 percent of CMAQ funds and 43 percent of the CMAQ projects, and is second to the largest category of funding which is transit. Multiple goals for a regional transportation system and the complexity of transportation funding can, in some cases, create a tendency to propose projects and then match the project to eligible funding programs. In that case, air quality improvement may be viewed as a secondary benefit of the project. Critics argue that projects should be developed with emphasis on effectiveness in achieving the purpose of the funding program as the priority.

EPA recognizes the need to balance multiple transportation goals, including both air quality and congestion relief, and that the flexibility of CMAQ eligibility is of great value for regional planning. Restricting congestion mitigation projects from CMAQ funding would remove a potential transportation tool for State and local agencies to address their air quality problem. EPA believes that sharpening the focus on air quality improvement could be done administratively through revised guidance while preserving the flexibility for areas to fund congestion mitigation projects with air quality benefits.

Question 4. Last August, Mr. Brenner told us that the Agency would soon be issuing a determination on a petition to regulate greenhouse gas emissions from vehicles as pollutants. What's the status of that petition?

Response. On October 29, 1999, the International Center for Technology Assessment and a coalition of 18 environmental and energy organizations petitioned EPA to regulate certain greenhouse gas emissions from new motor vehicles. The petition asks EPA to carry out what petitioners assert to be a mandatory duty under Clean Air Act section 202(a)(1).

EPA opened a public docket for the petition in January 2000 and published a request for public comment in the Federal Register on January 23, 2001. The public comment period closed on May 23, 2001. EPA received about 50,000 comments on the petition. EPA is currently preparing a response to the petition. We expect to publish the response in the Federal Register after it completes internal management review and is signed by Administrator Whitman.

Question 5. In general, would you agree that conformity is spurring investments in transportation strategies and technologies that reduce air pollution and create better interagency cooperation?

Response. Yes. By its very nature, the conformity process ensures that only transportation strategies and technologies as a whole that are consistent with clean air goals are invested in. When areas have found that preliminary projections from planned transportation projects exceed the emissions budgets established in the SIP, they have several options from which to choose for resolving the air quality issue and finalizing a transportation plan and TIP that conforms. For example, some areas have chosen to revise their SIP and emissions budgets by updating planning assumptions or investing in additional control measures in the SIP to allow for additional growth in transportation. Alternatively, other areas have changed the mix of projects and/or invested in projects that have an emissions benefit to their plan and TIP so that conformity could be demonstrated. In particular, some of these areas have invested in transit and land-use strategies that could potentially provide air quality benefits. (See below for a list of examples that have utilized these various approaches to resolve conformity issues.)

We also believe that transportation conformity has been very successful at integrating transportation and air quality planning through the interagency consultation process. We routinely hear from both transportation and air quality agencies that conformity has markedly improved the interagency consultation and working relationships between the two agencies. This interaction between transportation and air quality planners has become particularly critical to the timely resolution of conformity issues in high growth areas where emissions from cars and trucks are a major contributor to the air quality problem. Specific examples of where positive air

quality results and interagency consultation have occurred via the conformity and/or SIP processes include the following:

- Baltimore, MD: Revised SIP and added transit and other control measures to plan/TIP (1999/2000).
- Kent and New Castle Counties, DE: Added new control measures, including OBD and expanded transit, to the TIP (2001).
- Hampton Road, VA: Revised SIP by adding local controls and added CMAQ projects (2001).
- Washington DC: Revised SIP to incorporate a NOx substitution mechanism (1999/2000).
- Atlanta, GA: Altered land-use strategies and added control measures (2000).
- Dayton / Springfield, OH: Revised SIP to incorporate a safety margin and therefore enlarge the motor vehicle emissions budgets (1999).
- Salt Lake City, UT: Revised SIP to incorporate a PM–10/NOx trading mechanism (2002)
- Las Vegas, NV: Revised SIP to add/extend control measures to ensure conformity in future years (2000).
- Sacramento, CA: SIP and conformity issues lead to investment of $70 million in a diesel retrofit program (2000).
- Charlotte, NC: Conformity issue prompted voters to pass a $50 million tax referendum to support a long-term transit/land-use plan (1998).

Question 6. In general, what's the general ratio of spending on planning in the States for air quality versus transportation planning?

Response. EPA does not maintain information related to individual State funding on air quality planning versus transportation planning, but suspects the amount of funding for each activity will vary from State to State depending on the extent of air quality problems and growth that exists in each State. To gain a comprehensive comparison of funding for transportation and air quality planning, the respective agencies in each State should be queried.

Question 7. Why did it take so long to finalize the MOBILE6 model and when does EPA plan to update that model?

Response. The scope of MOBILE6 was unprecedented both in terms of the science that went into the model, and the review process under which the model was developed and released. In terms of the science of the model, many significant changes were made to reflect new data in several areas, including in-use deterioration, "real-world" driving, fuel sulfur content, and "off-cycle" heavyduty vehicle emissions. In terms of the review process, all of the technical aspects of MOBILE6 underwent public review as well as formal peer review—a process which was conducted for over 50 technical documents. Following the development and review of these technical inputs, once the model was complete in draft form it underwent a "preview" period for State and local agencies at the request of STAPPA/ALAPCO, which lasted over 1 year. The length of time to finalize MOBILE6 was directly related to the effort needed to update the broad range of science incorporated in the model, and to ensure the model underwent sufficient review in the scientific, stakeholder and user communities.

EPA is planning to update MOBILE6 with MOVES (Multi-scale Motor Vehicle & Equipment Emission System). A primary impetus for this effort is the National Research Council's review of EPA's mobile source modeling program, published in 2000, which recommended a) the development of a modeling system more capable of supporting smaller-scale analyses; b) improved characterization of emissions from high-emitting vehicles, heavy-duty vehicles, and offroad sources; c) improved characterization of particulate matter and toxic emissions; d) improved model evaluation and uncertainty assessments; and e) a long-term planning effort coordinated with other governmental entities engaged in emissions modeling. EPA is planning to replace the current MOBILE6 model with the new MOVES model by the fall of 2005.

Question 8. As the Congress moves forward with a renewable fuels standard and ban MTBE, what affect will that have on areas ability to attain the 8-hour ozone standard and develop new vehicle emissions budgets to use in conformity?

Response. The version of the energy bill passed by the Senate in 2002 would have required EPA to maintain the emission benefits derived from the reformulated gasoline (RFG) program. The RFG program contains minimum emission reduction requirements that must be achieved regardless of the type of oxygenate that may be used in RFG. Therefore, we would not have expected the Senate energy bill to have any significant effect on areas' ability to attain the new ozone standard or their ability to develop new motor vehicle emissions budgets for use in conformity. EPA is currently developing its proposed rule designed to implement the new 8 hour ozone standard. We expect the RFG program to continue to be an integral part of our na-

tional strategy in assisting areas to reach attainment under the new standard. The Administration looks forward to working with the 108' Congress on a comprehensive energy bill that will enhance our energy security, protect our environment and support our economy.

Question 9. When will EPA and DOT promulgate changes to the regulations to implement the 1999 court decision on conformity?

Response. EPA is currently working on a proposed rulemaking to incorporate into the conformity rule EPA's May 14, 1999, and DOT's January 2, 2002, revised guidance implementing the court decision; we anticipate publication of this proposed rule in early 2003. Specifically, this proposal will address two major issues affected by the court regarding projects during a conformity lapse and EPA's process for finding newly submitted budgets appropriate to use in a conformity determination (i.e., the "adequacy process"). EPA's May 14, 1999, guidance and DOT's revised January 2, 2002, guidance describe how the conformity program is to be implemented in a manner that is consistent with the court decision. Nonattainment and maintenance areas have been operating under this existing guidance since the court decision was made on March 2, 1999.

EPA also published a final rulemaking on August 6, 2002 (67 PR 50808) that revised the timing for redetermining conformity after a State submits an air quality plan for the first time (i.e., an "initial" SIP submission). This rule change was necessary as a result of the court's decision that EPA must first find newly submitted budgets appropriate for conformity purposes (i.e., "adequate") before such budgets could be used. An effect of the combination of the court decision and EPA's previous rule was that a significant portion of the 18-month time period given to demonstrate conformity to an initial SIP could elapse prior to the time EPA made a determination that the submitted budgets were adequate. This final rule corrects the disconnect that existed between the previous rule and court decision, and as a result, gives areas the full 18months to determine conformity to budgets from an initial SIP.

Question 10. Please submit to the committee information on the share of emissions of VOC, NO, PM, and CO that comes from motor vehicles today, in 2005, and in any future SIP attainment years for the 50 largest cities in the U.S. (Or for all non-attainment areas).

Response. In January 2001, EPA promulgated 2007 heavy-duty engine and vehicle standards and highway diesel fuel sulfur control requirements. For this rulemaking, EPA developed emission estimates for metropolitan areas in 1996, 2007, 2020 and 2030 for the following pollutants—volatile organic compounds (VOCs), nitrogen oxides (NO,), particulate matter (PM) and carbon monoxide (CO). Table 1 presents the share of emissions in the above three calendar years for each of the following source categories—area, electrical generation, on-road mobile sources and non-road mobile sources—in the 50 most populous metropolitan areas in the U.S.

EPA does not routinely prepare emissions projections for future years. Rather, projections are made for particular projects or actions which require them. The most recent such project that has reached completion is the January 2001 rulemaking on emissions from highway heavy-duty diesel vehicles/engines and sulfur content of highway diesel fuel. For that rulemaking, projections were based on the 1996 base year and included only 2007, 2020, and 2030. We are therefore unable to provide projections at the requested SIP attainment year intervals (e.g., 2005).

It is also necessary to explain that having been created by EPA during the year or so prior to the January 2001 promulgation of the diesel rule, these estimates are now somewhat dated. Emissions estimation approaches evolve continually, and the last several years have been a time of considerable change for mobile source methodologies in particular. For example, the projections presented in the attached tables are based on a modified version of the MOBILE5 emissions model, while MOBILE6 is now the current method. We will soon be publishing on our website emission estimates for the 1970 through 2001 period based on MOBILE6 and other recent improvements in data and methods. These new estimates will not exactly match the information for 1996 presented in the tables provided here, and it would be inappropriate to compare them to the 2007, 2020, or 2030 projections. Also, these estimates cannot be expected to exactly match estimates prepared and published by individual State or local air pollution or transportation planning agencies. Generally, State and local agencies are more able than EPA to incorporate more detailed data on local conditions, which improves the quality of the emission estimates they prepare.

Question 11. EPA has released for the first time in 10 years a new National Air Toxics Assessment, which provides estimates by zip code, of hazardous air pollutants by source. A very high share of these is from motor vehicles. Based on this new data, please submit to the committee estimates for the maximum exposures

from hazardous air toxics and the share of these emissions that come from mobile sources, for each of the 50 largest cities in the U.S.

Response. EPA's National Air Toxics Assessment (NATA) assesses emissions, ambient concentrations, inhalation exposure, and inhalation risk from 33 hazardous air pollutants emitted by outdoor sources in 1996. While results of the assessment were determined at the census tract level, because of inventory limitations, they are most meaningful when viewed at the National, State, or County level.

The assessment estimates upper-bound lifetime cancer risks to an average exposed individual at each census tract in the country. That means that actual risks are likely to be either equal to or less than the risks estimated by this study, but some risks may be greater. It also estimates hazard quotients for adverse health effects other than cancer. A hazard quotient is the ratio between the potential exposure to the substance and the highest level of exposure at which the risk of adverse effects is considered to be negligible. If a hazard quotient is calculated to be less than 1, then no adverse health effects are expected as a result of exposure. If a hazard quotient is greater than 1, then adverse health effects are possible. While the hazard quotient cannot be directly translated to a probability that adverse health effects will occur, increasing the value of the hazard quotient above 1 corresponds to increasing risk of adverse health effects. . It is especially important to note that a hazard quotient greater than 1 does not necessarily mean that adverse effects will occur, just that they are possible.

Table 2 presents cumulative upper bound lifetime (70 year) inhalation cancer risks for a typical person in each of the 100 largest counties in the United States. On average, mobile sources, including highway motor vehicles and non-road equipment (e.g., lawnmowers, construction equipment, boats, planes, locomotives) are predicted to account for 40 percent of the cumulative upper bound cancer risk and about 80 percent of the non-cancer effects. Although EPA has concluded that diesel exhaust is a likely human carcinogen, cancer risks are not quantified for this pollutant. This is because data are not sufficient to develop a numerical estimate of carcinogenic potency. However, EPA has concluded that diesel exhaust ranks with the other substances that the national-scale assessment suggests pose the greatest relative risk.

Question 12. Recent peer-reviewed research papers published by TRB showed an average observed elasticity of regional vehicle miles traveled (VMT) with respect to regional lane miles of capacity of 0.83. Has EPA reviewed and evaluated the adequacy of regional travel models used to prepare SIP motor vehicle emissions inventories and attainment plans with respect to this important measure of induced traffic, which can have a profound effect on forecast traffic and motor vehicle emissions? If not, what steps will EPA take in the next months to assure timely progress in assessing regional travel models against this scientific benchmark and to assure correction of MPO models that do not now adequately reflect induced traffic effects?

Response. EPA recognizes the importance of this issue and the effect it can have on travel demand forecasting, but the Agency does not have a direct role in reviewing regional travel models. DOT is responsible for evaluating regional travel forecasting models as part of the Metropolitan Planning Organization (MPO) certification process. EPA regional offices participate in the certification process and have established consultative agreements with DOT and the State and local transportation planning agencies. EPA has guidance on the use of travel models and the forecasting process, especially regarding the travel activity data and growth assumptions that are used in the analysis, but we generally defer to the travel model experts at DOT when we have questions about the adequacy of the models themselves.

The complex nature of induced travel demand is the subject of several recent and highly regarded studies, yet definitive conclusions about the relationship between added capacity and air quality have not been drawn. Current thinking by travel forecasting and travel modeling experts generally support the conclusion that reduced travel costs (usually measured in terms of reduced travel time and increased convenience) result in additional travel. There is a wide range of estimates about the amount of travel induced. Whether or not the induced travel translates into degradation of air quality is highly dependant on local transportation, economic, and meteorological conditions.

EPA's Office of Transportation and Air Quality (OTAQ) has jointly sponsored travel model research, training and technical assistance to transportation and air quality agencies through the Federal Highway Administration's Travel Model Improvement Program. For the longer term, the best potential for accurately representing induced travel effects of added capacity is through a new transportation analysis tool known as the Transportation Analysis Simulation System (TRANSIMS). TRANSIMS is a suite of data bases, models, and simulations being

developed by DOT with the participation and support of OTAQ's transportation and emissions modeling staff.

Question 13. Part 1: Various comments at the hearing pertained to coordination of the timing of SIPS, TIPs, and transportation plans. It would be helpful to this review of facts to understand EPA's administration of SIP revisions and how motor vehicle emissions budgets (MVEB's) have been modified over time, and how frequently conformity determination have been updated.

Response. Review of Facts: Timing of Conformity Frequency and Updates for Plans, TIPs and SIPS Transportation conformity is implemented to achieve its purpose as defined by the Clean Air Act under the following air quality and transportation schedules: Clean Air Act Requirements

Transportation Conformity: According to the Clean Air Act, transportation plans and TIPs in nonattainment and maintenance areas must conform to the SIP before they are adopted by an MPO. Under DOT's transportation planning regulation, metropolitan nonattainment and maintenance areas must develop a new transportation plan that covers at least a 20 year timeframe every 3 years. In addition, Title 23 requires these areas to update their TIPs every 2 years. TIPs cover a shorter timeframe (at least 3 years) and consist of a subset of projects from the transportation plan. Since TIPs are required to be updated every 2 years, metropolitan nonattainment and maintenance areas are required to demonstrate conformity at a minimum of every 2 years. An option that has been suggested to eliminate the mismatch between frequency of plan and TIP updates via TEA–21 reauthorization is to streamline the plan and TIP into one planning document. EPA recognizes the advantages of aligning the frequency of TIP updates with transportation plan updates.

The Clean Air Act also requires conformity to be determined at least every 3 years. In nonattainment and maintenance areas, both the metropolitan transportation plan update cycle and the conformity determination cycle start at the time FHWA and FTA make. the conformity determination on the plan; thus, both plan and conformity updates occur on the same 3 year cycle.

SIPS: Once a SIP is submitted for a particular Clean Air Act purpose, and approved by EPA, the . motor vehicle emissions budgets in the approved SIP remain in effect until the State decides to update the SIP. The SIP's motor vehicle emissions budgets, in effect, estimate the amount of emissions from the transportation sector that the air could absorb and still allow the area to attain the National Ambient Air Quality Standards. There is no statutory or administrative requirement to update approved SIPs on a regular basis, with few exceptions. For example, rate of progress and attainment SIPs, as well as regular emissions inventory updates that could trigger a SIP revision, are required in serious and above ozone areas. See EPA's response to Senator Jeffords questions #14–18 for more information on SIPs in serious and above ozone areas. The types of SIPs that must be submitted by an area are dictated by the Clean Air Act and vary according to the pollutant and classification of the area.

Although the CAA does not mandate regular SIP updates, some areas have updated or are in the process of updating their SIPs and as a result, may have more recent mobile source emissions budgets available for conformity purposes. In particular, areas that have had conformity difficulties have often addressed such issues by revising their SIPs to incorporate new planning assumptions and data and/or additional control measures to allow for growth in transportation (e.g., Baltimore MD, New Jersey, Salt Lake City UT, Albuquerque NM). In addition, under EPA's MOBILE6 policy, all States that took MOBILE5-based preliminary estimates of credit for Tier 2 vehicle emission regulation benefits in their current SIPs are committed to revise their mobile source budgets with MOBILE6 within 1–2 years after MOBILE6's release on January 29, 2002 (e.g., New York City, Philadelphia PA, Baltimore MD, Washington DC, Houston TX, Dallas TX, St. Louis MO). Also, States typically update their SIPs after a change in attainment status, for example, when an area requests redesignation and develops a maintenance plan with new motor vehicle emissions budgets (e.g., Denver CO, Louisville KY, Pittsburgh PA, Cincinnati OH, Richmond VA, Nashville TN). In these cases, however, once areas develop a maintenance plan such budgets can be in place for up to 10 years because maintenance plans cover a 10-year timeframe.

Transportation Conformity Rule Requirements

In addition to the statutory requirements, there are specific triggers in the conformity regulation that warrant a new conformity determination within 18-months of certain SIP actions. For instance, EPA's conformity rule requires conformity to be done within 18 months of EPA's adequacy finding for an initial SIP and within 18 months of EPA's approval of a SIP. This 18 month requirement is intended to ensure that when an area has a new SIP that establishes a new budget, the new

air quality information is, integrated into the conformity process in a timely manner (otherwise, areas could wait up to 3 years before that new, relevant air quality information is incorporated). EPA is currently working on a proposed rulemaking to eliminate some of these 18-month triggers and streamline others to reduce redundancy and unnecessary burden on conformity implementers.

Question 13. Part 2: Please identify each MVEB that has been approved, found to be adequate or submitted with a determination pending for NOx, VOCs, primary PM, and PM precursors, if any, for each nonattainment area. This should be submitted for each metropolitan area or region of a State that at any time following November 15, 1990, has been classified as a serious, severe or extreme ozone nonattainment area or a serious PM–10 nonattainment area, based on approved or submitted ozone and PM–10 SIPs, or the documents containing such information. This should include MVEB's that applied in the past and MVEB's that apply to future milestone, attainment and maintenance deadlines.

This should include for each WEB the date such MVEB was submitted to EPA, the date it became effective for transportation conformity purposes, the numerical limitation on motor vehicle emissions within the nonattainment area established by the MVEB for each of the pollutants listed in this require; the dates when conformity determinations were made by the MPO, and/or US DOT with respect to each such MVEB; and copies of any such conformity determinations received by EPA.

Response. Please see Table 3. Also, note that this table includes information on when conformity determinations have been made using any adequate or approved budgets. In addition, we have attached to our responses to the Senate EPW Committee EPA's written comments on these conformity determinations where available. However, several of the EPA Regional Offices' comments are typically expressed verbally via the interagency consultation process, and therefore, specific dates and comments could not be provided.

Considering the volume of information/documentation (e.g., MOBTLF, input tables; tables of link listing) that is contained within a transportation plan and TIP and its respective conformity determination, we have only provided this specific information for conformity determinations as agreed to by your staff. Although not exhaustive, this table, accompanying materials and our preceding review of facts, should provide you with a general understanding of the SIP and transportation planning schedules and availability of SIP budgets for conformity purposes.

Question 14. For each serious, severe or extreme ozone nonattainment area, please state the total allowable emissions, or "target value," for each ozone precursor pollutant that has been established for the 1996 VOC reduction milestone, and each post-1996 3-year milestone deadline that EPA has approved as part of a SIP revision submitted to meet the reasonable further progress (rate of progress) requirements of section 182(c)(2)(B) and (C) of the Act.

Table 1: Target VOC emissions and target NOx emission substitutions for ROP milestone in Ozone SIPs in tons per day

Extreme Area

Area	1996	1999		2002		2005		2008		2010	
	VOC	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
South Coast, CA	1144	1161	NR	1012	NR	876	1419	739	1294	414	530

Severe Areas

Area	1996	1999		2002		2005		2007	
	VOC	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
CT Portion of NY-NJ-CT	116	108	116	95	115	83	115	77	113
NJ portion of NY-NJ-CT	732	735	102	616	403	578	461	574	470
NY portion of NY-NJ-CT	884	844	52	758	105	738	144	724	149
NJ portion of PA-NJ-DE-MD	279	284	69	202	NR	184	NR	NR	NR
Baltimore, MD	253	253	397	242	366	230	342	NR	NR
MD portion of Philadelphia-Wilmington-Trenton	14	13	12	11	12	9	12	NR	NR

Severe Areas

Area	1996	1999		2002		2005		2007	
	VOC	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
PA portion of Philadelphia-Wilmington-Trenton	488	488	382	456	362	431	340	NR	NR
DE portion of Philadelphia-Wilmington-Trenton	116	112	147	99	146	96	135	NR	NR
IL-Chicago/ Northwest IN	857	808	1820	770	1657	741	1514	739	1413
IN-Chicago/ Northwest IN	158	140	NR	120	NR	103	NR	93	NR
WI-Milwaukee/Racine	288	249	368	234	343	226	316	222	299
Houston, TX	813	772	1192	696	1127	695	694	936	
Southeast Desert, CA	NA								
Sacramento, CA	NA	142	172	124	142	107	98	NR	NR
San Joaquin Valley, CA	433	383	379	*					
Ventura, CA	68	60	NR	53	57	45	52	NR	NR

* Area bumped up to Severe on December 10, 2001

Severe Areas

Area	1996	1999	
	VOC	VOC	NOx
Greater CT	331	307	298
Providence, RI	142	137	86
Springfield, MA	122	115	97
MA portion of Boston-Lawrence-Worcester	658	588	828
NH portion of Boston-Worcester	41	38	48
Portsmouth-Dover-Rochester, NH	30	28	39
Washington, DC-MD-VA	385	380	615
Atlanta, GA	443	420	NR
Dallas-Fort Worth, TX	466	406	580
El Paso, TX	57	IP	NR
Baton Rouge, LA	164	144	NR
East Kem, CA	13	12	40
Phoenix, AZ	232	NR	NR
Santa Barbara, CA	42	43	43
San Diego, CA	241	212	174

NR: Not required
NOx reductions are substitutes for some VOC reductions.
Milestones not required for attainment years. The attainment dates for the ozone area classifications are as follows:
Serious . . . . 1999 f Severe. . . 2005 or 2007
Extreme 2010
IP: Not required because rate of progress not required due to international transport. NA: EPA has not acted on proposed target(s).

Question 15. Please identify any nonattainment area for which a rate-of-progress allowable emission target has not been established for any precursor pollutant, for any milestone period; and identify the specific milestone period(s) defined by section 182(c)(2)(B) and (g) for which no rate-of-progress target has been established. Also, please provide copies of each milestone compliance demonstration required by section 182(g) that has been submitted by the State for each nonattainment area included within the scope of this request, copies of each determination or other action the Administrator or EPA regional office has made with regard to each submitted milestone compliance demonstration, and with regard to each milestone compliance demonstration not filed, and copies of any submissions made by any State to satisfy the obligations prescribed by Clean Air Act section 182(g)(3).

Response. "Rate-of-Progress" milestones were established for all nonattainment areas except:

1. Southeast Desert Nonattainment Area in California. A major cause of the area's nonattainment is transport of pollutant from the Los Angeles area (South Coast Air Quality Management District).

2. El Paso, Texas did not have a 1999 ROP target because a major portion of its pollution is caused by international transport of pollutant from Mexico.

3. Sacramento, California: 1996 ROP target.

Table 2: List of Requested Documents Relating to Milestone Compliance Demonstrations

Area	Documents/comment
Extreme Areas	
South Coast, CA	See Document No. 32 through 36 Attachment.
Severe Areas	
DE portion of PA-NJ-DE-MD	See document Nos 47—56 Attachment
IL portion of Chicago/ Northwest IN	See Document No. 17, 20 and 21 Attachment.
IN portion of Chicago/ Northwest IN	See Document No. 19.
Milwaukee/ Racine, WI	See Document No. 18.
Southeast Desert, CA	See Document No. 32 through 36, 41 and 42 Attachment. A major cause of the area's nonattainment is transport of pollutant from the Los Angeles area (South Coast Air Quality Management District).
Sacramento, CA	See Document No. 32 through 36 and 39 and 40 Attachment
San Joaquin Valley, CA	See Document No. 32 through 36 and 38 Attachment
Ventura, CA	See Document No. 32 through 36 Attachment
Serious Areas	
Atlanta, GA	See Documents No. 9 through 16 Attachment
El Paso, TX	See Document No. 25 Attachment. El Paso not required to have a plan for 3 percent per year after 1996 because the ozone concentrations caused by international transport.
East Kern, CA	See Document No. 32 through 36 Attachment. Eastern Kern County Nonattainment area was previously a part of the San Joaquin Valley Nonattainment Area.
Phoenix, AZ	See Document No. 46 Attachment
San Diego, CA	See Document No. 32 through 37 and 43 Attachment

In the late 1990's, EPA began to draft a rule outlining two possible approaches that States could use to perform milestone compliance demonstrations called for under section 182(g): (1) emission inventory updates (where possible) and/or (2) indicators of compliance such as growth rates, VMT change information, regulations planned and adopted, etc. As it analyzed the issue, EPA recognized that technical problems, centering upon the timeliness of State emission inventory updates and associated growth projections, would arise in many States when the control agencies would attempt to develop complete milestone demonstrations. In other words, many States would have problems with getting the periodic inventories synchronized with the milestone compliance time period. For States with this problem, the cost would have been prohibitive to implement a revised emissions inventory program, or a separate new inventory program, that matched the compliance milestone demonstration period. EPA found that it would have been prohibitively costly (if not impossible) to condense the process of collecting and quality assuring emissions data, which could take from 12 to 18 months, into a 90-day period. For these reasons, and because we did not find reliable, readily available methods to evaluate milestone compliance demonstrations, EPA did not finalize a rule requiring such demonstrations. However,

EPA has issued the following guidance documents that outline how to calculate the many different inventories and how to prepare rate-of-progress SIP revisions:

1. Guidance on the Adjusted Base Year Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plans, EPA–452/R–92–005, October 1992. (Document No. 1 Attachment)

2. Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rate-of-Progress Plans, EPA–452/R–93–002, March 1993.
(Document No. 2 Attachment)

3. Guidance on the Relationship Between the 15 Percent Rate-of-Progress Plans and Other Provisions of the Clean Air Act Amendments, EPA–452/R–93–007, May 1993. (Document No. 3 Attachment)

4. Guidance on Preparing Enforceable Regulations and Compliance Programs for the 15 Percent Rate-of-Progress Plans, EPA–452/R–93–005, June 1993. (Document No. 4 Attachment)

5. Guidance on the Post–1996 Rate-of-Progress Plan and Attainment Demonstration, EPA–452/R–93–015, January 1994.(Erratta 2–18–94) (Document No. 5 Attachment)

Question 16. For any nonattainment area that has not demonstrated compliance with section 182(g) either based on a submission that demonstrates noncompliance or the failure to submit a demonstration, please provide copies of any documents to or from the State that discuss or include information regarding actions that have

been taken, are to be taken or that are under consideration to correct the failure to achieve the emissions reductions required for such milestone.

Response. For the reasons explained in the response to question 15, we sent no correspondence to States on the topic of failure to submit milestone compliance demonstrations. We did, however, send some States letters concerning methods of demonstrating compliance.

In May 1997, letters were sent to Connecticut, Massachusetts, and New Hampshire regarding actions the States could take to document that their ROP plans were on track. (See Documents Nos. 6, 7, and 8.) In response to our letter, Connecticut submitted rule effectiveness studies for their cutback asphalt and gasoline loading racks rules, and Massachusetts evaluated compliance rates with its gasoline station vapor recovery systems and eventually submitted a revised regulation to address compliance problems it discovered with this rule. (These State studies and regulations are not included with this response.)

Question 17. For each ozone nonattainment area classified as "serious" prior to 1999, please provide copies of (i) any determination made by EPA pursuant to Clean Air Act section 181(b)(2)(A) with regard to determining whether such area attained the NAAQS on or before November 1999, and (ii) any notice published pursuant to section 181(b)(2)(B).

Table 3: Determination of Attainment under δ181(b)(2)(A) of the Clean Air Act

Area	Comment
Serious Areas	
Greater CT	See http://www.epa.gov/fedrgstr/EPA-AIR/2001/January/Day–03/a62.htm
Providence, RI	See http://www.epa.gov/fedrgstr/EPA-AIR/1999/June/Day–09/al4595.htm See http://www.epa.gov/fedrgstr/EPA-AIR/2000/July/Day–20/al7472.htm See http://www.epa.gov/fedrgstr/EPA-AIW2000/July/Day–25/al7472.htm
Springfield, MA	See http://www.epa.gov/fedrgstr/EPA-AIR/2001/January/Day–03/a38.htm
MA portion of Boston-Lawrence-Worcester	See http://www.epa.gov/fedrgstr/EPA-AIR/1999/June/Day–09/al4595.htm See http://www.epa.gov/fedrgstr/EPA-AIR/2000/July/Day–20/al7472.htm See http://www.epa.gov/fedrgstr/EPA-AIR/2000/July/Day–25/al7472.htm
NH portion of Boston-Lawrence-Worcester	See http://www.epa.gov/fedrgstr/EPA-AIR/1999/June/Day–09/al4595.htm See http://www.epa.gov/fedrgstr/EPA-AIR/2000/July/Day–20/al7472.htm See http://www.epa.gov/fedrgstr/EPA-AIR/2000/July/Day–25/al7472.htm
Portsmouth-Dover-Rochester, NH	See http://www.epa.gov/fedrgstr/EPA-AIR11999/June/Day–09/al4595.htm See http://www.epa.gov/fedrgstr/EPA-AIR/2000/July/Day–20/al7472.htm See http://www.epa.gov/fedrgstr/EPA-AIR/2000/July/Day–25/al7472.htm
Washington, DC-MD-VA	See http://www.epa.gov/fedrgstr/EPA-AIR/2001/January/Day–03/a6l.htm U.S. Court of Appeals for DC vacated the SIP/extension on 7/2/02
Atlanta, GA	See Document No. 13 Attachment http://www.epa.gov/fedrgstr/EPA-AIR/2002/May/Day–07/al 1176.htm 11th Circuit stayed EPA's SIP approval
Dallas-Fort Worth, TX	See http://www.epa.gov/fedrgstr/EPA-AIR/2001/January/Day–18/al346.htm
El Paso, TX	International transport area
Baton Rouge, LA	See http://www.epa.gov/fedrgstr/EPA-AIR/2002/October/Day–02/a24763.htm
San Joaquin Valley, CA	See http://www.epa.gov/fedrgstr/EPA-AIR/2001/November/Day08/a27289.htm
East Kern, CA	See http://www.epa.gov/fedrgstr/EPA-AIR/2001/November/Day08/a27289.htm
Phoenix, AZ	See http://www.epa.gov/fedrgstr/EPA-AIR/1997/November/Day06/a29396.htm and http://www.epa.gov/fedrgstr/EPA-AIR/2001/May/Day30/a 13512.htm
Santa Barbara, CA	See http://www.epa.gov/fedrgstr/EPA-AIR/1997/December/Day10/a32332.htm and http://www.epa.gov/fedrgstr/EPAAIR/2002/August/Day–27/a21285.htm
San Diego, CA	http://www.epa.gov/fedrgstr/EPA-AIR/2002/August/Day–23/a21560.htm

Question 18. For each ozone nonattainment area classified as "severe," please provide copies of the SIP revision required by Clean Air Act section 185, any correspondence to or from the State where such area is located regarding such submission, and any proposed and final actions by EPA regarding such SIP submissions.

Response. Table 4 lists the requested documents pertaining to section 185 SIP revisions (emissions fees in severe areas that fail to attain by their Clean Air Act attainment date).

Table 4: SIP Submissions for Emission Fees for Failing to Attain Under 185 of the Clean Air Act

Area	Comment
Severe Areas	
Milwaukee/ Racine, WI	See http://www.epa.gov/fedrgstr/EPA-AIR/2002/June/Day–25/a15870.htm. See Documents No. 22–24 Attachment.
San Joaquin Valley, CA	See Documents No. 27–31 and 58–62 Attachment. San Joaquin Valley APCD Rule 3170 (Document 61) is also available at: http://www.valleyair.org/rules/currntruies/r3170.dpf.
	The provision was adopted on May 16, 2002 and submitted to EPA on August 6, 2002. EPA is reviewing the submitted materials and plans to propose its action in March 2003 and complete action in September 2003.

Note: We are aware of one State, Pennsylvania, that has adopted State regulations with an emissions fee provision in response to the section 185 requirement. The fee would apply in the Pennsylvania portion of the Philadelphia nonattainment area. See Section 4006.4 in Document 57.

LIST OF ATTACHED DOCUMENTS

1. Guidance on the Adjusted Base Year Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plans, EPA–452/R–92–005, October 1992
2. Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rateof-Progress Plans, EPA–452/R–93–002, March 1993
3. Guidance on the Relationship Between the at Percent Rate-of-Progress Plans and Other Provisions of the Clean Air Act Amendments, EPA–452/R–93–007, May 1993
4. Guidance on Preparing Enforceable Regulations and Compliance Programs for the 15 Percent Rate-of-Progress Plans, EPA–452/R–93–005, June 1993
5. Guidance on the Post–1996 Rate-of-Progress Plan and Attainment Demonstration, EPA452/R–93–015, January 1994. (Erratta 2–18–94)
6. Letter dated May 30, 1997, to Thomas Noel, Deputy Director, Department of Environmental Services, Concord, New Hampshire from David B. Conroy, Chief, Air Quality Planning Unit, Region I, Boston, Massachusetts
7. Letter dated May 30, 1997, to Joseph Belanger, Department of Environmental Protection, Hartford, Connecticut from David B. Conroy, Chief, Air Quality Planning Unit, Region I, Boston, Massachusetts
8. Letter dated May 30, 1997, to Nancy Seidman, Department of Environmental Protection, Boston, Massachusetts from David B. Conroy, Chief, Air Quality Planning Unit, Region I, Boston, Massachusetts
9. Letter dated February 14, 1997, to Winston A. Smith, Division Director, Region IV, Atlanta, Georgia from Ron Methier, Chief, Air Protection Branch, Department of Natural Resources, Atlanta, Georgia
10. 62 PR 48027, Friday, September 12, 1997, Proposed Conditional Interim Approval—Approval and Promulgation of Implementation Plans; Georgia: Approval of Revisions to the Georgia State Implementation Plan
11. 63 FR 45172, Tuesday, August 25, 1998, Direct Final Rule—Approval and Promulgation of Implementation Plans Georgia: Approval of Revisions to the Georgia State Implementation Plan
12. 67 FR 30574, Tuesday, May 7, 2002, Final Rule—Approval and Promulgation of Implementation Plans; Georgia: 1-Hour Ozone Attainment Demonstration, Motor Vehicle Emissions Budgets, Reasonably Available Control Measures, Contingency Measures and Attainment Date Extension
13. 66 FR 63972, Tuesday, December 11, 2001, Supplemental Proposed Rule—Potential Clean Air Reclassification and Notice of Potential Eligibility for Attainment Date Extension and Approval of Attainment Demonstration, Georgia: Atlanta Nonattainment Area; Ozone
14. Table of Regulations and Rule Improvements Implemented in the 15 percent Plan with Associated Emission Reductions
15. List of 15 percent Plan Codified Regulations
16. List of 15 percent Plan Rule Improvements
17. Letter dated January 15, 2002, to Bharat Mathur, Director, Region V, Chicago, Illinois from David J. Kolaz, Chief, Bureau of Air, Environmental Protection Agency, Springfield, Illinois
18. Letter dated May 2, 1997, to David Kee, Director, Region V, Chicago, Illinois from Donald F. Theiler, Director, Department of Natural Resources, Madison, Wisconsin
19. Letter dated February 13, 1997, to David Kee, Director, Region V, Chicago, Illinois from Felicia George, Acting Assistant Commissioner, Department of Environmental Management, Indianapolis, Indiana

20. Letter dated February 13, 1997, to David Kee, Director, Region V, Chicago, Illinois from Bharat Mathur, Chief, Bureau of Air, Environmental Protection Agency, Springfield, IL
21. Table 4, Chicago 15 percent ROP Plan Measures, August 29, 1996
22. Letter dated December 22, 2000, to Frank Lyons, Administrator, Region V, Chicago, Illinois from Tommy G. Thompson, Governor, State of Wisconsin, Madison, Wisconsin
23. 67 FR 10116, Wednesday, March 6, 2002, Proposed Rule—Approval and Promulgation of Air Quality Implementation Plans; Wisconsin; Excess Volatile Organic Compound Emissions Fee Rule
24. 67 FR 42729, Tuesday, June 25, 2002, Final Rule—Approval and Promulgation of Air quality Implementation Plans; Wisconsin; Excess Volatile Organic Compound Emissions Fee Rule
25. Letter dated August 9, 1994, to Ms. Beverly Hartsock, Deputy Executive Director, Texas Natural Resource Conservation Commission, Austin, Texas from A. Stanley Meiburg, Director, Region VI, Dallas, Texas
26. Letter dated September 6, 1994, to Ms. Jodena Henneke, Director, Air Quality Planning Division, Texas Natural Resource Conservation Commission, Austin, Texas from Gerald W. Fontenot, Chief, Region VI, Dallas, Texas
27. Letter dated May 1, 2002, to Scott Nester, San Joaquin Valley Unified Air Pollution Control District, Fresno, California from Andrew Steckel, Chief, Region IX, San Francisco, California
28. E-mail dated January 30, 2002, to Andrew Steckel, Chief, Region IX, San Francisco, California from Scott Nester, San Joaquin Valley Unified Air Pollution Control District, Fresno, California
29. E-mail dated January 4, 2001, to Chris Frank, Ventura County APCD from Dave Jesson, Region IX, San Francisco, California
30. E-mail dated December 12, 2000 to David Jesson, Region IX, San Francisco, California from Chris Frank, Ventura County APCD
31. E-mail dated December 12, 2000 to Chris Frank, Ventura County APCD from David Jesson, Region IX, San Francisco, California
32. Letter dated December 28, 2001, to Mr. Jack Broadbent, Director, Region IX, San Francisco, California from Michael P. Kenny, Executive Officer, Air Resources Board, Sacramento, California
33. Enclosure A to December 28, 2001 letter to Mr. Jack Broadbent—1999 Milestone Compliance Demonstration: Background
34. Enclosure B to December 28, 2001 letter to Mr. Jack Broadbent—1999 Milestone Compliance Demonstration: Summary Tables for California Nonattainment Areas Southeast Desert: Mojave Desert Portion
35. Enclosure C to December 28, 2001 letter to Mr. Jack Broadbent—1999 Milestone Compliance Demonstration: Status of State and Federal Measures
36. Enclosure D to December 28, 2001 letter to Mr. Jack Broadbent—1999 Milestone Compliance Demonstration: Status of Local Measures
37. San Diego County Air Pollution Control District Measures—Changes Since the 1996 Milestone Compliance Demonstration
38. San Joaquin Valley Unified Air Pollution Control District—2000 Ozone Rate of Progress Report, April 20, 2000 (Revised April 27, 2000)
39. Letter dated May 17, 2000 to Michael Kenny, Executive Officer, Air Resources Board, Sacramento, CA from Norm Covell, Air Pollution Control Officer, Sacramento Metropolitan AQMD, Sacramento, CA—Sacramento Area Regional 1999 Milestone Report, April 2000
40. Sacramento Area Regional 1999 Milestone Report—technical Appendices, April 2000
41. Letter dated April 6, 2000 to Michael Kenny, Executive Officer, California Air Resources Board, Sacramento, CA from Charles L. Fryxell, Air Pollution Control Officer, Lancaster, CA—Final Draft Antelope Valley APCD 1999 Milestone Compliance Demonstration
42. Letter dated April 6, 2000 to Michael P. Kenny, Executive Officer, California Air Resources Board, Sacramento, CA from Charles L. Fryxell, Air Pollution Control Officer, Lancaster, CA—Final Draft Mojave Desert AQMD 1999 Milestone Compliance Demonstration
43. Letter dated February 18, 1997 to Felicia Marcus, Regional Administrator, Region IX, San Francisco, CA from Michael P. Kenny, Executive Officer, California Air Resources Board, Sacramento, CA—1996 Milestone Compliance Demonstration for the San Diego County Portion of the 1994 California Ozone State Implementation Plan
44. Letter dated May 19, 1997 to Felicia Marcus, Regional Administrator, Region IX, San Francisco, CA from Michael P. Kenny, Executive Officer, California Air Re-

sources Board, Sacramento, CA—1996 Milestone Compliance Demonstration for the Ventura County Portion of the 1994 California Ozone State Implementation.Plan

45. Letter dated February 14, 2000 to Richard Grow, Region IX, San Francisco, CA from Scott Johnson, Planning Manager, Ventura County Air Pollution Control District—Ventura County 1999 Milestone Compliance Demonstration

46. Letter dated September 11, 1997 to David Howekamp, Director, Region IX, San Francisco, CA from Nancy C. Wrona, Director, Air Quality Division, Department of Environmental Quality, Phoenix, AZ

47. Letter dated February 18, 1997 to W. Michael McCabe, Regional Administrator, Region III, Philadelphia, PA from Christophe A.G. Tulou, Secretary, Department of Natural Resources & Environmental Control, Dover, DE

48. Letter dated March 13, 1997 to Darryl Tyler, Director, Department of Natural Resources & Environmental Control, Dover, DE from David L. Arnold, Chief, Region III, Philadelphia, PA

49. Letter dated March 24, 2000 to Nicholas A. DiPasquale, Secretary, Department of Natural Resources & Environmental Control, Dover, DE from Bradley M. Campbell, Regional Administrator, Region III, Philadelphia, PA

50. Letter dated February 25, 2000 to Bradley M. Campbell, Regional Administrator, Region III, Philadelphia, PA from Nicholas A. DePasquale, Secretary, Department of Natural Resources & Environmental Control, Dover, DE

51. Certification that public hearing was held January 4, 2000 to consider a proposed revision to the State of Delaware Implementation Plan for Achieving and Maintaining the National Ambient Air Quality Standard for Ozone

52. Secretary's Order No. 2000-A–0006—Re: SIP Revision—Delaware 1996 Milestone Demonstration for Kent and New Castle Counties

53. Memorandum dated February 2, 2000 to Nicholas A DePasquale, Secretary from Valerie Satterfield, Hearing Officer re: SIP Revision—Delaware 1996 Milestone Demonstration for Kent and New Castle Counties

54. Affidavit of Publication in the News Journal for New Castle County

55. Affidavit of Publication in the Delaware State News for Kent County

56. Final Submittal—Delaware 1996 Milestone Demonstration for Kent and New Castle Counties, February 2000

57. Purdon's Pennsylvania Statutes Annotated—Title 35 Health and Safety, Sections 1151 to 6200

58. Transmittal documents for California SIP revisions including Rule 3170 (ozone nonattainment fee) for San Joaquin Valley Unified Air Pollution Control District.

59. Resolution No. 02–05–05, Governing Board of the San Joaquin Valley Unified Air Pollution Control District, adopting rule 3170 (ozone nonattainment fee).

60. Certification of publication of notice of public hearing on Rule 3170 (ozone nonattainment fee) for San Joaquin Valley Unified Air Pollution Control District.

61. Rule 3170 (ozone nonattainment fee) for San Joaquin Valley Unified Air Pollution Control District, adopted May 16, 2002.

62. May 16, 2002, Memo to San Joaquin Valley Unified Air Pollution Control District Governing Board, from David L. Crow, Executive Director/Air Pollution Control Officer, and Scott Nester, Project Coordinator, regarding adoption of proposed rule 3170 (ozone nonattainment fee)

RESPONSES OF JEFFREY HOLMSTEAD TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. The recently released National Academy of Sciences report, which assesses the CMAQ program, recommends that the "program should be broadened to include, at a minimum, all pollutants regulated under the Clean Air Act." Do you agree with this recommendation? What do you think would be the effect of broadening the CMAQ program?

Response. The full text of the NAS report recommended: "At a minimum, the eligibility criteria and allocation formula should include all pollutants regulated under the Clean Air Act, which would cover PMIO, as well as sulfur dioxide and air toxics." Without regard to CMAQ funding constraints, EPA would agree with the recommendation. However, in light of the CMAQ funding levels established by Congress, extending geographic eligibility, the apportionment of funds, and project eligibility to all Clean Air Act pollutants could dilute the amount of funds available to any given area to such an extent as to render the program less effective. The NAS study recognized this limitation as well.

EPA believes it is prudent to consider extending eligibility only to those pollutants for which we have ambient standards and to which mobile sources are a significant contributor. In light of the evidence on the health effects of fine particulate matter,

and the relationship between travel activity and PM emissions, the administration is considering recommending inclusion of PM nonattainment areas in the apportionment formula. Sulfur dioxide emissions come primarily from fuel combustion processes at point sources, with transportation sources accounting for only a minor fraction of the inventory. The absence of ambient standards for air toxics, together with limitations on the information relating travel activity to human health effects from exposure to air toxics, would make it difficult to develop a funding formula and direct money to useful mitigation projects. Given these limitations, EPA would not, at this time, recommend extending eligibility and allocation of CMAQ funds for sulfur dioxide and air toxic pollutants.

Question 2. As I mentioned during the hearing, the current Federal budget crises demands that we look at the cost-effectiveness of our government's programs. Could you provide detailed information to put in perspective how cost effective transportation and air quality projects have been?

Response. The National Academy of Sciences CMAQ report concluded that "It is not possible to undertake a credible scientific quantitative evaluation of the cost-effectiveness of the CMAQ program at the national level." A limited number of studies have been done to quantify the actual effectiveness of transportation control measures (TCMs) as defined by the Clean Air Act, Section 108(f), for improving air quality. Most estimates of effectiveness are not derived from observed changes in travel activity, but are estimated through the use of models. Most models are not designed to estimate the emission impacts of individual small scale projects within the context of the much larger regional transportation system.

Even if the data and models were available, the regional variation in physical, social and

economic conditions, as well as the project selection criteria which is external to the air quality considerations, would render a generalization about the cost-effectiveness of TCMs highly speculative for any specific area. It is important to recognize. that transportation projects, including those funded by CMAQ and intended to reduce emissions, are considered for implementation within the context of multiple societal goals that transportation planners seek to address. Assigning a portion of the cost of any TCM to each of the individual goals, including air quality, introduces a bias that could skew cost-effectiveness analyses.

Given the caveats above, TCM cost-effectiveness estimates in the current literature range approximately from $1,000 to several million dollars per ton of hydrocarbon reduced. These estimates are limited in usefulness because there is no reference point for the temporal effects (the timeframe over which the project produces emission reductions) nor the cost-effectiveness of the control strategies that have already been implemented in an area. For example, evaluation of a well designed commuter rail project would indicate different annual cost-effectiveness figures if it were evaluated over the first 5 years of operation, versus a 20 to 30 year timeframe. Additionally, if an area has already implemented a substantial set of the most cost-effective controls, but still needs additional emission reduction to achieve healthy air quality, it may choose to implement more costly transportation control measures than to place more controls on its industry and power generation sources. We should note, however, that these cost-effective estimates assign all of the cost of a particular measure to its pollution reduction instead of apportioning it between the pollution reduction benefits and other societal benefits (e.g., less time spent in traffic).

The CMAQ study concluded, with significant qualifications, that technology based strategies appear to be more cost effective than strategies designed to reduce travel activity. The study also noted several exceptions where travel demand management projects appear to be at a similar costeffectiveness level as technology based measures.

EPA supports the CMAQ study recommendation for a significant national program of evaluation of transportation control measures, which would provide State and local transportation and air quality agencies with up to date information on cost-effectiveness.

Question 3. In the past, transportation projects across the country have experienced delays due to new emissions standards and conformity. As we discussed during the hearing these project delays need to be considered prior to EPA's new nonattainment designations. Could you please provide an update on the steps EPA has taken since the conformity problems were identified? How is EPA preparing to deal with problems that may arise after the new designations? Additionally, should, and if so how, this matter be addressed during the reauthorization of the transportation bill to prevent or alleviate some of the delays?

Response. Under the Clean Air Act section 176(c)(6), transportation conformity will apply to nonattainment areas designated under new air quality standards 1

year after the effective date of an area's designation. Since the 8-hour ozone and PM–2.5 standards are different standards from the 1-hour ozone and PM–10 standards, respectively, every area that is designated nonattainment for the new ozone and PM standards will have a 1-year grace period before conformity applies for those standards, regardless of whether or not an area was previously designated nonattainment for the 1hour ozone or PM–10 standards.

EPA is currently developing an overall implementation strategy for the new air quality standards; we plan to propose an implementation strategy for the 8-hour ozone standards in the very near future. EPA's strategy will include a proposal for how areas will be classified and when the onehour standard will be revoked, Some areas or part of areas that will be designated as nonattainment for the 8-hour standard are currently nonattainment for the 1-hour standard. To transition areas from the 1-hour to the 8-hour ozone standard, a key option that EPA is considering is to revoke the 1-hour ozone standard 1 year after the effective date of designations made under the 8-hour standard. While this is only one option for transitioning to the new ozone standard, this option would allow the revocation of the 1-hour standard to coincide with the end of the 1-year conformity grace period, and therefore, conformity would only be required for one ozone standard at any given time.

Once the implementation strategy has been proposed, EPA will have to update the conformity rule to make it consistent with the new standards. EPA has ideas for simplifying the process that we can consider in this rulemaking. Stakeholders will also have the opportunity to express their view and ideas in this process.

EPA and U.S. DOT, as well as stakeholders across the U.S., have a wealth of experience in implementing conformity. Newly designated areas will benefit from our collective experience; EPA and DOT will provide timely guidance to these areas before and as they implement the program to make the transition to the new standards as smooth as possible and to avoid any unnecessary delays in transportation projects. We recognize that additional assistance to States and local areas will likely be necessary and we plan on extending ourselves to help with this transition to new air quality standards.

Question 4. Too often we talk only about the major problems with our air quality and forget to assess how far we have come. Please provide for the committee a big picture analysis with benchmark figures to get a sense of where we are today, what progress we have made, what areas remain as challenges, and what are the sources of these challenges. Do you have any State-specific numbers for air quality improvements (specifically Ohio)? What has contributed most to the country's reductions in air pollution? Where has our Nation been getting the biggest returns on legislation and investments to reduce air pollution? What emerging new issues need to be addressed and how?

Response. We agree with the sentiment expressed in this question. There has in fact been very substantial progress made in improving air quality in this country. Since 1970, aggregate emissions of the six principal pollutants tracked nationally have been cut 25 percent. During that same time period,

U.S. gross domestic product has increased 161 percent, energy consumption increased 42 percent, and vehicle miles traveled increased 149 percent. National air quality levels measured at thousands of monitoring stations across the country have shown improvements over the past 20 years for all six principal pollutants. Despite this progress, almost 170 million tons of pollution are still emitted air each year in the United States, and approximately 133 million people live in counties where monitored air in 2001 was unhealthy because of high levels of least one of the six principal air pollutants.

With respect to State-specific trends, we do not track or publish State-specific statistics; normally this is done by the State itself. (The Division of Air Pollution Control in the State of Ohio's Environmental Protection Agency produces a trends analysis that can be found at http://www.epa.state.oh.us/dapc/ams/data.html.) However, we can supply the following regarding air quality improvements in Ohio's metropolitan areas:

- In 1991, seven Ohio metropolitan areas were designated as nonattainment areas for the 1-hour ozone standard. Today, all have air quality meeting the 1-hour ozone standard.

Cleveland-Akron-Lorain, Dayton-Springfield, Toledo, Canton, and Columbus, and Youngstown-Warren all were redesignated as meeting the standard in 1995 or 1996. The seventh area, Cinncinati-Hamilton, OH-KY, also has air quality meeting the standard; the Kentucky portion is redesignated and the State of Ohio is working to satisfy requirements necessary for redesignation of the Ohio portion.

- EPA trends data for major Metropolitan Statistical Areas in Ohio during the 1990–1999 period shows downward trends in six of seven areas where carbon monoxide is monitored, 10 of 12 areas where PM–10 is monitored, and 10 of 13 areas

where SO2 is monitored. The progress on S02 occurred primarily as a result of the Acid Rain Program. Today, all areas in Ohio meet the national air quality standards for carbon monoxide and coarse particulate matter (PM–10). All areas have air quality that meets the air quality standard for sulfur dioxide with the possible exception of one county near Toledo; the State is currently examining whether levels there now meet the standard.

Regarding your question concerning where we have gotten the greatest returns on legislation, we believe that one of the greatest successes has been the market-based Acid Rain Program which the Congress authorized in 1990. As you know, this program established overall goals, but allowed industry to find the cost-effective ways to comply with those goals. As noted above, the success of this program guided us in the design of the proposed Clear Skies Act.

Regarding your question concerning the remaining challenges, we believe that the challenge of attaining the ozone and particulate matter (PM) standards is undoubtedly the greatest we face today. Along with many others, we believe that region-wide emissions of sulfur dioxide (Sox) and nitrogen dioxide (Nox) are the major precursors contributing to the high levels of ozone and PM. Based on the success of the Acid Rain program, we believe that any effort to attain the ozone and PM standards should include cost-effective, region-wide reductions of these precursors. As you know, we have submitted to Congress the Administration's Clear Skies legislation which, if enacted, would reduce emissions of these precursor pollutants from the utility industry by some 70 percent through a nationwide cap and trade program. I believe that this is the greatest issue we currently face and that passage of strong multi-pollutant legislation is an important first step. Under the current Act we are focusing on the development of rules to reduce emissions from on-road transportation and also non-road diesels. These rules will bring reductions in emissions over the next few years. Additional reductions beyond those provided by legislative initiatives and national rules will be needed to provide clean air in the future.

Finally, for more than 25 years we have documented air quality progress in the annual National Air Quality Trends and Emissions Report. More recently we also began publishing a summary report on Latest Findings on National Air Quality. We also have a website (www.epa.gov/AIRTRENDS) that presents information on the nation's air quality, where the many "trends" reports and summary report can be found, respectively, at http://www.epa.p-ov/airtrends/reports.html, and http://www.epa.gov/oar/agtrnd0l/sununarv.pdf.

Question 5. The Europeans use a lot more diesel fuel in their cars then we do because they get more mileage out of each gallon. However, this is at the cost of higher emissions. While I understand that Europeans use more diesel fuel due in part to their higher gas tax, in your opinion, why have U.S. car companies not made this transition? How is technology progressing and what is the time line to reduce the missions associated with the use of diesel fuel?

Response. The higher retail prices of motor vehicle fuels in Europe relative to prices in the United States has influence on car buying habits. Diesel vehicles tend to be more fuel-efficient than gasoline vehicles and so European car buyers, for whom fuel costs are a very large consideration, are more likely to buy them, even though cars powered by diesel engines may be higher priced. In addition, there is a perception among some Americans that diesel cars may be unreliable, due to problems encountered in past attempts to introduce diesels here. These problems have been largely overcome over the years and several manufacturers are now considering plans to market new diesel models in the U.S. Rapid progress is being made in equipping diesels with high-efficiency catalytic exhaust controls that will meet the same stringent Tier 2 emission standards required of gasoline vehicles over the next several years. Key to the introduction of very low-emission diesel vehicles is EPA's requirement, for desulfurized highway diesel fuel in 2006.

RESPONSES OF JEFFREY HOLMSTEAD TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. In 1990, Congress' Office of Technology Assessment concluded that transportation control measures are a cost-effective and technologically simple was to lower emissions, which can result in very large improvements. Yet the CMAQ report cites an example in Chicago where several hundred TCMs only produced a 2 tons per day reduction in emissions, and that many TCMs cost above $50,000 per ton. Is it fair to say that the transportation conformity program was based on a set of assumptions that are disputed by experience?

Response. Under the 1990 Clean Air Act, the current conformity program was established to better integrate the transportation and air quality planning processes.

Prior to 1990, some believed that this lack of integration contributed to some areas failing to meet the air quality standards. In an attempt to correct this situation Congress established a transportation conformity process that would integrate transportation and air quality planning, that would be dynamic and iterative, and that would require areas to consider the impact of their transportation decisions before such projects have been built.

The purpose of conformity as intended under the 1990 Clean Air Act, however, had little to do with ensuring that TCM's are cost-effective. In general, EPA does not have sufficient data to adequately assess the cost effectiveness of transportation control measures. However, we do recognize that some TCMs are estimated to have small regional emissions impact and, based upon these estimates, some projects would have high costs per ton of emissions reduced. Please see our answer to Senator Voinovich question #2 for further discussion on this issue.

Under the current Clean Air Act, areas may choose how to achieve conformity as they deem most appropriate. For example, if emissions reductions are needed to demonstrate conformity, areas may choose to include projects with emissions reduction benefits in the plan/TIP. Alternatively, some areas have resolved conformity issues by revising their SIP to add new control measures and/or adjust upward the motor vehicle emissions budgets to accommodate emissions that exceed the motor vehicle emissions budget initially established in the SIP.

Regardless of the situation, however, EPA does not decide for areas how to resolve their transportation and air quality issues. Under the current Clean Air Act areas have the choice as to how they will approach and resolve conformity difficulties via the interagency consultation process. Therefore, we regard such conformity issues and their respective solutions as evidence that the conformity program is serving its purpose of ensuring that Federal dollars are spent in a manner that is consistent with both mobility and clean air goals.

Question 2. I understand that this chart accounts for existing EPA regulations and standards for vehicle emissions. Do these projections account for hybrid and fuel cell vehicles? Do you think these new technologies will play an important role in reducing vehicle emissions, and if so, when?

Response. As the auto industry continues its progress toward bringing the costs down for hybrid technologies (electric and hydraulic hybrids) and well as fuel cell and hydrogen technologies, we are optimistic that the future will include increasing numbers of these more fuel efficient and often cleaner vehicle designs. As this future takes shape, we will be evaluating the benefits of the entry of large numbers of these vehicles into the U.S. vehicle fleet.

Question 3. The TRB CMAQ report says TCM effectiveness will decline as cars get cleaner. For example, a carpool program in 1970 that reduced 100 miles of driving would abate 1000 grams of VOC. In 1990 a 1000 gram reduction would require drive 1250 miles less, and in 2009 this number would be 14000 miles less driving. What does this say about the future effectiveness of projects and programs aimed at reducing vehicle use?

Response. We were unable to substantiate the numerical comparison between 1990.and 2009. As indicated elsewhere in the record (see Senator Voinovich question #2), direct cost-effectiveness of an individual project is not necessarily the most relevant factor in which to evaluate the CMAQ program. These estimates are limited in usefulness because there is no reference point for the temporal effects (the timeframe over which the project produces emission reductions) nor the cost-effectiveness of the control strategies that have already been implemented in an area.

However, we do agree that our new vehicle emission performance standards have been very effective in reducing vehicle emission rates. As a result of the emission regulations EPA has already promulgated, future passenger vehicles and light duty trucks will be approximately 98 percent cleaner than uncontrolled cars and trucks. As a natural consequence of reducing the emissions per vehicle mile traveled, the benefit of reducing vehicle miles traveled by a fixed amount with today's vehicles will be greater than the benefit of reducing the same amount of vehicle miles traveled with vehicles of the future.

While emission rates per vehicle mile traveled will continue to decrease, total emissions from a growing vehicle fleet and increased travel will still contribute to air pollution in metropolitan areas. Absent additional technological advances and assuming the continuation of current growth trends into the future, additional control measures may be needed. Therefore, we expect air quality and transportation planners to continue to consider TCMs, as defined by the Clean Air Act, Section 108(f), for air quality, mobility and quality of life purposes. EPA supports investment in TCMs, especially those that are focused on air quality, but recognize that

decisions on which TCMs, if any, to pursue are best made at the State and local level.

Question 4. I'm concerned about the cost-effectiveness of the CMAQ projects. According to the CMAQ report, only 21 percent of the CMAQ money is spent on projects that cost less than $10,000 per ton, and almost 80 percent is spent on projects that exceed $10,000 per ton, and many are well above $100,000 per ton. These more cost-effective projects are producing ten times the emission reductions of the $100,000 per ton projects. Isn't it more important that we focus CMAQ funds on the selection of the most cost-effective pollution-reducing projects?

Response. EPA doesn't collect information on cost-effectiveness of CMAQ projects, so we cannot confirm these figures. We would rely on DOT for verification of the percentages. Measuring the costeffectiveness of CMAQ projects solely on the basis of emission reductions can sometimes be misleading. Transportation planners tell us that CMAQ project selection often involves consideration of other important societal benefits of the project. For example, traffic signal upgrades and transit projects, which account for the majority of CMAQ funds, may have the added benefit of relieving traffic congestion.

EPA encourages CMAQ projects that focus on air quality, but just as different non attainment areas have various strategies for controlling air pollution, they also have different strategies for using their CMAQ funds. When considering potential changes to the program it is important to consider flexibility for areas wanting to address air quality and transportation needs. Thus, decisions on which projects to fund are best made by local and State planning officials. Nevertheless, the CMAQ report suggested the need for better information and accounting of the air quality impacts of funded projects. To the extent this would allow a more informed decision-making process, EPA would support improvement in the estimation and assessment of the emission impacts of CMAQ projects.

Question 5. I am very concerned that some MPO's, through no fault of their own, may suffer a conformity lapse due to the new higher emissions predicted by EPA's new MOBILE6 model. For example, using these new models the Dallas MPO is reporting a 50 percent increase in VOC and NOx emissions, Cincinnati is reporting an 18 percent increase in NOx emissions, and LA is reporting a doubling of NOx emissions from heavy-duty trucks. MPOs are saying that their toolbox is empty, and the CMAQ report seems to support that opinion. Where are we going to get the necessary reductions? What can we do to make sure that needless lapses in highway spending are prevented?

Response. To assist areas with the transition to the new MOBILE model, EPA and U.S. DOT have established the regulatory maximum, 2-year grace period before MOBILE6 is required for new conformity determinations in most cases. During this 2-year grace period areas may continue to use MOBILE5 for conformity determinations based on their current MOBILE5 budgets. This 2-year grace period became effective on January 29, 2002, the date MOBILE6 was officially released; however, MPO's were generally informed of this schedule before January 2002, and therefore, have had more than 2 years to reflect this requirement in their plans.

Areas should use the time provided by the grace period to examine how MOBILE6 will impact their future conformity determinations. When using MOBILE6, some areas may find that emissions estimates are higher than those estimates previously made to establish the motor vehicle emissions budgets using MOBILE5. As a result of these potential emissions increases using MOBILE6, some areas can choose to revise their SIP and thus the motor vehicle emissions budgets with MOBILE6 before the end of the grace period, since doing so may be necessary to ensure that conformity can be demonstrated after the 2-year grace period has expired and MOBILE6 is required. Currently, we are aware of a number of areas that have begun or plan to begin in the near future a MOBILE6 SIP revision including, Washington DC, Baltimore, Dallas, Houston, Chicago, St. Louis, and Philadelphia.

Compared to MOBILE5, MOBILE6 provides a much better tool for estimating emissions from motor vehicles. The outputs from MOBILE6 allow a more accurate assessment of transportation's contribution to air pollution and the actions necessary to assure clean air. Thus, it is the best tool available and should be used in all subsequent conformity updates or SIP revisions after a reasonable grace period. EPA and DOT concur on this and are jointly working to facilitate the use of MOBILE6 in future SIPs and conformity determinations.

As an alternative or in parallel to SIP revisions, areas can adopt additional control measures or modify their current plan/TIP (e.g., modify specific projects) to offset any increases in emissions that are projected with MOBILE6, particularly in the near term. Such measures could include TCM's; however, areas could also explore

I/M enhancements, voluntary programs (e.g., a voluntary diesel retrofit program), or fuels programs to obtain the necessary reductions.

EPA recognizes that in some cases finding adequate control measures may be difficult, as the magnitude and complexity of air quality issues can vary from area to area. Therefore, we have been and will continue to work with individual States/areas on a case-by-case basis to explore potential emissions reductions controls to achieve and maintain clean air.

Question 6. MPOs and Air Quality Agencies have been raising serious concerns about the mismatch in the SIP and conformity schedules. For example, the Atlanta MPO stated,". . . the differences in the timing and scheduling of SIPs, RTPs, TIPs and associated conformity analysis create a very confusing regulatory environment." In Sacramento, the MPO reports, "the Sacramento region faces a conformity "lockdown" . . . [which] means that we will be unable to make any changes, additions, or deletions to non-exempt projects . . . until a new SIP is approved by EPA." What steps is EPA taking to clarify its SIP and conformity regulations, and prevent needless conformity lapses from occurring?

Response. From the two examples provided above, there appears to be two separate issues that need to be addressed. First, the statements made by the Atlanta MPO suggest that the current SIP, plan/TIP and conformity schedules have caused some difficulties and unnecessary burdens on conformity implementers. Second, the comments made by the Sacramento MPO appear to refer to conformity issues that have surfaced as a result of the SIP being based on a set of older planning assumptions than a conformity analysis that is based on newer, more up-to-date planning assumptions. Because we have interpreted the statements you have quoted here as referring to two distinct issues, we have provided below a thorough discussion and response for each issue: Conformity Frequency and Latest Planning Assumptions.

Conformity Frequency: Current Requirements

Transportation conformity is implemented to achieve its purpose as defined by the Clean Air Act under the following air quality and transportation schedules:

Clean Air Act Requirements

Transportation Conformity: According to the Clean Air Act, transportation plans and TIPs in nonattainment and maintenance areas must conform before they are adopted by an MPO. Under DOT's transportation planning regulation, metropolitan nonattainment and maintenance areas must develop a new transportation plan that covers at least a 20-year timeframe every 3 years. In addition, Title 23 requires these areas to update their TIPs every 2 years. TIPs cover a shorter timeframe (at least 3 years) and consist of a subset of projects from the transportation plan. Since TIPs are required to be updated every 2 years, metropolitan nonattainment and maintenance areas are required to demonstrate conformity at a minimum of every 2 years. An option that has been suggested to eliminate the mismatch between frequency of plan and TIP updates via TEA–21 reauthorization is to streamline the plan and TIP into one planning document. EPA recognizes the advantages of aligning the frequency of TIP updates with transportation plan updates.

The Clean Air Act also requires conformity to be determined at least every 3 years. In nonattainment and maintenance areas, both the metropolitan transportation plan update cycle and the conformity determination cycle start at the time FHWA and FTA make the conformity determination on the plan; thus, both plan and conformity updates occur on the same 3-year cycle.

SIPS: Once a SIP is submitted for a particular Clean Air Act purpose, and approved by EPA, the motor vehicle emissions budgets in the approved SIP remain in effect until the State decides to update the SIP. The SIP's motor vehicle emissions budgets, in effect, estimate the amount of emissions from the transportation sector that the air could absorb and still allow the area to attain the National Ambient Air Quality Standards. There is no statutory or administrative requirement to update approved SIPs on a regular basis, with few exceptions. For example, rate of progress and attainment SIPs, as well as regular emissions inventory updates that could trigger a SIP revision are required in serious and above ozone areas. See EPA's response to Senator Jeffords questions #14–18 for more information on SIPs in serious and above ozone areas. The types of SIPs that must be submitted by an area are dictated by the Clean Air Act and vary according to the pollutant and classification of the area.

Although the CAA does not mandate regular SIP updates, some areas have updated or are in the process of updating their SIPs and as a result, may have more recent mobile source emissions budgets available for conformity purposes. In particular, areas that have had conformity difficulties have often addressed such issues by revising their SIPs to incorporate new planning assumptions and data and/or ad-

ditional control measures to allow for growth in transportation (e.g., Baltimore MD, New Jersey, Salt Lake City UT, Albuquerque NM). In addition, under EPA's MOBILE6 policy all States that took MOB1T .5-based preliminary estimates of credit for Tier 2 vehicle emission regulation benefits in their current SIPs are committed to revise their mobile source budgets with MOBILE6 within 1–2 years after MOBILE6's release on January 29, 2002 (e.g., New York City, Philadelphia PA, Baltimore MD, Washington DC, Houston TX, Dallas TX, St. Louis MO). States also typically update their SIPs after a change in attainment status, for example, when an area requests redesignation and develops a maintenance plan with new motor vehicle emissions budgets (e.g., Denver CO, Louisville KY, Pittsburgh PA, Cincinnati OH, Richmond VA, Nashville TN). In these cases, however, once areas develop a maintenance plan such budgets can be in place for up to 10 years because maintenance plans cover a 10-year timeframe.

Transportation Conformity Rule Requirements

In addition to the statutory requirements, there are specific triggers in the. conformity regulation that warrant a new conformity determination within 18-months of certain SIP actions. For instance, EPA's conformity rule requires conformity to be done within 18 months of EPA's adequacy finding for an initial SIP and within 18 months of EPA's approval of a SIP. This 18 month requirement is intended to ensure that when an area has a new SIP that establishes a new budget, the new air quality information is integrated into the conformity process in a timely manner (otherwise, areas could wait up to 3 years before that new, relevant air quality information is incorporated). EPA is currently working on a proposed rulemaking to eliminate some of these 18-month triggers and streamline others to reduce redundancy and unnecessary burden on conformity implementers.

EPA Action to Relieve Burden of Conformity Frequency

First, EPA is currently working on a proposal to revise the conformity rule to streamline the 18month conformity triggers for certain SIP actions. Specifically, we are considering a proposal that would only require a conformity determination if a new motor vehicle emissions budget becomes available for conformity purposes. In addition, we would propose to limit an 18-month conformity trigger to only those budgets that have not previously been used in a conformity determination. In other words, if an area satisfies the conformity requirement for an initial SIP submission, it would not be subject again to another conformity trigger when EPA approves that same SIP with the same motor vehicle emissions budgets.

Second, another option that has been suggested is to streamline the plan and TIP into one planning document to eliminate the mismatch between frequency of plan and TIP updates. As described above, the timing mismatch between the plan and TIP under the current transportation planning requirements results in areas having to demonstrate conformity at a minimum every 2 years.

EPA believes that implementing these two options would reduce the burden currently experienced by transportation agencies with regard to conformity frequency.

Latest Planning Assumptions: Current Requirements

The Clean Air Act requires that SIPS use the most recent data and planning assumptions available at the time a SIP is developed. However, the Act does not require SIPs to be subsequently updated for conformity purposes. For transportation conformity, the Act requires that conformity of the plan and TIP be demonstrated at a minimum of every 3 years, and that such conformity determinations also include the most recent available data. This provision recognizes the importance of using the best available (i.e., the most recent or up-to-date) information in making conformity determinations.

Therefore, given the current statutory requirements, some areas have approved SIPs and motor vehicle emissions budgets that are based on data and planning assumptions that may no longer be the "most recent available" and may indicate that the SIP projections underestimate the anticipated emissions contribution from motor vehicles. For example, new VMT information that accounts for unexpected growth, more recent vehicle registration data or new emissions models may result in significant increases in motor vehicle emissions projections. As envisioned by the Clean Air Act, it would be inappropriate to ignore the latest information and emissions estimates when making conformity determinations.

In these situations areas have several options from which to chose to resolve the increase in emissions from the introduction of new data; the area can revise its SIP to incorporate new data and possibly enlarge the motor vehicle emissions budget, alter/modify its plan and TIP, and/or add new control measures either via the SIP or transportation planning processes, as appropriate.

EPA Action to Alleviate Burden of Latest Planning Assumptions Requirement

EPA and DOT have concurred that by incorporating new data and information into the transportation and conformity processes, better decisions—both transportation and air quality—can be made. However, EPA is aware of the conformity difficulties that can arise due to the introduction of new information, especially when the new information indicates unanticipated growth in VMT of vehicles with higher rates of pollution (e.g., increases in truck freight traffic). Therefore, we are currently working on a proposal to revise the conformity rule to provide areas with additional time to address and incorporate new data into the planning process and, as a result, reduce some of the difficulties that have been associated with the current requirements.

Specifically, we are considering a proposal that would allow conformity determinations to use the most current planning assumptions that are available at the time the conformity analysis begins (i.e., those assumptions available at the beginning of the conformity process). This rule revision would differ from our current policy that requires the use of planning assumptions that are available at the time that the FHWA and FTA make their conformity determination (i.e., those assumptions available at the end of the conformity process). This proposed rule change would provide certainty to transportation agencies that they will not have to re-start the conformity process if new data becomes available shortly before FHWA and PTA make the conformity determination. This rule change would also give areas adequate time and flexibility to incorporate new data when it becomes available prior to the beginning of the planning process, so that air quality issues can be addressed without undue delays in the implementation of transportation projects.

Question 7. One source of confusion and unnecessary paperwork is the number of triggers that can require areas to re-demonstrate conformity. For example, SCAG in Southern California, reports that these various triggers, "together with the mismatch in frequency of RTP and SIP updates . . . results in debilitating procedural inconsistencies." In San Joaquin, California, the MPO "has prepared four air quality conformity certifications in the past 12 months." While I can understand the importance of redemonstrating conformity for major new highway projects, how can we reduce the number of triggers and make sure conformity determinations are done on a reasonable and predictable schedule?

Response. As we have discussed above in our response to your question #6, EPA recognizes that the current conformity triggers created by both air quality and transportation requirements may be placing an unnecessary burden on transportation agencies. Therefore, we are currently working on a proposed rulemaking to eliminate and streamline the 18-month conformity SIP triggers; we also support combining the transportation plan and TIP into one document, thus eliminating the twoyear TIP requirement that is currently included in Title 23. EPA believes that these two possible actions could alleviate the concerns of transportation agencies, as well as maintain a meaningful, iterative process that ensures air quality goals are being achieved.

RESPONSES OF JEFFREY HOLMSTEAD TO ADDITONAL QUESTION FROM SENATOR BAUCUS

Question. I am concerned with the Consent Decrees between EPA and certain engine manufacturers with respect to the requirement that all new diesel engines by these manufacturers sold after October 1 of this year meet the January 1, 2004 NOx emission standard, the so-called "pull ahead" provisions.

EPA chose to punish some, but not all, manufacturers of diesel engines. Today we have a situation under which all of the United States manufacturers must meet the standard this October while certain foreign manufacturers are not going to be required to meet the new standard until the original January 1, 2004 date. I am aware that one foreign engine manufacturer in particular has begun an aggressive marketing campaign to exploit this competitive advantage granted to it by our government through your agency. What can be done to address this troubling condition?

Response. The October 1, 2002, emission limits agreed to between several of the largest engine manufacturers and Environmental Protection Agency (EPA) are a result of an EPA enforcement investigation. In 1998 EPA announced a settlement agreement which resolved charges that the companies—Caterpillar Inc., Cummins Engine Company, Detroit Diesel Corporation, Mack Trucks, Inc., Navistar International Transportation Corporation, Renault, and Volvo Truck Corporation—violated the Clean Air Act by installing devices that defeat emission controls. The im-

pacts of the emission control strategies used by these companies have resulted in enormous increases in pollution which have a serious adverse impact on human health. Between 1988 and 1998 the companies are alleged to have sold an estimated 1.3 million of the affected engines, which range from the type used in tractor trailers to large pick-up trucks. The affected engines emitted more than 1.3 million tons of excess NOx in 1998 alone, which is 6 percent of all NOx emissions from cars, trucks and industrial sources this year. This is equivalent to the NOx emissions from an additional 65 million cars being on the road. If the companies' use of defeat devices had not been detected and eliminated, more than 20 million tons of excess NOx would have been emitted by the year 2005. In addition, as a condition of the consent decrees, the companies have been allowed to continue to sell diesel engines used in the largest on-highway trucks (i.e., class 8 trucks) which do not meet EPA's emission requirements. The consent decrees allow the manufacturers to continue to produce the largest heavy-duty diesel engines without meeting EPA emission requirements until October of 2002. In exchange for the right to produce engines that pollute above the existing standards, the companies agreed to pull-ahead the new emission standards which otherwise were not required until 2004.

EPA did not choose to punish some companies and not others. The companies listed above are those companies which violated the Clean Air Act prohibition of defeat devices, and the list includes both domestic and foreign engine manufacturers.

During the time that these companies used defeat devices, they had an unfair competitive advantage over all other heavy-duty diesel engine manufacturers in the U.S. marketplace, including both domestic and foreign engine companies. In fact, this competitive advantage continued for the largest heavy-duty diesel engines until October 1, 2002, at which time the companies agreed to eliminate the use of defeat devices and comply with the January 1, 2004, emission standards.

The consent decrees were voluntarily entered into by the seven diesel engine manufacturers. The manufacturers had full knowledge that the decrees would extend the competitive advantage they had illegally maintained over their competitors for more than a decade until October 1, 2002, at which time they would be required to comply with the January 1, 2004, emission standards. Nevertheless, the Administration is aware of the concerns raised by the trucking industry about the potential economic impact of the pull-ahead of truck emission standards, particularly on truck purchases. EPA is working with the Department of Transportation and others to determine whether there are ways to minimize the adverse impacts.

STATEMENT OF SCOTT JOHNSTONE, SECRETARY, AGENCY OF NATURAL RESOURCES, STATE OF VERMONT

Reauthorization of TEA–3

Thank you for the opportunity to appear before this committee to offer comments on the re-authorization of the Transportation Equity Act of 2003.

Vermont, the Green Mountain State, is known for its lush green hills, maple syrup, autumn colors and beautiful lakes. Less known is the fact that Vermont does suffer adverse effects from air pollution. While we are the only State in the Northeast which is in attainment for all of the health-based criteria pollutants regulated under the Federal Clean Air Act, the health of Vermont's citizens and our environment are adversely affected by air pollution. Even though we do not violate the 8-hr ozone standard or the newly adopted fine particulate standard, we are perilously close to those standards. Indeed, Vermont has long suffered disproportionately from the impacts of acid rain and regional haze. We are also concerned about public exposure to toxic emissions and about global issues such as the depletion of the ozone layer and climate change. Many of these threats have a direct link to vehicular emissions that can be addressed through TEA-III.

Congestion Mitigation and Air Quality Improvement (CMAQ) funding has been part of the Federal transportation bills since 1991. CMAQ funds are a critical component of Northeast States' efforts to improve air quality; States in our region have benefited from the use of CMAQ funding for air quality improvement projects. Today, I want to give you my perspective from a State that has had limited access to these CMAQ funds due of our status as a NAAQS attainment area.

EPA's recent investigation of the science regarding both ozone and fine particulate pollution, and accepted by the Courts in the American Trucking case, has determined that, even though health based standards could be set for these pollutants, there was no "bright line" minimum that would ensure the protection of public health. In other words, pollution reductions translate to health benefits even in attainment States. In Vermont and New England, much of our air pollution problems can be directly attributed to the grandfathered Midwestern coal plants. At the same

time, the Northeast has localized sources that contribute to these problems and each State has attempted to craft regulations to deal with these localized sources.

Surface Transportation remains the largest in-State source of air pollution in Vermont. On a per capita basis, Vermonters drive more miles in a year than residents in 39 other U.S. States. Besides the criteria pollutants such as ozone that CMAQ has focused in the past, other air pollution problems need to be addressed such as toxics and greenhouse gases. Air Toxics[1] contribute significantly to the formation of ground level ozone and in Vermont represent the area of air quality where we do not meets some of Vermont's own air quality standards. Green house gases[2] contribute significantly to overall air pollution problems and to climate change.

The importance that our State places on the control of dangerous motor vehicle emissions is reflected in the number of control programs that we have put in place over the past decade that go beyond the Federal minimum requirements. For example, Vermont is one of only four States in the U.S. to voluntarily adopt the California low emission vehicle program in-lieu of the Federal motor vehicle standards—including the Zero Emission Vehicle sales mandate. To support this regulatory program, the State created EVermont to promote the development and deployment of advanced electric vehicles. We have also coordinated with other Northeast and Mid-Atlantic States in developing a regional roadside testing program to identify and repair smoking trucks.

CMAQ funds have been of great assistance to Vermont and to other States in the region. Over the life of TEA–21, CMAQ has been funded at approximately 4 percent of the total Federal surface transportation program.[3] Given the air quality impacts of surface transportation and the fact that it is the only transportation program designed to reduce air pollution,[4] CMAQ should not only be reauthorized—it should be expanded to represent a larger percentage of the overall transportation budget. While the CMAQ program was conceived to address both congestion and air quality, greater weight has been—and should continue to be—given to air quality improvement goals.

The transferral of CMAQ funds to non-air quality uses, as is currently allowed, should be examined so that the air quality improvement goal may be met. Further, the CMAQ allotment scheme should be modified to provide weight to factors such as: (1) high per capita VMT; (2) areas that are in attainment but at risk of slipping into non-attainment due to mobile source emissions; and (3) and disproportionately high percentage of emissions from mobile source. To ensure effective prioritization and better quantification of the air quality benefits consideration should be given to requiring that local air quality agencies be more directly involved in the evaluation of proposals for CMAQ funds and in conformity determinations when needed.

Historically, CMAQ has focused primarily on ozone, carbon monoxide and PM_{10} non-attainment. Given the breadth of real health risks caused by other motor vehicle-related emissions, a reauthorization bill should require CMAQ to consider fine particulate matter, air toxics and GHG's, in both allocation and eligibility. GHG reduction goals and incentives could also be incorporated into TEA–3 by tracking the Vehicle Miles Traveled (VMT) of all major transportation projects and by providing

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[1]Air Toxics: In Vermont, mobile sources account for between 80–90 percent of the primary emissions of Acetaldehyde, Benzene, 1,3-Butadiene, & Formaldehyde. All are Federal Hazardous Air Pollutants (HAPs) and all are known or suspected carcinogens. Non-road vehicles contribute significantly to air toxic emissions in the State with approximately 60 to 70 percent of Acetaldehyde and Formaldehyde emissions which contribute significantly to ground level ozone formation. While Vermont is a so-called attainment State, ambient concentrations of Acetaldehyde, Benzene, 1,3-butadiene, and Formaldehyde currently each exceed their respective Vermont Hazardous Ambient Air Standard (HAAS) in all areas of the State and computer modeling, while predicting decreases in concentrations for these pollutants over the next 28 years, indicate that concentrations will still exceed the Vermont health standards for these pollutants in 2030. Finally, according to the U.S. EPA's National-scale Air Toxics Assessment (NATA) median ambient concentrations of mobile source air toxics in Chittenden County, Vermont's most populous county, consistently rank in the most polluted 25th percentile. For 1,3-butadiene and Benzene, EPA modeling indicates that Chittenden County is in the worst 5 percent and 10 percent polluted areas in the U.S., respectively.

[2]A Greenhouse Gas (GHG) inventory done in 1990 shows that approx. 45 percent of all GHGs emitted in Vermont are from motor vehicles while, according to the U.S. Dept. of Transportation and the U.S. EPA, motor vehicles contributed only 27 percent of the GHGs emitted nationally in 1999. [Note: Regarding GHGs, GHG reduction goals and incentives could be incorporated into TEA-3 by tracking the Vehicle Miles Traveled (VMT) of all major transportation projects, establishing a goal for the ratio of VMT/GHGs and by providing incentives for transportation projects which promote smart growth and reductions of GHG emissions and VMT.

[3]The National Academies, The Congestion Mitigation and Air Quality Improvement Program: Assessing 10 years of Experience—Special Report 264, http://www.nap.edu/catalog/10350.html, page 1

[4]Id. p. 11

incentives for transportation projects which promote smart growth and reductions of GHG emissions and VMT.

The committee should also consider the inclusion of programs to reduce particulate and toxic pollution from diesel powered vehicles in the CMAQ program. Reducing diesel emissions is of critical importance to protect public health. Diesel particulate has been labeled a carcinogen by the State of California and diesel exhaust has been classified as a probable human carcinogen by many respected organizations.[5] In addition to cancer health effects of fine particles and diesel exhaust, significant non-cancer health effects have been demonstrated in the scientific literature. Diesel school buses, non-road equipment such as construction and agricultural machines, and trucks and transit buses emit particulates and other toxics in close proximity to children, workers, and the public. As these engines last as long as 30 years, progress in cleanup that relies on normal fleet transition will be slow. Thus, consideration should be given to include a mechanism in CMAQ that encourages transit agencies and school districts to replace or retrofit their bus fleets with clean buses.

To succeed in addressing our particulate, greenhouse gas, and toxic emissions challenges and the associated health and environmental risks that are associated with them, will require much work and new approaches to problem solving. Fortunately, many programs are underway throughout the northeast to reduce these emissions These programs demonstrate the potential of emission reduction projects. However, funding through CMAQ is needed to support these programs. I encourage you to look at the initiatives and recommendations provided by the New England Governors Conference Climate Plan[6] and the Vermont Governor's Committee to Ensure Clean Air[7] as examples of how progress can be made if these projects were all eligible for and received CMAQ funding. Examples from these reports for the transportation sector include:

- Programs designed to manage and reduce transportation demand in communities (e.g., "smart-growth" projects which reduce sprawl and encourage local communities to consider the energy impacts of development and infrastructure construction).
- Promote the shift to higher efficiency vehicles (including hybrids and advanced technology vehicles), lower carbon fuels and advanced technologies through the use of incentives and education.
- Diesel retrofits and conversions to alternative fuels which greatly reduce or eliminate particulate and toxic hydrocarbons.
- Opportunities in freight transportation that would improve the energy efficiency of the movement of goods across the region.

In considering the purpose of CMAQ, I would suggest the committee look also at the broader funding system for transportation projects. Much of our air quality and congestion problems come from the very poor use of land that has come to pass over the past decades, the practice we now call sprawl. I suggest to you that in part it has come about due to our method of funding transportation projects. Communities look at funding sources in designing their land use systems. We ought not be surprised that strip zoning and sprawling development is most often associated with highways eligible for State and Federal funding. What occurs is sprawl and the cure—little to no local cost to "fix" the problem, by increasing lanes or building new highways. I suggest you consider what would occur if we provided incentives instead for grid patterns and public transit. I believe the result would be better land use, less congestion, better air quality and ultimately smarter growth.

The use of CMAQ funds should also be encouraged for programs which simply make sense, regardless of an area's attainment status. One such program is vehicle On-board diagnostic (OBD) system inspection and maintenance. 1996 and newer vehicles are equipped with sophisticated OBD systems which identify malfunctions that increase emissions, alert drivers through a warning light on the instrument panel, and store specific information which is used by repair technicians to accurately diagnose and repair the malfunction. Such a program is cost effective and relatively simple to implement, as it relies on technology already installed on the vehicle, as opposed to requiring expensive investments in emissions testing equipment. Vermont has operated such a program on a statewide basis for over 3 years, with much success and with very little public opposition to the program. Currently, a pilot project is underway, using CMAQ funds to evaluate systems for automating

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[5]National Institute for Occupational Safety and Health (1988), the International Agency for Research of Cancer (1989), and the U.S. EPA (draft 2000)

[6]New England Governors/Eastern Canadian Premiers, Climate Change Action Plan 2001. August 2001.

[7]Committee to Ensure Clean Air, Phase II Report to Vermont General Assembly, January 28, 2002, http://www.anr.state.vt.us/dec/air/docs/CECAPhaseII.pdf.

OBD data collection and management, hopefully leading to an even more effective program in Vermont.

In summary, a State, such as Vermont, which is in attainment, can use some or all of the minimum allotment of CMAQ funds for any project in the State Transportation Plan or for a CMAQ-eligible project. However, attainment of the ozone and CO NAAQS alone provides an incomplete picture of the success of air quality control initiatives. Clearly, mobile source-related emissions of criteria pollutants, air toxics and GHG's all need to be included to address the actual risk from air pollution. While the current CMAQ Guidance published by the Federal Highway Administration encourages attainment States to "give priority to use of CMAQ program funds for projects that will relieve congestion or improve air quality in areas that are at risks of being designated as non-attainment," I suggest that "attainment"/"non-attainment" may not be a particularly relevant criterion to use in deciding how limited CMAQ moneys are to be used. Even in attainment States, transportation-related air quality issues need to be addressed. I believe that overall it would benefit Vermont and other attainment areas, for Congress to establish that, even in attainment States, CMAQ funds must be used in a way that retains the overall focus of air quality improvement.

In closing, in Vermont, as elsewhere, CMAQ has encouraged environmental and transportation agencies to talk, plan and work with each other. It is a program that has helped achieve important progress in the fight against air pollution—but much remains to be done and CMAQ must be updated to reflect our evolving understanding of the real risks society faces from vehicle-related air pollution. Vermont's environmental future, our green hills, our maple syrup industry our autumn colors, our lake quality and the health of our citizens requires our attention.

Thank you for this opportunity to testify.

STATEMENT OF COUNTY JUDGE RON HARRIS, COLLIN COUNTY, TEXAS, NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS AND METROPOLITAN PLANNING ORGANIZATION FOR THE DALLAS-FORT WORTH REGION

Mr. Chairman and members of the committee, I am Ron Harris, County Judge of Collin County. Our county is located within the five-million-person Dallas-Fort Worth Metropolitan Area. Today, my remarks represent the view of the policy officials from our region, specifically the Metropolitan Planning Organization of the North Central Texas Council of Governments. I am a former Council of Governments President, City Council member, 12 years as County Judge, and serve as chair of the North Texas Clean Air Steering Committee, co-chair Texas Clear Air Working Group and member of the Local Government Advisory Committee to the director of EPA. Our region has benefited from participation in partnerships with EPA's Regional Administrator Cook and Texas Natural Resources Conservation Commission. I am appearing today at your invitation and hope that we will be able to strengthen our partnerships through your leadership in fine tuning environmental and transportation laws to more effectively result in cleaning of the air.

I want to thank you and the members of the committee for holding this series of hearings to review the critical issues surrounding air quality and reauthorization of the Transportation Equity Act for the 21st Century.

Metropolitan areas account for 75 percent of the nation's population and 83 percent of its economic output. They are centers of social and economic activity, and are the hubs of the national transportation system. As these centers grow, congestion frequently follows, and unfortunately, all too often associated air pollution. We think with the implementation of sustainable land use; rail transit; management and operations improvements; freeway improvements; toll road construction; and aggressive air quality policies, programs, and projects, urban regions can exhibit economic vitality, mobility, and air quality attainment.

As you know, our agency prepared a response to questions from the committee. I applaud your format of requesting real world feedback from users around the country. I ask that you refer to that response for specific details to your questions. What I would like to do is address five of the more important policy questions.

1. Congestion Mitigation and Air Quality Improvement Program (CMAQ). The Clean Air Act Amendments of 1990 and the Intermodal Surface Transportation Efficiency Act of 1991 permanently fused transportation and air quality planning and programming. The CMAQ Program is one mechanism to aggressively fund control measures to reduce mobile source Volatile Organic Compound (VOC) and Nitrogen Oxide (NOx) emissions. This funding and these measures are intended to lower exceedances of the 1-hour and soon to be 8-hour ozone standard. We anticipate that the CMAQ funding Program will also be eligible to reduce emissions in the soon-

to-be implemented Particulate Matter (PM) 2.5 standard. The National Academy of Sciences Committee on this topic, of which our Transportation Director was asked to serve, recommends continuation of the CMAQ Program. In addition, the committee proposed a more flexible and more effective program by permitting eligibility for high emitting vehicles and assistance in reducing further emissions from diesel emission sources.

2. Additional Technology, Vehicle Emission Controls, and Transportation Control Measures or TCMs. TCMs are important components to reduce emissions and greatly assist with air quality conformity. They often meet mobility and air quality objectives. Non-traditional TCMs are some of the most innovative and cost-effective programs in reducing vehicular emissions by way of altering emission rates or reducing vehicle miles of travel.

We ask the Congress to continue its past leadership in establishing Federal technology programs that would otherwise be legally difficult to implement at a statewide or local level. Congress is encouraged to explore ways to reduce the growing off-road mobile source emissions. Another approach to reduce vehicular emissions is to advance already existing Federal gasoline, diesel, and engine standards earlier than required.

3. Plan Submittal Frequencies. Coordination between the State Implementation Plan (SIP), the Transportation Plan, Transportation Improvement Program (TIP), and associated air quality conformity analysis proves to be difficult due to varied schedule requirements. Currently, the SIP submittal process is infrequent, but influenced by real-time, observed air quality data. The Transportation Plan has a 3-year update cycle, and the TIP has at least a 2-year update cycle. It would be much more efficient to have consistent submittal frequencies and to streamline the implementation of specific policies, programs, and projects with less emphasis on repeating the planning process for already approved plans. In addition, it would lessen the confusion to our citizens, local governments, transportation authorities, regional partners, and resource agencies as they try to coordinate their planning activities with these Federal requirements.

4. Conformity. The air quality conformity process is a good mechanism to demonstrate that sound transportation planning is occurring. There are three predominate concerns. First, SIP and emission budgets have a relatively short-term horizon, while conformity of the Transportation Plan may be 25 years in the future with little unknown out-year emission technology benefits. Second, The Environmental Protection Agency (EPA) can establish new emission rate software at irregular intervals. This creates a conflict on how to include new information or the often suggested inconsistency of comparing transportation air quality impacts between two very different EPA software versions. Third, conformity is often used as a litigation mechanism instead of the transportation assessment Congress established.

5. Planning Horizons. Existing planning horizons for the SIP and the Transportation Plan is an issue that Congress should consider making more consistent. The Transportation Plan is required to maintain a staged 20-year horizon and the SIP to contain a near-term attainment date.

Again, more detailed information is contained in our eight page response to your questions. Thank you for your invitation to be here today.

STATEMENT OF LYNN M. TERRY, DEPUTY EXECUTIVE OFFICER, AIR RESOURCES BOARD, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Thank you for the opportunity to comment on California's experience integrating air quality and transportation planning as required by the Clean Air Act. Over the years, we have been able to meet the Act's transportation conformity requirements through the cooperative efforts of agencies at the local, State, and Federal level. At the same time, we are encountering some process challenges that need to be addressed. We are looking at this issue in the context of California's longstanding and successful air pollution control program—a program that will now address global warming as a result of the passage of State legislation recently signed by Governor Davis.

The concept of transportation conformity is a simple one—the air pollutant emissions from the transportation sector must be consistent with air quality plans for a region. This is critical to ensure that we meet health-based air quality standards in the required timeframe. The process itself requires looking at today's emissions and well as those in the future. This is necessary to ensure that we continue to make clean air progress as our population and economy grows.

Over the last 20 years, reducing air pollution from the transportation sector has been essential to California's dramatic progress in improving air quality in the Los

Angeles area—historically the nation's smoggiest region. For transportation, that progress is largely due to cleaner vehicle technology. A new car in 2010 will emit only one tenth the ozone forming pollution of a 1990 model. As a result, transportation control measures that reduce travel have shown less benefit than anticipated.

Also, there is little flexibility for transportation agencies in terms of implementing transportation control measures once they are in the air quality plan. This discourages innovation because new, more effective measures cannot replace a measure that proves to be infeasible. In terms of complying with the conformity requirements, we believe the focus should be on the emission reduction goal rather than the implementation of a specific transportation control measure.

In addition to transportation control measures, there is another important mechanism to address air pollution from the transportation sector—the Federal Congestion Mitigation and Air Quality program. We strongly support these funds as a means for transportation agencies to provide significant emission reductions in a cost-effective way. There are many cleaner technologies that can be funded to reduce both ozone and particulate pollution from the transportation sector.

The most difficult problem with the current conformity process is the inability to take new information into account in a workable way. Air quality plans or "SIPs" must define the emission target needed to achieve clean air as defined by national air quality standards. That emission target is based on the State of the science at the time the air quality plan is done. Once approved by the U.S. Environmental Protection Agency, the SIP is the federally enforceable benchmark for transportation conformity purposes. There is no requirement to update a SIP prior to the deadline for meeting the air quality standard.

On the other hand, transportation plans must be updated routinely. And, as a practical matter, changes in individual transportation projects are proposed often monthly in major urban areas. These changes typically trigger a process that requires new information to be used in the conformity analysis. When the SIPs have not been updated with the same information, the inherent inconsistency may derail the process.

In California, we face this issue virtually statewide. As a result, we will be revising 23 SIPs over the next year or so. And while this will put us back on a consistent process track in the near-term, it is a major undertaking that will not in itself provide air quality benefits. What we want to avoid in the future is the triggering of a comprehensive SIP update each time new information becomes available. Under today's rules, this is the only way to avoid conformity problems as the science improves.

We believe it is more appropriate to comprehensively revise air quality plans when the underlying facts have changed so substantially that the approach to meeting the air quality standard must be revised. Otherwise, we need the option of a streamlined mechanism to respond to new information. For example, a streamlined mechanism could be appropriate when a region is close to meeting the standard, emissions are declining, and the strategies in the air quality plans are all being implemented. In this type of transitional situation, a reconciliation of "old" and "new" vehicle emission estimates would make more sense than a comprehensive plan revision.

For regions that have a long way to go to meet the air quality standards, more frequent plan updates will be needed. For example, we recognize that the air quality plan for the Los Angeles region needs a comprehensive update. A number of new studies are available, including improved data related to motor vehicle emissions and travel. From a process standpoint, what these situations demand is the ability to link the timing of transportation plans and conformity with the completion of new air quality plans.

In conclusion, California is pursuing statewide SIP revisions as a means to provide the necessary consistency between air quality and transportation plans. But we want to use our resources more effectively to protect both our Federal transportation dollars and the integrity of our clean air plans. We believe that with some focused process changes we can accomplish both.

Thank you again for the opportunity to be here. I would be pleased to answer any questions you may have.

STATEMENT OF JAMES E. STEPHENSON, PRESIDENT, YANCEY BROTHERS COMPANY, ATLANTA, GEORGIA, ON BEHALF OF THE AMERICAN ROAD & TRANSPORTATION BUILDERS ASSOCIATION

Mr. Chairman, Senator Smith, members of the committee, thank you very much for providing the American Road and Transportation Builders Association (ARTBA)

an opportunity to present its views on the transportation conformity process, the Congestion Mitigation and Air Quality (CMAQ) improvement program and new technologies before this committee today. I would like to say at the outset that ARTBA shares your interest in assuring that all Americans breathe clean air. We are not here today to suggest a radical overhaul of the conformity process. We would, however, like to suggest some badly needed "fine-tuning" of Federal law that will not only improve public health from a clean air perspective, but also improve the efficiency of making environmentally sound and needed transportation investments.

I would also, at the start, like to thank each member of this committee for everything you have done this year to prevent a severe year-on-year cut in Federal highway investment for Fiscal Year 2003 that potentially could occur through strict enforcement of the Revenue-Aligned Budget Authority (RABA) provision of the Transportation Equity Act for the 21st Century (TEA–21). We truly appreciate the leadership that each member of this committee has shown on this issue.

I am Jim Stephenson, president of Yancey Brothers Company in Atlanta, Georgia. We are the Caterpillar dealer for the northern half of the State of Georgia. As you know, Atlanta has had its share of problems with the conformity process over the past several years. I have personally taken a very active role in trying to solve these problems. I serve on the Board of Directors of the Georgia Regional Transportation Authority (GRTA), which was established by the Governor of Georgia in 1999 to tackle Georgia's conformity problems. I am also a member of the ARTBA Board of Directors.

ARTBA celebrates its 100th anniversary this year. Based in Washington, DC, ARTBA was organized in 1902 by a visionary Michigan public official, Horatio S. Earle, for the purpose of advocating Federal legislation to create a "National Capital Connecting Highway System." That vision was realized with the enactment of the Interstate Highway construction program and Highway Trust Fund in 1956. ARTBA has more than 5,000 members and provides a consensus voice representing all sectors of the transportation construction industry—public and private—before Congress, the White House and the Federal agencies. The industry ARTBA represents generates $200 billion annually to the nation's Gross Domestic Product and generates more than 2.5 million jobs for American workers.

General Background on the Clean Air Act

Under the Federal Clean Air Act, the U.S. Environmental Protection Agency (EPA) regulates six criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter (also known as soot and dust) and lead. For each pollutant, EPA has established minimal targets that must be met known as the National Ambient Air Quality Standards (NAAQS).

If an area exceeds EPA's standards for any one of these "criteria" pollutants, it is designated a nonattainment area, triggering a series of steps that must be taken to come into compliance with the standards. In addition, for ozone, carbon monoxide and some particulate matter nonattainment areas, the EPA further classifies the area based on the magnitude of the nonattainment. These classifications are used to specify what pollution reduction measures must be adopted for the area and what deadlines must be met to bring the area into attainment.

Currently, the most pervasive problem for transportation planning purposes is ozone, followed by carbon monoxide and particulate matter. For ozone, the EPA utilizes the following classifications of attainment depending on the magnitude of the problem: Extreme, Severe, Serious, Moderate and Marginal. These classifications dictate when an area must achieve attainment status for ozone[1] and what measures must be taken to achieve attainment.

Ozone is formed through a complex chemical reaction between volatile organic compounds (VOCs) and oxides of nitrogen (NOx) in the presence of sunlight. To reduce ozone, one must reduce one or both of the precursor pollutants. VOCs are best described as fumes emitted from sources such as automobiles, chemical manufacturing plants, dry cleaners, paint shops and others that uses solvents. NOx is formed when combustion occurs at high temperatures. It is primarily emitted from electric utilities, industrial boilers and transportation sources. Since sunlight and warmer temperatures cause these reactions, ozone violations typically occur during the late afternoon hours on hot summer days.

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[1]Marginal ozone nonattainment areas had to meet compliance in 1993, Moderate in 1996, Serious in 1999, Severe in 2005–2007, and Extreme in 2010.

Transportation Sector Successes in Achieving Cleaner Air

Mr. Chairman, there's no doubt that we have made great progress over the past 30 years in improving the nation's air quality. Much of this progress has been achieved through technology advancements spurred by motor vehicle emissions standards and controls and cleaner fuels. Between 1970 and 1999, carbon monoxide emissions from on-road vehicles were reduced by 43 percent. Volatile organic compounds—a precursor to ozone—were reduced 59 percent. Particulate matter (PM_{10}) emissions have been reduced 33 percent.

In fact, Mr. Chairman, the only pollutant that has increased since 1970 has been Nitrous Oxides (NOx)—the other precursor of ozone—which is up 16 percent. However, despite the increase in overall NOx emissions, the amount of NOx being emitted from automobiles is down 31 percent since 1970.

EPA's monitoring data are also encouraging. Exceedances of EPA's ozone standards are down 80 percent since 1990. Exceedances of the carbon monoxide standard are down 97 percent and exceedances of the PM standards are down 81 percent since 1990. These numbers are even more remarkable given that since 1970, the U.S. population has grown over 30 percent, the number of licensed vehicles has increased about 90 percent and the number of vehicle miles traveled has increased 143 percent.

Progress has also been made with the other pollutants. For instance, on-road sulfur dioxide emissions have been reduced nearly 60 percent since 1970, although transportation is not considered a significant source of sulfur (97 percent is not transportation related). In addition, lead has been virtually eliminated from our air with the introduction of unleaded gasoline.

Mr. Chairman, while great progress has been made all around in improving the nation's air quality, I want to emphasize that most of that progress has come from the transportation sector. For example, carbon monoxide emissions from on-road vehicles have been reduced 45 percent since 1970. The reduction from non-transportation sources, over the samer period, however, is just over 10 percent. We hope the committee will keep this in mind as it moves forward with reforms in the future.

I would also like to point out to the committee that reforms being discussed in the stationary source arena could have unintended consequences for transportation. As you know, for each criteria pollutant for which an area fails to meet EPA's standards, the Clean Air Act requires the State to prepare a State Implementation Plan (SIP) to show how it will "attain" the air quality standard over a designated period of time. A SIP typically contains restrictions on stationary sources (e.g., factories), area sources (e.g., landfills) and mobile sources (e.g., off road equipment, yard equipment, and motor vehicles). From a transportation planning perspective, this exercise is a "zero-sum" game. If emissions from area sources and stationary sources are given more leeway in the SIP, fewer emissions can come from transportation sources. "Emissions reductions inequity" can put severe constraints on the construction of future transportation improvement projects, since a region's transportation plan must "conform" to the emissions budget for motor vehicles in the SIP.

Please do not forget about the transportation sector when looking at approaches like emissions credits trading program for power plants, since it is primarily the transportation sector that is penalized when an area is not meeting air quality standards. If a power plant is allowed to emit greater emissions in the Atlanta area because of credits they bought from a cleaner plant in Illinois, that does nothing to help Atlanta solve its transportation conformity problems. It only puts greater pressure on the transportation emissions budget. While we applaud the committee's desire to think "outside-the-box" and use incentive-type systems, please do not forget that transportation planning is very regional and can often conflict with the commercial interests of large stationary polluters.

Congestion Mitigation and Air Quality Program

Mr. Chairman, as I already stated, huge gains have been made in emissions reductions from automobiles. And in the future, advanced engine and fuel technologies such as alternative fueled vehicles, hybrids and fuel cells and the tighter Tier II standards—which the transportation construction industry actively support—will continue to have major, positive impacts on air quality without reducing the mobility of the American public. As in the past, air quality gains from the transportation sector will likely rely on technology advances, not transportation control measures.

When the Clean Air Act Amendments of 1990 were enacted, they were based on a false premise or assumption—that increases in vehicle miles traveled (VMT) would overwhelm the emissions-reduction capacity of technological advances. Quite the opposite has happened. Despite an increase in VMT of 39 percent since 1990, vehicles have become much cleaner. They will be "squeaky" clean by 2020. With new standards for truck engines and diesel fuels in place, there will likely be many more

gains from the transportation sector in improving the nation's air quality in the coming years.

These facts should lead Congress to seriously examine and question many of the transportation-related programs that were developed in conjunction with the Clean Air Act Amendments of 1990. These programs all operate under the assumption that the only way to get meaningful reductions in emissions is by reducing VMT, largely by shifting people to non-auto modes of transportation. The conformity process is based on this false assumption, as is the Congestion Mitigation and Air Quality (CMAQ) improvement program, which was first implemented under the Intermodal Surface Transportation Efficiency Act (ISTEA) and then extended under TEA–21.

CMAQ was authorized to spend $14.1 billion over the life of ISTEA and TEA–21 on programs in ozone and carbon monoxide nonattainment areas that primarily constitute transportation control measures, such as HOV lanes, mass transit, carpool/vanpool programs, etc. However, some programs that could prove most effective in actually reducing pollution, have always been excluded from receiving CMAQ funds, such a vehicle scrappage programs. According to EPA, less than 10 percent of the nation's motor vehicle fleet emits over 40 percent of mobile generated hydrocarbon pollution and the "dirtiest" 1 percent of vehicles emit over 25 percent. With the money that has been spent on CMAQ during its life, almost all of these dirtiest cars could have been replaced with new cars, resulting in real quantifiable reductions in air pollution.

A recent report by the Transportation Research Board (TRB), "Assessing 10 Years of Experience" of the CMAQ program recently concluded that most CMAQ-funded programs have not yielded significant emissions reductions and will provide even less in the future because the auto fleet has become so "clean" when it comes to emissions. TRB could not find any quantifiable benefits from how the CMAQ funds are being spent.

Despite this conclusion, however, the committee that authored the report recommended that the CMAQ program be continued. The committee further said that "existing restrictions on projects involving construction of new highway capacity should be maintained."

Mr. Chairman, I would suggest that if, indeed, the goal of the CMAQ program is to (1) reduce congestion, and (2) promote better air quality, that one of the best ways to achieve both goals at the same time is by reducing bottlenecks on the nation's roads. It is estimated by the Texas Transportation Institute that congestion in the nation's largest metropolitan areas costs Americans $78 billion per year. That means less time with your family and more fuel wasted. Also, cars perform at their worst from a pollution standpoint in stop and go traffic. Depending on the pollutant, car engines run most efficiently around 45—50 miles per hour.

The CMAQ committee also recommended that the program be expanded to cover all pollutants and air toxics, not simply limiting CMAQ funds to those areas out of attainment for carbon monoxide and ozone. Mr. Chairman, as I already discussed, the main source of many of these other pollutants, such as sulfur dioxide, come not from transportation, but elsewhere. To apply CMAQ funds to these additional areas would only dilute the program even more and turn a not very effective program into a very ineffective program.

We think some accountability needs to be built into the CMAQ program so that money is only being spent on activities that produce real, quantifiable emissions-reduction results.

Mr. Chairman, many have also called for substantially increasing the funding for CMAQ during the reauthorization of TEA–21. Such a goal could be accomplished by substantially increasing funding for the entire highway program.

Problems with the Conformity Process

Mr. Chairman, that leads me to my comments about the conformity process itself. There are two things I hope you take from this hearing today, (1) that government agencies and planning bodies need more flexibility on conformity and (2) the public—especially those who contract with government agencies to build transportation improvement projects—need more predictability in the transportation conformity process.

One of the major problems with the conformity process is that people have tried to turn it into an exact science, when it is anything but. All you have to do is to look back at the predictions made during the enactment of the Clean Air Act Amendments of 1990 to understand that "modeling of future events" often does not reflect reality.

An example of this is EPA's transition from the current Mobile V model to the Mobile VI model for predicting future on-road emissions. In applying the new Mobile

VI model to current data, regions will experience a substantial short-term increase in predicted emissions as compared to the Mobile V model. While over the long term, the Mobile VI model shows decreasing emissions, this could cause substantial problems for many areas and threaten a potential conformity lapse in the short term. Even though the data being entered into the models is the same, each shows very different outputs.

This problem is amplified by the fact that quite often transportation plans and the SIPs they are supposed to conform with are often out of sync with one another. This is largely due to the fact that transportation plans have very long planning horizons and have to be updated frequently, while most air quality plans have very short planning horizons and are updated infrequently. As a result, many of the planning assumptions that must be used for conformity determinations of transportation plans are not consistent with the assumptions that were used in the air quality planning process to establish emissions budgets and to determine appropriate control measures. In other words, because the most recent planning data must always be used, an increase in emissions and possible conformity lapse can occur simply because the numbers or models relied on in the transportation plan are not the same numbers relied upon in the air quality plan.

Part of this is due to the fact that the priority of various transportation projects often changes and every time this occurs, the plan needs to be updated. While many have suggested that the planning horizons should be brought more in sync with one another, another option would be to simply allow greater flexibility in the process, recognizing the inexact science involved. Rather than requiring plans to conform to the "nth-degree," perhaps a 10 percent "cushion" should be allowed so that transportation planners would not have to amend their plans every time they want to add or subtract even a relatively insignificant project. In addition, such a cushion would permit some differences in planning data or models and would allow a margin of error for modeling assumptions planning organizations make but have no real way of predicting with precision—such as economic growth or the current price of gasoline—even though such things have a substantial impact on future travel or the use of larger vehicles like SUVs.

Very few conformity lapses occur because a region has a major clean air problem. They occur because one of the parties involved cannot meet a particular deadline. As a result, the conformity process has become a top-heavy bureaucratic exercise that puts more emphasis on "crossing the t's and dotting the i's" rather than engaging the public in true transportation planning that is good for the environment and the mobility of a region's population.

Litigation

Mr. Chairman, flexibility in the conformity process has also been constrained by litigation initiated over the past several years by parties opposed to individual transportation projects and/or the concept of increasing highway capacity. In 1997, in Sierra Club v. EPA, the court said EPA could not continue the practice of allowing areas that are new non-attainment areas to have a 1-year grace period before they need to perform a conformity test. This could have had a devastating impact on communities when EPA implements its new ozone and $PM_{2.5}$ standards, now slated for 2004. However, seeing the unfairness of this, Congress acted and reinstated this grace period through the legislative process.

In yet another court case in 1999, in Environmental Defense Fund v. EPA, the court struck down EPA's practice of "grandfathering" projects when a conformity lapse occurs. Up to this point, when an area went into a conformity lapse, projects could proceed if they had already met all of the necessary environmental requirements and were part of a conforming transportation plan at the time of the lapse. In defending its own rule before the court, EPA stated:

- "EPA's rule reflects its rational judgment that Congress intended a more reasoned approach to transportation planning during periods in which there is no applicable SIP, that Congress intended that there be an attempt to balance the general pollution-reduction requirements of the Act with the needs of State and local planning organizations for certainty and finality in their transportation planning process. 42 U.S.C. 7506(c)(2). [EDF v. EPA, Case No. 97–1637, Respondent's Brief, June 10, 1998, p. 30.]
- "EPA explained that it 'has always believed that there should only be one point in the transportation planning process at which a project-level conformity determination is necessary. This maintains stability and efficiency in the transportation planning process.'" [EDF v. EPA, Case No. 97–1637, Respondent's Brief, June 10, 1998, p. 36.]

This decision had a devastating impact in my own hometown of Atlanta. At the time of the decision, Atlanta was in a conformity lapse. As a result of the decision,

54 of 71 major priority projects that had been vetted through years of planning were put on hold, even though they had already passed all of the necessary environmental tests.

During the last Congress, Senator Bond introduced legislation that would have restored the practice of grandfathering. While his legislation passed this committee, it never made it to the Senate floor. We would strongly urge this committee to take this issue up once again.

Two other long-standing practices have also been struck down by the courts, which has reduced flexibility in the conformity process and deserve this committee's attention:

- EPA is often not able to approve a State's motor vehicle emissions budget in time for a conformity determination to be made. Prior to the EDF v. EPA case mentioned above, these budgets were assumed to be automatically approved if EPA did not act within a certain period of time. That decision, however, struck down this long-standing practice.
- Many States have not been able to meet their ozone compliance deadlines since much of their clean air problem is the result of ozone drifting in from other areas, known as ozone transport. In the past, EPA has granted extensions to the deadline in some of these areas. However, in Sierra Club v. EPA (D.C. Cir. 2002), the court ruled that EPA does not have the authority to grant these extensions and must, instead, "bump" these areas into the next higher classification of nonattainment, which would trigger several additional mandatory control measures.

Without the flexibility option of "grandfathering" projects, we have seen a significant increase in conformity-related litigation. Those opposed to an individual project-or the mix of projects or modal funding in a transportation plan-have been given tremendous leverage by the EDF v EPA decision. They can now use conformity-related litigation as a sure way to temporarily, if not permanently, stop previously approved, environmentally sound projects and plans. Threatened with such litigation-or actually sued over conformity process-related issues-State and local planning agencies are put under enormous pressure to either give into the demands of the dissenting minority, or face endless rounds of litigation.

In response to this reality, ARTBA joined with several other industry groups in 1999 to form Advocates for Safe and Efficient Transportation (ASET), a litigation group aimed at assisting governmental entities in defending the transportation planning and delivery process. While many of the professional environmental groups talk a lot about wanting a more "inclusive" transportation planning process, the fact of the matter is really quite different. Since ASET was formed, it has spent hundreds of thousands of dollars, not in arguing the merits of many of these cases, but in battling with environmental groups over simply trying to get a seat at the table. I could provide you a pile of court briefs where groups like the Sierra Club argue adamantly that the construction labor organizations and industry should not have a say in the final decision about transportation plans. The truth is the Sierra Club and many of their colleague organizations do not want an inclusive planning process. They want a process where they and they alone make the decisions.

When the planning process is allowed to be hijacked by any one individual group, bad decisions are made. The truth is that America needs a dynamic transportation network to meet the needs of a growing population and economy. Such a network should include improving public transit, increased utilization of synchronized traffic signalization and other "smart road" technologies, improving local management of traffic incidents to clear roadways quickly and adding road capacity where appropriate and desired by a majority of local citizens. This is key to reducing traffic congestion and the unnecessary auto, truck and bus emissions it causes. It is also essential to maintaining time sensitive ambulance, police and fire emergency response service.

Mr. Chairman, I believe very strongly in the transportation planning process—a process that involves public involvement by all stakeholders and final decisions that are made by public officials. However, we have come to a point where the planning process is breaking down under a mound of litigation. It Atlanta alone, there have been no fewer than seven lawsuits over the past three-and-a-half years challenging the conformity process in some way. I would urge this committee to reform the conformity process so we can get away from all of this litigation and return the planning process to the people through our elected public officials, not a few special interest groups.

Delay Kills and Costs

Unfortunately, Mr. Chairman, the main purpose of many of these obstructionist lawsuits brought by the environmental groups is to delay badly needed transportation improvement projects. One witness from the environmental community put

it best before this very committee during testimony in 1999. He said, "In the struggle between proponents and opponents of a . . . [highway] project, the best an opponent can hope for is to delay things until the proponents change their minds or tire of the fight." According to an ARTBA study last year of State departments of transportation, an estimated $1.3 billion worth of highway projects were canceled or delayed in 2000 due to transportation conformity problems.

Sadly though, such delay can have tragic consequences. According to the U.S. Department of Transportation (DOT), almost 42,000 people are killed each year on our nation's highways. One third more people in the U.S. die of traffic crashes each year than from bronchitis and asthma combined. One person in the U.S. dies from a traffic crash every 13 minutes and there is one crash-related injury every 10 seconds. Traffic crashes are the leading cause of death in the U.S. for people ages 6–33, and their economic cost is estimated to be $230.6 billion each year in added medical costs, insurance costs, etc. That's about 2.3 percent of the U.S. gross domestic product. To put this figure in perspective, the total annual public and private health care expenditures caused by tobacco use have been estimated at $93 billion annually!

Indeed, Mr. Chairman, roadway safety is a huge public health crisis! The sad part is that, according to U.S. DOT, approximately 15,000 of these deaths annually—are in crashes in which substandard roadway conditions, obsolete designs or roadside hazards are a factor. According to a Federal Highway Administration (FHWA) study, for every $100 million we spend on highway safety improvements, we can save over 145 lives over a 10-year period.

Delays, however, also have other costs associated with them. Besides the costs associated with increased congestion, when an area is out of conformity, it can be sanctioned with the loss of Federal highway and transit moneys. This happened in Atlanta for about a year-and-a-half. It's true that when sanctions are put in place that the money isn't completely cutoff. Instead, States are forced to choose between redirecting the money to other transportation improvement projects in the State or forfeiting it back to Washington, DC, at the end of the year to be sent to another State. In our case, however, this led to some very fast and rash decisions, since we either had to spend the money or lose it.

As you know, transportation improvement projects simply cannot be created overnight. As a result, the money was spent on a lot of simple projects that were definitely not a priority in the State prior to the sanctions kicking in. In addition, since design and right-of-way acquisition were cutoff on several priority projects at the time, it has taken a long time to get these projects back up-and-running, since the money that would have been spent on them was spent on lower priority projects. Sanctions were lifted in Georgia about 2 years ago, but over half of the projects that were put on hold at the time are still lingering.

Because of the inefficiencies involved in highway sanctions, I would urge Congress to rethink how this entire process works. Rather than penalizing areas that fail to meet air quality standards, perhaps Congress should consider rewarding those communities that make the greatest progress in cleaning their air. Using sanctions that cutoff badly needed transportation improvement funds only exacerbates the problem resulting in increased congestion and worsened air quality. However, incentive-based systems have been very successful in other arenas and perhaps this would also work in transportation planning.

The Future of Conformity—Implementation of the New Ozone and $PM_{2.5}$ Standards

Mr. Chairman, the most troubling part about all of this is that we are headed for a potential train wreck in a few years when EPA implements its new tighter standards for ozone and fine particulate matter. According to preliminary numbers obtained from the U.S. DOT, the number of counties that will be out of attainments for the ozone standard alone will rise from 414 counties presently to 656. Many more will be out of attainment for particulate matter.

As you know, these new standards were first proposed in 1997 and have been held up by the courts until just recently. EPA currently plans to designate the new nonattainment areas in 2004 and State implementation plans (SIPs) will be due in 2007–2008 for these new areas.

According to U.S. DOT, the new standards will result in much larger nonattainment areas that will be more complex, covering a lot of multi-State areas and rural areas. Rural areas, especially, will have a difficult time meeting the conformity requirements since they lack the resources and expertise to properly deal with all of the requirements under conformity. Many of these areas will not be able to develop air-tight plans right off the bat, thus, opening the door to lawsuits. These areas must be given adequate time (at least 2 years) and resources to develop the detailed data bases that are needed to demonstrate conformity.

Congress should also examine closely how the new standards will be implemented. As I said, EPA plans to designate the new nonattainment areas in 2004. As a result of the 1-year grace period passed by Congress a couple of years ago, conformity determinations will have to be made in these areas starting in 2005. However, it is highly unlikely that States will have emissions budgets in place at that time since the SIPs will not be due until 2007–2008. Without an emissions budget to conform to, how will these determinations be made? In the past, EPA has used what it calls a "build—no build" test. However, under this test it is very hard to demonstrate that various transportation projects fall into conformity. The test is also an easy target for those who would rather litigate.

Conclusion

Mr. Chairman, Senator Smith, and other members of the committee, I truly appreciate your willingness to hear from me today on behalf of ARTBA. If I could just summarize my comments:

1) We are making huge progress on cleaning up the air, but almost all of this progress can be attributed to technology gains, not transportation control measures;

2) In changing how stationary sources of pollution are regulated, please keep in mind the unintended consequences it can have on transportation planning;

3) In reauthorizing TEA–21, results-based accountability should be built into the CMAQ improvement program;

4) Greater flexibility and predictability is needed in the transportation planning and conformity process;

5) We need to do something to put a stop to the endless litigation that is tying our planning process into knots;

6) Congress should consider rewarding those communities that make the greatest progress in cleaning their air rather than simply relying on sanctions to enforce the Clean Air Act, and;

7) Delaying transportation improvement projects results in deaths and other costs to society.

I have attached a list of proposed legislative reforms as Appendix A to my written testimony. Thank you for listening and I look forward to any questions the committee might have.

APPENDIX A—POSSIBLE LEGISLATIVE SOLUTIONS

1. Recognize the imprecision of data inputs. Modeling is an inexact science at best. Requiring conformity to be demonstrated to the nth decimal point makes little sense from a public policy standpoint. As a result, conformity should be allowed to be demonstrated if the emissions from the transportation plan are at least within 10 percent of the emissions budget and SIPs should contain an adequate "margin of safety" to avoid conformity lapses due to marginal changes in expectations. For example, MPOs have no control over economic growth or the price of gasoline, yet these are the primary factors in determining increased travel or the use of larger vehicles like SUVs.

2. Transportation emissions are treated much differently in a SIP than emissions from other sources, such as area or stationary sources. While transportation emissions are essentially treated as a sectoral "cap," other sectors only have to meet source-by-source regulations. Transportation emissions regulations should be refocused to SIP elements that can actually make a difference in achieving emission reductions, such as inspection/maintenance programs, different fuels, etc.

3. Clean up ambiguities in the statute and the regulations. Over the years, there have remained several "holes" in the conformity process and many more have been produced through adverse court decisions and legislative action, making it difficult for planning bodies to ascertain clear guidance. This often leads to confusion and, ultimately, litigation. These ambiguities need to be cleaned up to restore predictability and stability to the transportation planning process.

4. Restore grandfathering or create other safe harbors for projects. Conformity must be forward-looking. Retroactive invalidation of projects after funding approval is disruptive and equally bad for smart growth and mobility. A conformity lapse stops all projects, transit and highway alike, and puts construction crews out of work without notice. EPA previously permitted limited grandfathering until a 1999 court ruling invalidated it. Once a transportation project is in a conforming plan, it should be permanently grandfathered until built or removed from the plan.

5. A new conformity determination should not be required if one or several projects are added to the transportation plan, as long as the net emissions from their inclusion will not add more than 3 percent to projected transportation emissions in the plan. In reality, added emissions from a single highway project are minuscule and this will avoid what is largely a paperwork exercise.

6. Provide Motor Vehicle Emissions Budget (MVEB) adequacy and regulatory flexibility. A 1999 court ruling struck down an EPA rule that conferred automatic MVEB approval if EPA did not act promptly and called into question EPA's overall process for approving MVEBs in submitted-but-not-yet-approved SIPs. Conformity obligations often arise with short notice due to changes in attainment status or failure of EPA to timely approve MVEBs or SIPs. Without an approved MVEB, conformity determinations cannot be found and transportation projects cannot be approved.

7. Prohibit MVEB judicial review. Under existing regulations, EPA can declare a MVEB adequate for transportation planning purposes prior to approval of the entire SIP. This approval process is not as comprehensive as full SIP approval and EPA reserves the right to withdraw its approval at anytime (therefore, it is not a final agency action). Environmental groups have filed lawsuits alleging that preliminary MVEB approval must be as rigorous as final SIP approval and EPA has not contested jurisdiction in these lawsuits. (Example: 1000 Friends of Maryland suit against EPA.)

8. Further protection from lawsuits. Planners have to rely on good faith and current state-of-the-art modeling and estimates to develop air quality and transportation plans. Environmental groups are attacking the estimates and demanding exactitude that doesn't exist. There has to be protection from disruptive lawsuits that paralyze the process, perhaps by requiring plaintiffs to make an initial showing of bad faith before filing suit. In absence of that, agreement by the MPO, State air quality agency, EPA and U.S. DOT should be per se evidence of the validity of emissions estimates. (Example: Sierra Club sued Sacramento for using EPA's own numbers.) Almost 200 counties will face conformity for the first time under the revised ozone and particulate matter standards. They will not be able to develop airtight plans right off the bat, thus opening the door to lawsuits. These areas must be given adequate time (at least 2 years) and adequate resources to develop the detailed data bases needed to demonstrate conformity. Smaller MPOs, in particular, are ill-prepared to fulfill all of the conformity requirements.

9. Equal intervention rights. Environmental groups are using lawsuits to pressure policymakers and exclude other stakeholders. Contractors and transportation users should have the right to participate in lawsuits as equals to environmental groups. A double standard leads to duplicative lawsuits and moves the planning process out of the public forum and into the courtroom.

10. Adequate funding. Smart growth planning depends on interconnectivity and multi-modal options, i.e., a mix of integrated transit and highway. No one wants to ride a bus to a metro station if the bus is stuck in traffic. Congress should provide both highway and transit funding and recognize that highway capacity projects that connect to transit systems are beneficial. (Example: Sierra is opposing HOV lanes in Atlanta that access MARTA and provide emergency vehicle access.)

11. Try to develop a system where areas that make progress to clean air quality receive an incentive for doing so, rather than relying on sanctions to enforce the Clean Air Act. One possible option would be to divert additional CMAQ funding to these areas.

RESPONSES OF JAMES STEPHENSON TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. In general, would you agree that conformity is spurring investments in transportation strategies and technologies that reduce air pollution and create better interagency cooperation?

Response. I do not think conformity has been very effective in reducing air pollution. While the exercise of conformity has been somewhat effective in getting the different agencies to work together, virtually all of the reductions in air pollution from the transportation sector have been caused by engine and fuel technology advances, not the conformity process. Conformity was based on a false assumption that a large increase in vehicle miles traveled would outstrip technology advances. Conformity was also intended by its proponents to tilt the local decisionmaking process toward mass transit rather than highway capacity options. That has happened. But transit ridership has not risen—nor will it—to the point that it will have anything but marginal impacts on emission reductions. With cleaner air technologies and cleaner fuels expected to continue to come online, the transportation sector will continue to dramatically reduce its emissions share. None of this is the result of conformity, but rather direct mandates from Congress and the U.S. Environmental Protection Agency (EPA). If Congress is really interested in reducing pol-

lution rather than just creating more paperwork, it should focus on programs that have been proven to work.

Question 2. If Congress does make any changes in the conformity process as part of the next transportation bill, what would be your No. 1 suggestion and please be specific?

Response. My No. 1 priority is to restore the grandfathering of projects when a conformity lapse occurs. Grandfathering would allow projects that were part of a previously conforming transportation plan to proceed even though an area has entered a lapse. As I noted in my written testimony, most conformity lapses occur because of slow moving paperwork and missed deadlines not because an area has worsening air pollution. Grandfathering would return some stability to the transportation planning process so that projects that have already been vetted through the lengthy planning process cannot be shut down at the last minute simply because someone missed a deadline. Shutting down highway and transit projects only exacerbates clean air problems since many of these projects are designed to reduce congestion and reduce air pollution. The Clinton Administration's EPA recognized this as an important concept and as a result, it allowed the grandfathering of projects under the original conformity regulations. However, this part of the regulation was struck down by the courts in 1999 in Environmental Defense Fund v. EPA (D.C. Circuit). I strongly urge Congress to make the needed statutory changes so that EPA can once again allow for the grandfathering of projects.

RESPONSES OF JAMES STEPHENSON TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. Like you, I think Congress should rethink the entire process. With our current Federal budget crisis, I think we should be looking at the cost-effectiveness of these transportation and air quality projects. In your opinion, what projects have been the most cost-effective, achieving the greatest air quality improvements for the least cost? Do you think there are more cost-effective options for achieving air quality improvements in the transportation sector than through the current programs?

Response. According to the recent Transportation Research Board study on CMAQ, vehicle inspection and maintenance programs achieve the greatest air quality improvements for the least cost. According to EPA, less than 10 percent of the nation's motor vehicle fleet emits over 40 percent of mobile generated pollution and the "dirtiest" 1 percent of vehicles contribute over 25 percent. As a result, the government's focus should be on getting these very high polluting vehicles off the road. As I stated in my written testimony, CMAQ funds should be made available for auto salvage programs, which would help achieve the ends desired. Through Fiscal Year 2001, we have spent about $9.5 billion on marginally, or completely ineffective programs in terms of achieving measurable emissions reductions. With that same investment, we could have bought new, cleaner burning automobiles for every person driving a car in the "dirtiest" 1 percent category, resulting in demonstrable air quality benefits!

I would also suggest that technology can be better utilized to reduce the number of gross emitters of pollution on the road. One example is the mobile roadside emissions tester, which is being tested by the Georgia Institute of Technology. This device allows one to identify high polluting trucks and automobiles in traffic with a laser beam, similar to a speed radar gun.

Question 2. Additionally, you specifically suggest an incentive based system that rewards "those communities that make the greatest progress in cleaning the air," rather than "penalizing areas that fail to meet air quality standards." How would you propose such a system work?

Response. When the conformity lapse occurred in Atlanta, several high priority highway and transit projects were put on hold due to sanctions placed on the metropolitan area by the Federal Government. The purpose of many of these projects was to reduce congestion and improve air quality in the region. Because of the sanctions though, many of these projects still have not been built and Atlanta continues to suffer through increased congestion and worsened air quality. As the Atlanta situation clearly demonstrates, sanctions are counterproductive—they make a bad situation even worse. On top of that, sanctions only penalize the transportation sector, even though power plants or refineries might be the biggest contributor to an area's air pollution problems. I find it amazing that the transportation sector has provided the largest gains in improving the nation's air quality, yet it is the only sector that is penalized when overall air quality goals are not met. Instead, the Federal Government should provide an incentive to areas that are making improvements to air

quality. Each year, EPA publishes the Latest Findings on National Air Quality that shows the status and trends in air quality around the Nation. If an area is making substantial progress in air quality, Congress should consider exempting these areas from the conformity process, as long as progress continues in the future. That would create a tremendous incentive for communities to make air quality progress. This suggestion is just a starting point for Congress to consider in creating a carrot in it air quality improvements, rather than just a stick.

Question 3. As you state in your testimony, the EPA planned designation of new nonattainment areas in 2004 will presumably lead to an increase in the number of nonattainment areas. Given your experiences in Atlanta, how will this affect smaller communities that have not had to deal with conformity in the past?

Response. The new designations are going to have a tremendous impact on smaller communities and rural areas. Many of these smaller areas simply do not have the professional resources to do all of the modeling and collect all of the data that is necessary to perform an adequate conformity determination. Even in large urban areas where we have a number of resources to tap into, conformity determinations have proven to be a real challenge. For smaller communities that do not have these resources, it will prove to be even a greater challenge. When areas fail to have adequate conformity determinations in place, it makes them susceptible to lawsuits from environmental groups. This causes an even a greater drain on limited resources and often forces these smaller communities to settle the lawsuits out of court, often on terms that are not favorable to the traveling public.

RESPONSES OF JAMES STEPHENSON TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. As you are aware, Atlanta experienced one of the longest and most dramatic conformity lapses in the country. Even though each city has unique challenges, I believe what occurred in Atlanta could repeat itself in other high growth areas of the country. What happens to highway construction companies during a conformity lapse? Do workers get laid-off? What was the funding impact on Atlanta's transportation program and project decisions?

Response. Different companies were affected differently by the lapse. Even though there was a very long conformity lapse in Atlanta, the State still spent as many Federal transportation dollars as they would have if there had not been a lapse. Some of these funds were shifted to projects outside of the Atlanta area or to projects that were exempt from the conformity process. For instance, simple resurfacing projects and replacement of hazardous bridges are the type of projects that can continue even during a lapse. It was largely capacity adding projects, such as adding new traffic lanes or building new roads that were put on hold. As a result, simple road paving contractors were probably not largely impacted by the lapse. However, heavy construction contractors who specialize in earth moving and other activities associated with new construction were very adversely affected. Several of my customers indicated they laid off workers because of the lack of work. And the negative impact did not stop at the end of the lapse. Because the practice of grandfathering had been struck down by a Federal court in 1999, activities such as completing the design or purchasing the right of way for these new projects was also put on hold. As a result, when the lapse ended, many of these priority projects were still not at the stage of being able to be let for construction. While the Federal Highway Administration (FHWA) has since slightly relaxed its rules on what activities can take place during a lapse, that was not the case in Atlanta. At the time, nothing could proceed on a project during a lapse unless Federal funding had already been signed off on the project and it was essentially already under construction. Also many of these priority projects cannot proceed because funding for them is no longer available. Because a State must either spend its Federal transportation dollars or forfeit them, several projects funded during the lapse were not high priority projects. As a result, that money is now gone and Georgia is facing many challenges to find adequate funding for the high priority projects once again. My wife, children, and I have all been directly impacted by the conformity lapse in Atlanta since we live in an area that was slated to have one of these canceled projects built. Almost 4 years later, the project still has not been built and as a result, we have wasted time, money and energy stuck in traffic and gridlock.

Question 2. A number of areas have successfully employed voluntary programs to reduce emissions from off-road heavy-duty diesel construction equipment, and credited the emissions reductions to the conformity budget. Do you believe CMAQ money should be used to support this type of voluntary programs?

Response. I am generally opposed to any program that uses Federal highway funds for non-construction activities. I believe that all of the money in the Conges-

tion Mitigation and Air Quality (CMAQ) Improvement Program should be used for activities such as building high occupancy vehicle (HOV) lanes or building new capacity that will reduce bottlenecks on the nation's roadways. That being said, since the inception of CMAQ in 1990, most CMAQ money has been spent on transit operations and transportation control measures that the Transportation Research Board said in a recent report have no quantifiable benefits. If money is going to continue to be spent in this manner, I believe it should be spent on activities that can produce quantifiable results. We know that many of these voluntary retrofit programs for off-road construction equipment have produced quantifiable results. As a result, I would support the use of CMAQ funds for these programs if CMAQ funds must continue to be spent on non-construction related activities.

Question 3. I understand that the new EPA diesel engine regulations may increase diesel engine prices higher than anticipated. What impact, if any, would this have in your dealership?

Response. Since I do not sell engines for on-highway trucks, it will probably not have a significant impact on my dealership. However, Caterpillar is the world's leader in the production of diesel, natural gas and gas turbine engines used for both stationary and mobile applications. The debate over the 2002 diesel engine emissions reduction requirements sheds some interesting light on the government's often misguided desire to regulate and the over-reaction and falsehoods spread by the extreme factions of the environmental community. As you probably know, certain heavy-duty engine manufacturers are required to have new emissions reducing technologies in place by October 2002. To meet this challenge, Caterpillar has opted to develop a breakthrough, which still demands more testing. Competitor's technologies require forced air to operate. As a result, they only work on trucks moving down the road at a substantial rate of speed. Caterpillar elected to develop a more sophisticated technology that does not rely on forced air. Thus, Caterpillar's new cleaner burning diesel engine technology can be used on stationary and off-road machinery—such as generators and construction equipment—as well as trucks. Caterpillar requested a temporary waiver from the Federal Government to permit complete testing of this new technology. The waiver was denied. Once again, this is a perfect example of government policy encouraging the business community to do enough to get by the minimal standards, while discouraging an approach that will have much broader and longer term benefits.

STATEMENT OF MICHAEL REPLOGLE, TRANSPORTATION DIRECTOR, ENVIRONMENTAL DEFENSE

Mr. Chairman, I am Michael Replogle, Transportation Director of Environmental Defense. I am pleased to appear here this morning to present testimony on behalf of both Environmental Defense and the Surface Transportation Policy Project where I serve as chairman of the Energy and Environment Task Force of the Alliance for a New Transportation Charter and a member of the STPP steering committee.

The Environmental Defense, a leading, national, NY-based nonprofit organization, represents 300,000 members. Environmental Defense links science, economics, and law to create innovative, economically viable solutions to today's environmental problems. The Surface Transportation Policy Project or STPP is a nationwide network of hundreds of organizations, including planners, community development organizations, and advocacy groups, devoted to improving the nation's transportation system.

I am pleased to have this opportunity to discuss transportation and air quality, especially focusing on transportation conformity and the Congestion Mitigation and Air Quality Program and to offer our views on how the reauthorization of TEA–21 can enhance these programs.

I would like to highlight the following recommendations for congressional action:

- Clean Air Act transportation conformity is working increasingly well to hold transportation plans accountable to air quality control strategies, but steps should be taken to assure better modeling of traffic and emissions and better compliance by the Department of Transportation and States to assure that transportation plans and programs are fiscally constrained. Poor accounting threatens underestimation of motor vehicle emissions and the failure of SIP control strategies to deliver on the promise of clean air for all Americans.
- Congress should assure that areas in a conformity lapse will be able to add new emission-reducing transportation projects to non-conforming short-term Transportation Improvement Programs (TIP) and long-range transportation plans, even if those projects were not previously contained in a conforming, fiscally constrained TIP or plan.

- Congress should reject proposals to reduce the frequency of conformity analyses, which are now required at least once every 2 years for TIPs and once every 3 years for transportation plans. Such proposals threaten to introduce more surprises and conformity problems and to reduce the timely improvement of motor vehicle emissions estimates to protect the integrity of SIP control strategies. When transportation conformity is done more frequently, it results in timely updates to modeling assumptions that improve accountability.
- Congress should require all State and metropolitan areas to develop and periodically update, with public involvement, integrated transportation, natural resource protection, and growth management plans that consider at least one alternative scenario that considerably reduces traffic growth and enhances environmental performance through better system management. Agencies should annually report on the current and projected performance of their transportation system management, investment, and proposed programs and plans, accounting for cumulative and secondary impacts on growth patterns, public health, greenhouse gas emissions, the achievement of natural resource planning goals for air, water, and habitat protection, and the provision of equal access to jobs and public facilities for all residents, including those without cars, without undue time and cost burdens.
- The Congestion Mitigation Air Quality Program (CMAQ), which helps local communities and States reduce traffic and transportation pollution, should be reauthorized at a substantially higher level, recognizing the much larger population living in non-attainment areas and exposed to hazardous air pollutants. CMAQ funds should be targeted to innovative strategies that produce lasting traffic and pollution reduction, rather than to short-term one-time emission reduction strategies or traffic flow improvements,
- Congress should establish and fund a Transportation Accounting Standards Board to assure timely progress toward honest accounting for how transportation funds are spent, including oversight of innovative finance programs, to assure compliance with transportation planning fiscal constraint requirements, and assure the integrity and timely improvement of transportation agency environmental management systems, including travel and emissions analysis models, which should be required to demonstrate adequate sensitivity to induced traffic and land use effects of expanded road capacity.
- Congress should strengthen national transportation data collection, spatial data analysis, and evaluation, to support performance-based funding and decision-making.
- Congress should assure timely EPA action to regulate air toxics and assure that FHWA accounts for and avoids or mitigates the adverse health impacts of exposure of communities to hazardous air pollutants caused by expansion of major highways.
- Congress should strengthen incentives for employers to pay for transit benefits and offer cash incentives in lieu of parking, promote other market-incentive transportation strategies such as road pricing and use-based car insurance, and encourage increased investment in rail, bus rapid transit, pedestrian, bicycle, and intermodal travel options.

I. Accounting for Transportation Air Pollution: A Hidden Tax Burden on Americans

While motor vehicles and expanded highways have offered many Americans unprecedented levels of mobility, the costs of that system on public health, the environment, and social equity have been poorly accounted for. Motor vehicles account for a major share of harmful air pollution emissions that cause shortness of breath, respiratory disease, cancer, death, structural deterioration, crop damage, and decreased visibility affecting cities, national parks, and rural areas, and global climate change, constituting a hidden tax on our health and well being. Since 1970, our Nation has tried to reduce this pollution problem through the Federal Clean Air Act. While we have made remarkable progress in reducing many kinds of pollution, growth in motor vehicle use has offset a large share of emission reductions gained through cleaner technologies, especially for nitrogen oxides (NOx) and particulate matter (PM).

Three decades after the 1970 Clean Air Act, more than 125 million Americans—including 70 percent of the people most vulnerable to air pollution—live in areas that exceed the National Ambient Air Quality Standards (NAAQS)[1], and this number may increase by as much or more than 40 million once EPA completes the new designations for the 8-hour ozone and fine particle NAAQS. Ozone causes asthma, lung damage, and illness in children, and increases the risk of stroke mortality.

[1]Environmental Protection Agency, Latest Findings on National Air Quality: 1999 Status and Trends, Washington, DC, August 2000, page 5.

More than 14 million Americans with asthma—a record number—gasp for air when ozone levels rise and more than 5,000 Americans die each year from exposure to high ozone levels. The number of high ozone days increased 19 percent between 2000 and 2002 in U.S. counties with air quality monitors.

Particulate matter causes cancer, including childhood leukemia, as well as respiratory disease and death. New research in shows that people living proximate to high traffic volume highways breathe traffic-related air toxics that expose them to cancer risks at times greater than 1 in 500.[2]

The U.S. accounts for vastly disproportionate greenhouse emissions. Although Americans account for 5 percent of the world's population, we account for almost a third of greenhouse emissions worldwide. In 1996, mobile sources counted for more than 30 percent of CO_2, more than 40 percent of VOC, 50 percent of NOx and 80 percent of CO emitted in the U.S.[3] Between 1990 and 1999 U.S. greenhouse gas emissions from transportation rose almost 9 percent.

A U.S. DOT report, included in this testimony as Attachment 1, estimates the annual cost to the public in 2000 of the adverse health effects attributable to air pollution from motor vehicles at $40 billion to $65 billion, depending on the value ascribed to a human life.[4] A disproportionate share of these costs are imposed on the most vulnerable—those with respiratory diseases, children, and the elderly. So while taxpayers bore a cost of $27 billion in 2000 for direct Federal transportation investments, all face far greater true costs. Moreover, this DOT cost accounting does not even consider the costs of health effects of air toxics or fine particles, which DOT now admits is the biggest air quality health issue to be dealt with; nor does it include the costs for agricultural losses, impaired visibility, damage to buildings, acid rain, impairment of various terrestrial and aquatic ecosystems from excess nitrogen, and other adverse impacts of air pollution. Nor does it include the costs of global climate change or traffic accidents. New research from the Centers for Disease Control associates rising obesity levels with declining physical activity and impaired mental health with reduced social interactions, both associated with car-dependent mobility and development patterns. These add further to the hidden burden of true transportation system costs on Americans.

The toll exacted by these adverse health and other impacts continue because 32 years after passage of the 1970 Clean Air Act (CAA) most non-attainment areas have still not attained the long-standing 1-hour ozone or PM National Ambient Air Quality Standards (NAAQS). Health research has shown that additional controls on 8-hour ozone and fine particulate matter (PM 2.5) are needed to protect public health, but EPA is moving only slowly to designate related non-attainment areas and timetables for States to adopt related pollution control strategies.

II. Transportation Conformity: Accounting for Motor Vehicle Air Pollution in State Air Quality Control Plans

Why Conformity? The 1990, Clean Air Act amendments strengthened the transportation conformity provision to assure that transportation infrastructure spending and poor accounting for mobile source emissions would not continue to unwittingly undermine progress toward healthful air quality. Expansion of highways and resultant growth in traffic and pollution led to widespread, systematic underestimation of motor vehicle air pollution in State air pollution control plans between 1970 and 1990, causing those plans to fail.

Transportation conformity is a straightforward concept, at times made complex by overly lengthy transition rules designed to undermine its simple operation. Conformity requires the regional transportation system to contribute to timely attainment of healthful air quality and to be designed so that emissions from transportation sources in a non-attainment area are less than the levels established by the State's adopted plan for attaining healthful air quality.

The CAA requires that SIPs for achieving healthful air quality in polluted areas establish emission budgets for mobile sources (cars and trucks), stationary sources (powerplants and factories), and area sources (paints, agriculture), including control strategies limiting emissions from each. Trade-offs can be negotiated between control of various sources, encouraging exploration of the lowest cost means for timely attainment. The CAA and Federal transportation laws passed since 1990, ISTEA

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[2]South Coast Air Quality Management District, Multiple Air Toxics Exposure Study-II, March 2000, Los Angeles, CA.

[3]State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials, Reducing Greenhouse Gases & Air Pollution: A Menu of Harmonized Options, Executive Summary, Washington, DC, October 1999. page 5.

[4]U.S. Department of Transportation, Addendum to the 1997 Federal Highway Cost Allocation Study Final Report, May 2000, Washington, DC. Page 11. Available at: www.fhwa.dot.gov/policy/hcas/addendum.html.

and TEA–21, require short-term (1–6 year) fiscally constrained funding programs—called Transportation Improvement Programs (TIPs)—and long-term (20-year) fiscally constrained Regional Transportation Plans (RTPs) to conform to SIP emission budgets so that new transportation approval, acceptance, and funding decisions will not violate emission limits or delay timely air quality attainment.

By requiring TIPs and RTPs to be fiscally constrained, Congress sought to address a problem that had caused the failure of an ineffectual earlier, weaker version of CAA conformity: many States and regions demonstrated conformity relying on a hefty, expensive, fantasy wish list of emission-reducing projects that could not be built on the schedule identified in the transportation program. This false accounting for transportation projects contributed to the underestimation of motor vehicle emissions and the failure of SIP control strategies in the 1970's and 1980's.

Bad State and Federal accounting for transportation funds, lax Federal oversight of transportation and air quality planning requirements for fiscal constraint of TIPs and RTPs, and abuse of TEA–21 funding flexibility and innovative financing provisions undermine conformity and threaten to undermine SIP control strategies in the coming decade. Many State and local project sponsors grossly underestimate project costs so they can adopt fiscally unconstrained transportation plans and programs. Many States are increasing their reliance on Federal dollars and reducing State commitments to fund transportation while running up large debts that sacrifice future fiscal capacity. This is further exacerbated by the recent failure of the Federal Highway Administration to lapse unspent fund obligations to the States as required by TEA–21. Environmental accountability is further undermined by under-forecasting of motor vehicle traffic and air pollution in SIPs, TIPs, and plans due to use of travel models that discount induced traffic. Together, these problems amount to another national accounting scandal affecting not just the $217 billion, 6-year Federal TEA–21 authorization, but hundreds of billions more in State and local transportation spending.

Conformity Is Increasingly Successful: Better Accounting, Coordination, Support for Emission Reduction Strategies

By fostering cooperation between transportation and air quality agencies over the past decade, conformity has improved accounting for transportation air pollution in State Implementation Plans (SIPs) for air quality attainment and it has increased consideration of air quality as a factor in transportation decisionmaking, as intended by Congress.

- Since 1990, transportation conformity has increasingly ensured that State and local air quality planners account for the growth in vehicle driving activity and other sources of vehicular emissions, helping assure progress on clean air goals in the past decade.
- Conformity has assured that transportation agencies coordinate with State and regional environmental agencies through interagency consultation procedures to evaluate the emissions impacts of major transportation investments before funding decisions are final. Where conformity lapses have occurred because of problems in coordination, they have been generally of only a few months duration and have led to improved local administration and governance to coordinate air quality, transportation, and growth management.
- Conformity has almost invisibly led to increased investments in cost-effective pollution-reducing transportation strategies that support more diverse travel choices, equitable access to jobs and public facilities, smarter growth, improved traffic safety, safer and more attractive opportunities for walking and bicycling. Conformity has expanded the base of political support for control strategies to reduce air pollution emissions through more stringent emission controls on vehicles, cleaner fuels, and more effective inspection and maintenance. Local and State transportation agencies and real estate development interests and the highway construction industry are motivated to support such strategies to avert transportation conformity constraints on highway construction funding.
- Conformity has fostered continuing improvement in transportation forecasting and emissions models used to appraise the implications of transportation and land use alternatives, providing a more sound basis for air quality and transportation plans.
- Conformity has enhanced the public's right-to-know about air quality and transportation impacts before decisions have been made.

Full Implementation of Conformity Was Delayed in Many Regions Until 2000–2001

These successes have come about even though transportation conformity has been until recently only partially implemented in many regions. Full implementation of the 1990 conformity amendment has always been dependent on the establishment

of motor vehicle emissions budgets in attainment SIPs. Delays by the States in the development of air quality attainment plans for most of the nation's largest cities delayed the setting of emissions budgets to be met by metropolitan transportation systems, forcing reliance on earlier complex transition rules. The first motor vehicle budgets designed to attain the 1-hour ozone standard in most large cities were first submitted in 2000 in response to litigation enforcing Congress's deadlines for SIPs. EPA has approved most of these SIPs only in the past year. Additional revisions to many of these SIPs are anticipated in the coming year to reflect updated motor vehicle emissions estimates using EPA's Mobile 6 computer model.

These new mobile source emission budgets took effect in 2000 as interim budgets while EPA continued to review the adequacy of the overall attainment plans for the more polluted metropolitan areas. These budgets provide a standard against which to measure the emissions produced by regional transportation plans. Metropolitan areas have 18 months from the submission of the interim budgets to revise their transportation plans to meet the new emissions targets for motor vehicles in each air shed. Thus, many cities are adopting revisions to their transportation plans to meet the 1990 Act's conformity requirements only within the past year, after a decade of delay.

For most of the 1990's, conformity in most regions relied on a weak, widely criticized, and often gamed 'build/no-build' test established by EPA as an interim stopgap measure while States were developing the attainment plans with emissions budgets that are required by the CAA. The result was a system that required extensive modeling and planning, some upgrade to analysis methods, but in most cases produced relatively little change in transportation plans or investments beyond a few new ridesharing and transit projects. But now that attainment motor vehicle emission budgets are finally in place in non-attainment areas, conformity is operating as intended: holding TIPs and RTPs accountable to attainment SIP motor vehicle emission budgets.

Conformity Remains Critical to Clean Air Progress

Conformity remains critical to clean air progress because motor vehicles account for roughly half of all ozone precursor emissions in most large metropolitan areas. But even in those areas where the motor vehicle pollution share is less, such as Houston, where heavy industry accounts for a much larger contribution of pollution, steps to curb motor vehicle pollution are critical to attaining healthful air quality.

New, cleaner motor vehicle technologies mandated under the CAA Tier II standards will do a lot to clean up motor vehicle pollution over the next 15 years. But at the same time, EPA's NOx SIP call will curb emissions from large stationary sources such as power plants, so that the share of total emissions of ozone precursors and PM from motor vehicles may actually grow, despite cleaner vehicle technologies. And meeting the 8-hour ozone and PM fine pollution standards will require far more substantial reductions in emissions. Routine compliance of fiscally constrained TIPs and RTPs with motor vehicle emissions budgets through a strong and continuous transportation conformity program is essential to the success of the Clean Air Act in delivering healthful air quality for all Americans.

The failure of transportation plans to comply with SIP budgets is the reason why most metropolitan areas failed to meet the ozone NAAQS in 1987. Many serious ozone non-attainment areas again failed to attain by 1999 (including Atlanta, Washington, DC, Baton Rouge, Dallas-Ft.Worth, Connecticut, Springfield) is that motor vehicle emissions have not been reduced to the levels required for attainment. If Congress were to weaken conformity by reducing its frequency or analysis time horizon, or if conformity analyses continue to be further undermined by weak enforcement and oversight of fiscal constraint, traffic analysis, and emissions accounting methods by US DOT, the Clean Air Act is at risk of failing once again in the coming decade to deliver long-promised clean air for millions of Americans.

III. Growth in Motor Vehicle Use Threatens Air Quality Progress

Growth of motor vehicle use is one of the most stubborn obstacles to lasting progress in cutting NOx, particulate matter, and cancer-causing air toxics from the transportation sector. National and State programs to control air pollution from transportation through cleaner vehicle and fuel technologies and inspection and maintenance have significantly reduced motor vehicle pollution rates. But because of steep increases in the number of vehicle miles, cuts in the amount of pollutant emitted per mile, particularly for NOx and small particulates ($PM_{2.5}$), have been offset by growth in miles driven.

Growth in motor vehicle use stems from many factors. Large investments in highway system expansion, subsidies for driving and sprawl, and policies favoring increased car-dependence over the past half-century have contributed to growth in trip

distances and the number of vehicle trips for most Americans. More than three-fourths of all job and housing growth since 1970 has been in suburban areas that have been designed to promote automobile access as the only convenient or available means of travel for most trips. From 1970 to 1998, vehicle miles traveled (VMT)-has increased by 136 percent, or more than three times the rate of population growth. Other indicators of driving activity—vehicle trips per person, average vehicle trip length, and number of motor vehicles per person—have also risen sharply. Traffic growth not only threatens air quality progress, but it adds to traffic congestion and travel times, greenhouse gas emissions, dependence on imported petroleum, and degradation of water quality and community livability.

Inadequate Regional Transportation Models Threaten SIPs

One of the major causes of the failure of ozone SIPs to produce attainment during the 1980's was the systematic failure of the transportation models to account for the very significant increase in motor vehicle emissions that resulted from induced travel demand caused by new highway construction. The best evidence from the Transportation Research Board (TRB) studies reported during the last 5 years indicates that about 25 percent of total VMT growth in metropolitan areas is attributable to induced demand. The failure to account for that magnitude of motor vehicle emissions increases in the 1980's would have caused virtually all ozone SIPs to fail. Indeed, almost all metropolitan areas failed to attain even when they implemented SIPs EPA thought were adequate for attainment. The need for Congress in 1990 to enact an entire new program for ozone control in America's urban areas can be attributed, in significant part, to the deficiencies in the transportation models that failed to account for VMT growth trends of the last two decades.

A large number of recent TRB peer-reviewed scientific studies, summarized in Attachment 4, show that increasing road capacity in an area by 10 percent will cause a growth of 8 percent (with ranges found to vary from 3–10 percent depending on context) in total area traffic. Yet most regional travel models used for conformity analysis—even after the improvements of the 1990's—fail to properly account for this fact.

The most serious consequence of large errors in these transportation and emission models is the failure to reduce motor vehicle emissions enough to meet the NAAQS. In the case of Particulate Matter (PM) insufficient emissions reductions means hundreds or thousands of people will die in a non-attainment area, and for ozone it means tens of thousands may require hospitalization, emergency care or other medical treatment for debilitating conditions if the models under-predict emissions. While such end effects of a flawed traffic and emissions model are not as easily dramatized as the use of a flawed engineering model for design of a building that later fails and collapses, killing those inside and around it, the net effect of bad traffic models are in fact injurious to far more people over a longer period of time.

When metropolitan areas first began to undertake transportation conformity analysis a decade ago, regional transportation planning and emission models were barely up to the task. Many of these analysis tools were estimated on old data, insensitive to induced traffic and land use changes caused by changes in transportation system capacity and user costs, and unable to represent walking, bicycling, public transportation, or travel choices other than driving. Typical traffic models used by metropolitan planning organizations (MPOs) in 1990 were simple highway engineering models ill suited for public policy or environmental analysis.

Inadequate Federal Actions to Improve Travel and Emissions Models

To address this problem, following passage of the 1990 CAA amendments, the 1991 ISTEA law provided a 1.5 percent set-aside from several Federal transportation funding categories to support MPO planning, data collection, modeling, and related activities required to implement the conformity and transportation planning process. Congress also authorized the use of Congestion Mitigation Air Quality (CMAQ) funds and other Federal transportation funds to support such activities. In 1993, US DOT and EPA established a Federal Travel Model Improvement Program (TMIP) to help foster needed changes to MPO traffic models and EPA invested in further improvements to its MOBILE emissions factor models. TMIP provides useful training to MPOs and documents and disseminates current best practices in transportation and land use modeling, but has invested the bulk of its resources since 1995 in a multi-million dollar program based at Los Alamos National Lab to develop TRANSIMS, a supercomputer-based traffic simulation model that will be available for somewhat more general use by agencies over the next several years. MPOs in non-attainment areas increased their spending to update their travel models and data collection throughout the 1990's in response to EPA conformity regulations that established minimum modeling standards, but few MPOs flexed STP or NHS

funds to support an expanded data collection and planning effort to improve their travel and emissions modeling capabilities. EPA's conformity regulations were streamlined in 1995, reducing the specificity of modeling requirements. FHWA in the mid–1990's issued some weak, limited guidance on transportation modeling practices that failed to promote best practices and encouraged MPOs to be satisfied with adopting "standard practice" models instead. Interagency consultation established as part of transportation and air quality planning and every 3-year MPO certification reviews have been the principal source of oversight of the adequacy and integrity of the transportation modeling process.

While most of these measures have been of value and have encouraged some improvement of MPO transportation modeling for conformity and SIP analysis, they have been grossly inadequate to effect timely MPO adoption of best practices.

As TRB Special Report 245 (1995) concluded: "The four-step process, as it is conventionally applied, will generally understate the amount of induced travel." And most MPOs persist in conventional standard-practice application of four-step process traffic models in 2002, falling well short of best practices, meaning that most MPOs seriously underestimate induced traffic and related air pollution emissions. Unless addressed, this poses a major continuing threat to the success of SIP control strategies, which are likely to be inadequate to produce healthful air quality.

The question that needs to be answered is: How can we make sure that the modeling tools are improved so that they can more reliably serve the purposes that the clean air objectives of the Clean Air Act demand? It seems unlikely that the public or the Congress will abandon the goal of making the air safe to breathe. Therefore, TRB, DOT, EPA, MPOs, and the transportation agencies need to invest the resources to refine the modeling tools to ensure that they become more effective at identifying the factors that most reliably predict vehicle use, and the strategies most likely to be effective in reducing VMT growth and motor vehicle emissions. And MPOs need to apply those tools to evaluate alternative TIP, RTP, and SIP control strategies that can reduce traffic growth and motor vehicle emissions, so these can be considered effectively in the interagency decisionmaking process.

EPA last year released guidance allowing emissions reduction credit for land use strategies. The effectiveness of those strategies is linked to the quality and effectiveness of transit facilities and services offered to people in corridors where land use is planned to minimize travel demand. However, most MPO travel models have limited capacity to represent the travel behavior effects of transit-oriented development, walkable neighborhoods, new intelligent transportation system technologies supporting Bus Rapid Transit and ridesharing, or changes in parking policies and commuter travel incentives. As a result, the environmental and energy benefits of these strategies are not reliably reflected in the outputs to the traffic models.

An excellent recent GAO report noted that "the Federal requirement to demonstrate that transportation plans and programs conform to an emissions budget serve as the primary incentive to assessing the emissions impacts of different land uses. Furthermore, such estimates had some effect on transportation and land use decisions. For examples, almost half of planners who reported conducting such estimates revised their transportation plans as a result, and about a third reported that local land use plans were revised . . . In the future more of the transportation and air quality officials may need to consider land use as a means to control emissions and improve air quality if EPA implements, as planned, two more stringent air quality standards. These officials face several barriers to further considering different land uses and their emission impacts, however, including a lack of required technical tools."[5]

This GAO report notes that, "DOT and EPA efforts to improve travel-demand-forecasting models may help MPOs and communities determine the effects of transportation improvements on congestion and air quality. However . . . these efforts currently do not call for integrating land use or environmental components into the travel demand model . . . Without such integrated models, communities cannot consider the likely effects that their transportation decisions will have on land use, future growth and development, and air quality."[6]

Most MPO travel models need updating and refinement. Recent independent audits of computer travel models in Washington, DC, and other regions have exposed serious flaws in official Metropolitan Planning Organization models that bias their findings strongly against transit investments and smart growth strategies and strongly in favor of expanded highway investments. Attachment 7, a recent critique

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[5]U.S. General Accounting Office, Environmental Protection: Federal Incentives Could Help Promote Land Use That Protects Air and Water Quality, Washington, DC, October 2001, GAO–02–12. page 6.

[6]U.S. GAO–02–12, op. cite, page 95.

of the Metropolitan Washington, DC travel models that found significant underestimation of motor vehicle emissions of both NOx and VOC, illustrates this problem, which, if uncorrected, puts SIP control strategies at risk of failing once again.

And much greater investment is needed in national travel, land use, employment, demographic, and environmental monitoring data to properly support environmental management systems integrated with better decision-support for transportation planning. But this is not an argument to weaken conformity or to stop holding regional planning agencies accountable for the air quality consequences of the investment choices they make, or local governments accountable for the land use choices they make. The public health costs, and the harm to the personal well-being of too many Americans are too important to consider weakening the process. The only reason why there is any debate at all about the reliability and accuracy of transportation models is because the law requires accountability and imposes consequences. There have been major refinements in the planning process and the modeling tools used in that process since 1990. MPOs and transportation agencies are no longer using the overly simplistic unidimensional travel models that were the foundation for the grossly inadequate SIPs on the 1980's. Those improvements are some of the best evidence that the law is not broken; it is working.

With the enactment of the 1990 Clean Air Act Amendments, for the first time the law required the transportation agencies to be directly accountable for emissions effects of their decisions. This has created the need for and the incentive to advance the modeling science. Some MPOs, such as Portland, Oregon, and Sacramento, California, have invested in data collection, analysis tools, and staff development, enabling them to demonstrate best practices in their applied analysis work. These best practices need to be more widely replicated. Portland's models are now being adapted to improve statewide models used by Oregon DOT and used to advance a transportation planning process that is integrated with environmental resource and growth management. Such integration is the key to improving project delivery and the environmental stewardship of transportation agencies. Best practice transportation models have multiple ways of reflecting induced demand and land use impacts of transportation policies and investments and lead to better emission estimates.

Other regional models still are far from the mark when it comes to accounting for induced demand, land use effects, and the potential benefits of smart growth transit oriented development, pedestrian and bicycle enhancements, and transportation pricing strategies. As a result they typically continue to underestimate future VMT and motor vehicle emissions. In turn, this error leads to insufficient emissions reductions in SIPs, and to motor vehicle emissions budgets in SIPs that understate expected future emissions. This poses a problem for the transportation agencies when future actual vehicle counts show that VMT and emissions exceed the budget. The remedy to this problem is not to dispense with or make highly infrequent conformity determinations, as some in the transportation industry would wish. The appropriate remedy is to improve the models so that they honestly and routinely account for what are now generally well-characterized phenomena in the world of transportation planning.

SEVERAL ACTIONS ARE NEEDED TO BRING ABOUT MORE TIMELY IMPROVEMENT OF REGIONAL TRAVEL MODELS

- MPOs and transportation agencies should be required to make available at no cost to interested stakeholders all travel and emission model assumptions, data, documentation, and software driver files to allow routine independent oversight by outside parties. Such access varies now between MPOs, with some retaining a much more closed culture that resists disclosure or puts up barriers such as charging thousands of dollars for the copying of a few CD ROMs of data.
- MPOs and transportation agencies should be required to test their models for their sensitivity to induced demand as illustrated in Attachment 4. Agencies should also evaluate model capacity to evaluate changes in travel costs and travel times by time-of-day, changes in pedestrian and bicycle friendliness, urban design factors, and other key elements, comparing model performance with best practice models and scientific findings. EPA and DOT should require independent evaluation of travel model and emissions model adequacy as part of conformity and planning certification reviews and approvals.
- Where models are noted to have shortcomings against best practices, MPOs should be required to identify through their Unified Planning Work Program a schedule and budget for addressing these shortcomings in a timely way over the course of each 3-year planning cycle for regional transportation plans and SIP updates.

• Congress should establish and fund a Transportation Accounting Standards Board. This new independent entity is needed to assure timely progress toward honest accounting for how transportation funds are spent, including oversight of innovative finance programs such as GARVEE and TIFIA bonds, to assure compliance with transportation planning fiscal constraint requirements, and to assure the integrity and timely improvement of transportation agency environmental management systems, including travel and emissions analysis models.

• America needs a new much stronger national transportation data center to replace the Bureau of Transportation Statistics. This center should help set a core set of uniform standards for travel survey data collection, transportation network coding, spatial data analysis, and evaluation, developing a new generation of scientifically valid methods for local, regional, and national travel behavior analysis to support performance-based funding and decisionmaking. Local innovation should be encouraged to augment this core set of measurement systems.

IV. Transportation Conformity at Work in Atlanta

In most U.S. metropolitan areas, agencies have successfully managed their transportation plans and programs to stay within the limits of adopted air quality plans. When these have come into conflict, resulting in conformity lapses, these have been brief. Most have been resolved in a matter of several months or less after working out administrative problems or by adding new emission-reducing transportation projects to TIPs and RTPs to offset excess pollution.

In several instances, most notably in metropolitan Atlanta, conformity lapses have persisted longer, thanks to ongoing interagency conflict and resistance from transportation and sprawl development interests who would prefer to ignore adopted SIP emission budgets. Throughout the 1970's and 1980's Georgia DOT invested heavily in freeway expansions, spurring massive low-density car-dependent sprawl development. By the mid–1990's, Atlanta area residents drove 34 miles per day per person, more than in any other metro area in the world. This came at a high price in regional air quality. The 1979 ozone NAAQS has been exceeded each year in Atlanta since 1980, continues to be violated many days each year, and exceeds the national standard by 30 percent to 50 percent. In 1999, the year when Atlanta was required by the Clean Air Act to attain healthful air quality, the region had the highest number of unhealthy days in the decade, with 22 days above the 1-hour health standard for ozone air pollution.

In December 1998, Georgia Power and Southern Company completed a $3 million scientific study to identify the primary sources contributing to Atlanta's ozone problem. Scientific analysis showed that power plant emissions caused about 15 percent of the Atlanta area's ground-level ozone, while mobile sources—including off-road—accounted for 70 percent, and emissions from other sources accounted for 15 percent. Shortly after this study, the State finalized its first plan to reduce smog-causing emissions in metro Atlanta. This plan is resulting in investment of $850 million in new pollution control technologies on power plants by May 2003, reducing Georgia Power's contribution to ground-level ozone in the Atlanta area to 6 percent. In fact, power plant controls represent 86 percent of the reductions that will be achieved in the State plan. With these Georgia Power reductions, mobile sources, including on-and off-road, will be responsible for about 83 percent of the Atlanta area's ozone problem.[7]

Routine conformity analysis of the TIP and RTP has been vital to making progress on clean air in Atlanta. In 1996, the region's MPO submitted a SIP stating that the region would meet a motor vehicle emission budget of 214 tons per day (tpd) by 1999, when they were required to attain the ozone NAAQS. In 1998, the MPO wrote to EPA saying that its 1999 NOx emissions would actually be 238 tpd in 1999, reflecting the use of a refined travel model and updated growth forecasts. In 1999, the MPO found that real-time NOx emissions were 264 tpd. In 2001, the MPO admitted that it would not reach the 214 tpd motor vehicle NOx budget until 2005.

Conformity requirements led the Atlanta MPO to admit in September 1996 that its proposed new TIP would exceed the SIP emission budget submitted in June 1996. In response, the region deferred plans to add even more road expansion projects to the TIP and began to limit changes to its TIP to conformity-exempt projects. However, various proposals to adopt more stringent motor vehicle inspection and maintenance programs, cleaner fuel standards, and expanded transit services and emission reduction strategies proposed by local agencies and the regional transit agency were blocked by Georgia officials, although together these local actions could have resolved the conformity lapse.

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[7]The Telegraph, Jun. 15, 2002, Atlanta, GA.

In late 1997, just prior to the expiration of the TIP, Georgia DOT, with FHWA concurrence and opposition from EPA, sought to exempt nearly $1 billion in highway capacity expansion projects from transportation conformity so they could continue building these sprawl, traffic, and pollution inducing new roads through what many expected to be a lengthy conformity lapse.

After the conformity lapse began in January 1998, the MPO adopted several interim TIPs and RTPs. In response to a suit filed by Environmental Defense, the DC Court of Appeals found invalid in March 1999 certain EPA conformity regulations that had been the basis for ultimately exempting over $700 million in Atlanta area road projects from compliance with transportation conformity. As a result, the Atlanta region lost no Federal funds, but did end up shifting over $300 million in spending during the conformity lapse from sprawl-inducing, pollution-boosting road projects to instead fund transit, sidewalks, bikepaths, HOV lanes, transit-oriented brownfields infill redevelopment, traffic signalization, intersection improvements, highway safety, bridge reconstruction, maintenance, and other conformity-exempt projects and Transportation Control Measures.

Atlanta's conformity problems also prompted intense engagement of business, civic, and community leaders to address the failures of their governance structures to agree on strategies to clean the air, manage sprawl, and provide the region's citizens with travel choices other than driving. It allowed Gov. Roy Barnes to get legislative approval in 1999 to create a potentially powerful Georgia Regional Transportation Authority (GRTA), with authority to fund transit expansions, review and approve transportation and development plans, and manage growth in non-attainment areas.

But soon after its creation, GRTA was pressed by Georgia officials to approve a new Atlanta RTP that would renew massive sprawl and pollution inducing road system expansions, while adding new transit and commuter rail investments. The new Atlanta RTP supports a lot of road investment and sprawl, including outer beltway development, in the early years of the plan and promises largely unfunded major transit investments farther in the future. As a result, the MPO's own analysis shows that under the $35 billion Atlanta RTP, the share of regional employment reachable by those without cars will decline from 2000 to 2005 and not return to year 2000 levels until after 2015. This raises serious questions about compliance of the Federal approval of this plan with Title VI of the Civil Rights Act, which requires consideration of disparate impacts of Federal spending on protected minorities, and it bodes ill for the region's ability to meet Clean Air Act requirements. Attachment 3 provides tables illustrating, with data from the Atlanta MPO, these troubling trends of declining access to job opportunities for people without cars, who are disproportionately minority populations and lower income residents.

Indeed, conformity of the new RTP was dependent on an EPA attainment date extension policy that the U.S. Court of Appeals for the D.C. Circuit recently invalidated in connection to a lawsuit challenging approval of a SIP for the Washington, DC metropolitan area, which similarly depended on this policy. It also relied on a SIP revision to increase the motor vehicle emission budget to allow greater pollution, although the region was experiencing record levels of health-harming ozone violations in the year it was by statute required to come into attainment.

FHWA, EPA, and environmental and civil rights groups all raised serious questions about the legal compliance of the new RTP with TEA–21 fiscal constraint requirements; local elected officials raised questions about who would pay for the new transit investments and the costs of expanded transit operations; the regional transit agency was simultaneously in a severe fiscal crisis that led to a general fare increase and substantial bus service cutbacks, harming low income minority transit-dependent riders.

In the past year, Georgia officials have sought to accelerate spending for their massive road program under this RTP through new "innovative financing" bond issues. How to pay for transit operations assumed in the RTP remains a critical and unresolved problem. Should it later be revealed that Georgia's current transportation investments were imprudent from an air quality perspective, it will be too late to redirect this spending, and the fiscal capacity of the State to fund emission-reducing projects will be impaired.[8]

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[8]Unfortunately, a number of other States are following this approach, using GARVEE bonds and other leveraged finance methods to evade fiscal constraint requirements. New Mexico, for example, several years ago did an end run around opposition in the State legislature to a 140-mile road expansion project by issuing GARVEE bonds that obligate transportation receipts for the next generation to the project and adopted a repayment scheme that avoided any payments on the bonds for the first several years. As a result, a large share of the State's transportation budget will be eaten up by debt repayment.

Adding to these concerns, an independent audit of the Atlanta MPO traffic model by a nationally recognized modeling expert found that the MPO seriously underestimated motor vehicle emissions by misrepresenting travel speeds on freeways. A later speed study commissioned by GRTA affirmed these findings, but was suppressed by Georgia officials until after approval of the RTP and TIP conformity analysis that relied on the seriously flawed model. The mis-accounting for nearly 12 tpd NOx, which contributes to continuing health impairment of hundreds of thousands of people in the Atlanta area, was simply swept under the carpet by regional agencies, FHWA, and EPA. Attachment 2, "Emissions Effects of Atlanta Speed Study," provides additional documentation.

Unfortunately, my two decades of experience as a transportation engineer and modeling expert, working with many regional travel forecasting models across America, allows me to State with confidence that the kinds of problems observed in the Atlanta model with poor estimation of speeds are widespread elsewhere. Until independent critiques of regional travel models become commonplace, the integrity of the traffic and emissions forecasting process in most non-attainment areas will remain suspect, casting doubt on the success of SIP control strategies to deliver healthful air to all Americans.

Following lengthy settlement negotiations that led to a tentative agreement in December 2000 for additional emission reductions, Georgia officials balked at making the agreement enforceable and withdrew from talks in January 2001, moving forward with new road projects in the TIP and RTP. This led environmental and civil rights groups to challenge approval of the Atlanta RTP and SIP revisions in several suits. These legal actions are still in process. One of the key questions, now before the Court of Appeals in the 11th Circuit, is whether the TIP must demonstrate conformity to the EPA-approved 1999 SIP motor vehicle emission budget at the time the TIP is approved and while the funds in the TIP are being spent. Georgia Governor Barnes and FHWA convinced the District Court that the Atlanta fiscal year 2001–2003 TIP does not need to demonstrate conformity until 2004, despite the CAA statutory requirement for Atlanta to attain healthful air quality by 1999. If this stands, it will represent an unfortunate weakening of the accountability of transportation programs to SIP emission budgets.

While Atlanta has made progress in its governance structures, planning, and emission control strategy development, thanks to conformity, these reforms continue to encounter resistance from interests in the State that seek continued sprawl and road system expansion regardless of the consequences for air quality. The price of this resistance is degraded health and a tarnished quality of life, and likely higher future pollution cleanup costs to compensate for the irretrievable commitment of resources today to investments that will spur higher pollution for decades to come. Without conformity, there would be even less accountability.

V. Recent Transportation Conformity Action in Washington, DC

Conformity has also been valuable in helping to win new emission reduction strategies in the metropolitan Washington, DC region and bringing about better accountability for transportation decisions. In July 2001, the MPO updated its modeling assumptions to reflect the growing use of sport utility vehicles (SUVs) and light trucks, which produce more pollution per mile driven than standard cars. As a result, they observed that that they could no longer add new road projects to their TIP and RTP and still conform with the NOx motor vehicle emission budget in their adopted SIP. Officials formed a task force to consider reopening the SIP to allow for more motor vehicle pollution by finding offsets from other emission sources or fixing the conformity problem by adopting added emission reduction measures. With adjustments for some refinements to their model estimates and for emission reducing measures already being implemented but not previously credited, the MPO found that the 8 tpd NOx excess emissions over budget was reduced to about 3 tpd.

Following further meetings and analysis, Maryland Governor Glendening proposed a $42 million package of transportation emission reduction strategies, including buying clean buses, improving pedestrian and bicycle access to transit, and supporting transit oriented development. The MPO is confident that this package, along with measures advanced by other jurisdictions, provides sufficient reductions to offset this emission budget shortfall and the region is moving to adopt them as part of a new TIP and RTP at the end of July 2002. If proposals to lengthen the duration of conformity findings to 5 years had been in effect, this $42 million package of emission reduction measures would not likely have been funded.

Because of dramatic underestimation of transportation project costs by Virginia DOT, the region recently cut back its proposed short-term road program for 2005 by 100 lane miles of new road capacity. The MPO estimated this would result in

a 1.9 tpd reduction in NOx, along with a 0.6 percent reduction in daily VMT, a 1.3 percent increase in daily transit trips, a 0.1 percent decrease in VOC.

VI. Cancer Risk Must Be Accounted For In Decision-Making

Compelling new scientific evidence suggests that people living in communities located near heavily traveled highway facilities are being exposed to concentrations of toxic and hazardous air pollutants emitted by motor vehicles that cause an extremely high and unacceptable risk of cancer including childhood leukemia, and other respiratory and cardiovascular disease.

Research by California's South Coast Air Quality Management District demonstrates that toxic pollutants emitted by motor vehicles account for an unacceptably high cancer risk in the range of approximately 1 in 1,000 exposed individuals to 1 in 650. See, Multiple Air Toxics Exposure Study-II (MATES-II), March 2000. The study found that the total cancer risk in the Los Angeles Basin from toxic air pollutants measured at 8 monitoring sites ranges from 1,100 in 1 million (or 1 in 900) to 1,700 in 1 million (or 1 in 670), and that 90 percent of the total cancer risk is attributable to toxic air pollutants emitted by mobile sources. Most of the mobile source cancer risk is associated with exposure to the toxic pollutants benzene, 1,3 butadiene, formaldehyde and diesel particulate matter ("DPM"). In addition, concentrations of toxic pollutants estimated by a regional air quality model show that neighborhood exposures near heavily traveled highways is significantly higher than exposures monitored at the regional monitoring stations, producing a cancer risk as high as 1 in 130 (5800 in 1 million) in some receptor areas.

The estimates of increased cancer risk predicted in MATES-II are supported by recent epidemiology data. Evidence of the incidence of childhood leukemia in Denver during the late 1970's and early 80's, Pearson and colleagues (2000), shows an association between residential location within 750 feet of a major traffic corridor and an elevated incidence of childhood leukemia. These data suggest that exposure to higher than regional urban background concentrations of motor vehicle emissions is a significant risk factor for childhood leukemia. Other research provides evidence of increased incidence of other adverse health outcomes for residents of neighborhoods near heavily traveled highways. Brunekreef and colleagues (1997) show that adverse health outcomes including premature mortality and increased morbidity through increased respiratory and cardiovascular effects are associated with the increase in ambient fine particulate matter, e.g., particles less than 2.5 microns in diameter ("$PM_{2.5}$") from roadway sources.

Taken together, this evidence requires FHWA to prepare comprehensive risk assessments to determine the health risks for neighborhoods located near heavily traveled roadways that are proposed to be built or expanded in densely populated metropolitan areas, and that alternatives to the development of high cancer risk travel corridors be chosen as the preferred alternative or that mitigation be adopted to prevent the incremental health risk attributable to toxic air pollutants emitted from these projects.

Attachment 5, *A Preliminary Toxicological Review of Roadway Traffic Pollution,* provides additional information on the need for better monitoring and mitigation or remediation to reduce exposure of people to air toxics from roadway traffic. It finds that

> Analysis of published data for traffic emission factors and the resulting exposure estimates demonstrates that uncontrolled expansion of roadways will significantly increase exposures to both fine particulate matter and air toxins by the population in the contiguous residential corridor. This is significant because several epidemiological studies have shown that levels of fine particulate matter typically found adjacent to heavily trafficked roadways are comparable to levels that can exacerbate both acute and chronic respiratory disease symptoms and cause premature death among sensitive populations. This finding applies to short-term exposures of a few hours to one or several days. With regard to air toxins, exposures experienced by roadway corridor residents are likely to equal and probably exceed the air toxins levels measured at monitoring sites located near heavily traveled highways and reported in the Multiple Air Toxics Emissions Study II Study. Risk estimates based on the levels reported in the Multiple Air Toxics Emissions Study II resulted in an unacceptably high cancer risk of approximately 1 in 1,000 to 1 in 650 that was attributed to diesel exhaust and other motor vehicle emissions. The relative impact on other roadway corridor populations could be commensurate with the increased exposures to motor vehicle pollution that would result from their proximity to the large numbers of additional vehicles traveling the expanded highway.

The study notes that "Many current environmental assessments have not properly accounted for the differential impact that could be imposed on the nearby the popu-

lation adjacent to expanded highways. This analysis of available data demonstrates that a detailed program of pollutant monitoring and modeling that are specific for the planned expansion should be undertaken to properly quantify the potential adverse health impacts associated with projects of this type."

Another study, Review of Exposure to Toxic Air Pollutants From Mobile Sources and the Impact of Expansion of US 95 in Las Vegas, Nevada, is included as Attachment 6. It relates the traffic increase caused by expansion of a major highway to the increased exposure of people in the corridor to traffic related air toxics. FHWA needs to assure that this kind of analysis will be routinely made a part of the review of major highway capacity expansion project approvals if these agencies are to fulfill their legal mandate to avoid adverse health impacts in decisions about project approvals.

Control of mobile toxics has not been adequately addressed by EPA and DOT. Conformity does not currently apply to air toxic pollutants. Although EPA has identified 21 air toxic pollutants emitted by mobile sources, it has not adopted an urban air toxics strategy as required by section 112(k) and 202(l) to reduce mobile source toxic emissions.

VII. Prospects for Reducing Traffic Growth to Reduce Pollution and Harms from Traffic

While technology based emission control strategies have been vital to progress toward cleaner air, strategies that reduce VMT growth can make low cost contributions to timely attainment and maintenance of healthful air quality, offering substantial benefits beyond clean air. These strategies include smart growth that renews existing communities and incentives and investments that improve transit, walking, bicycling, ridesharing, and telecommuting. Together these can provide reductions of 15 to 25 percent in VMT, hours of vehicle travel, and emissions relative to trend-line automobile-dependent sprawl development forecast over the 20 year horizon of regional transportation plans.

Recent changes in the tax code, make it more attractive for employers to provide transit, vanpool, and cash-in-lieu-of-parking benefits for their employees, which if widely implemented could reduce motor vehicle commute trips by 26–30 percent. These and other innovative strategies—such as intelligent transportation systems, value pricing of roads and transit, usage-based car insurance, traffic calming for pedestrian and bicycle safety, smart growth and telework can expand equitable access to jobs and public facilities and reduce growth in traffic, congestion, and air pollution. Regions can cap and reduce per capita VMT in coming years with such strategies, producing diverse short and long term benefits.

Georgia officials illustrated their capacity to achieve short term reduction in traffic, pollution, and health hazards from traffic during the Atlanta Olympics. By expanding their transit system with roughly 1000 leased buses, promoting travel alternatives, telecommuting, and other travel incentives, they cut morning peak traffic levels by almost one-fourth during the Olympics while the region accommodated one million visitors over a 3-week period. This led to a 28 percent drop in ozone levels and a reduction by 42 percent in the number of people seeking hospital treatment for asthma.

Several State studies have illustrated rail's benefits for energy conservation, air pollution and global warming, For example, in California, a recent State study concluded that the State-supported intercity train network will prevent 265 million motor-vehicle-miles from being driven in 2002. While the resulting reduction in gasoline consumption is offset by increased diesel consumption by trains, the State projects a net saving of 7.3 million gallons of gasoline in 2002, helping to reduce both air pollutant emissions and the demand for imported oil (California Department of Transportation, California State Rail Plan 2001–02 to 2010–11, 2001, p. 6). A gasoline saving of this magnitude would reduce carbon dioxide emissions by about 140 million pounds, which is the equivalent of taking 12,000 cars off the road for a year. A study done for the Coalition of Northeast Governors in 1990 estimated that the introduction of high-speed rail service between Boston and New York would save 20 million gallons of jet fuel and 4.5 million gallons of gasoline per year. Although some pollution is generated from the electricity that powers the trains, the net effect of high-speed rail between Boston and New York would be to eliminate almost 2,700 tons of smog-forming pollutants each year.

Public transportation has been estimated to cut gasoline use by more than 1.5 billion gallons a year and to prevent the emission of 63,000 tons of hydrocarbons and 78,000 tons of nitrogen oxides. These numbers don't even consider the much greater indirect energy and environmental benefits of the efficient housing and work environments made possible only by the availability of rich transit networks in places like New York City, San Francisco, and Washington, DC. And vital new economic

centers, such as San Jose, Denver, and Portland, Oregon, could not sustain and manage their growth without having invested heavily in transit.

When high quality transit services are consistently developed and sustained over the long-term, they transform community patterns of travel, commerce, and urban development, producing much larger pollution reductions. A recent study by the National Transit Cooperative Research Program of the National Academy of Sciences found that transit-supported compact developments yield 10–30 percent less overall community energy use and pollution compared to low density, car-dependent sprawled development, as well as lower total social and infrastructure costs. Many regional and sub regional studies using best practice analysis tools to compare alternative investment strategies and related policies, e.g., in Denver, Portland (OR), Sacramento, and Washington, DC, have found that transit supported strategies can accommodate equivalent amounts of new development with significantly less traffic and pollution while automobile-oriented strategies induce added traffic and pollution.

Indeed, by focusing growth around an expanded transit system, reducing expenditures on roads, and adopting an urban growth boundary and pedestrian-friendly urban design standards, Portland, Oregon has pursued a path different from most other U.S. metropolitan areas. Since the adoption of the 235,000-acre growth boundary in 1979, Portland has urbanized just 39,000 acres. At the same time the population inside the boundary has increased by more than a third. No new road capacity has been added to the downtown for nearly a quarter century although employment has nearly doubled in that time to 1-,500. Transit carries the equivalent of two lanes of traffic on every major thoroughfare to downtown. Portland tore out a six-lane expressway to create a downtown river front park, traded in the money for two new freeways and invested in transit. Between 1990 and 1996, transit ridership grew 20 percent faster than the growth in vehicle miles traveled, 41 percent faster than the growth in transit service and nearly 150 percent faster than the growth in population. Portland's adopted regional plan envisions a 40 percent increase in population and just a 2 percent increase in land area by 2017. The experience of most cities with less consistently transit-focused policies has been that urban land consumed per person has skyrocketed, exacerbating car dependence. Seattle's experience is typical, with a 38 percent population increase accompanied by an 87 percent increase in urban land area between 1970 and 1990.

Portland has been a leader in adopting effective SIPs and Maintenance Plans that include high-performance Transportation Control Measures (TCMs). Portland expects to achieve a 5 percent cut in vehicle miles traveled by 2010 thanks to changes to its zoning and parking codes that reduce the over-supply of parking and encourage mixed-use development. It has previously adopted SIP TCMs that required local governments to modify local zoning to support transit oriented development, consistent with Federal Transit Full Funding Agreements that were predicated upon such zoning changes to assure a sound market for transit use.

Another region facing sprawl pressures that are being countered with better transit is Denver, which anticipates accommodating a million new residents in the coming 20 years. A recent survey by the Downtown Denver Partnership shows that before the new Southwest light rail line opened, one in four downtown commuters used transit; since the new line opened, one in three do. It is estimated that it would take 175 additional miles of highway in the Denver metro region to carry all the people who use transit today. Recent public transit investments have been very successful; both light rail and the bus and carpool lanes on north I–25 have exceeded projections for ridership. The 14-mile light rail system takes 525 bus trips off city streets each day. One light rail train can replace over 200 single occupant vehicles. More than 33,000 people ride the light rail daily about 30 percent above the original ridership projections. New transit investments are not only alleviating traffic congestion and cutting pollution, they are revitalizing communities by serving as infrastructure for creating new town centers and livable, walkable communities. The once dead Englewood mall has been reborn in the past 2 years as a mixed-use city center with homes, offices, stores, cultural, and civic uses, thanks to Denver's Southwest light rail line that now serves it. And the growth attracted to this center otherwise would likely have taken a much more polluting, car-dependent form at the periphery of the metro area, but for Denver's transit-supportive policies.

Strengthen Commuter Choice: Boost Employer Support for Transit

Federal and State tax policies are a key factor driving increased dependence on motor vehicles. For the vast majority of working Americans, a free parking space at work has for decades been the sole commuter benefit offered by employers because that was until recently the only tax-free commute benefit worth speaking of. So if you drive alone to work you gain the benefit. If you take transit, carpool, walk,

or bike, you lose the benefit and likely pay your own daily transit fare. With this kind of incentive, it's no surprise that on any given day nine out of ten American commuters drive to work and nine out of ten of the cars driven to work have one occupant. Yet the 85 million "free" or subsidized employer parking spaces actually cost American business more than $36 billion per year. By spurring more driving, these subsidies exacerbate traffic congestion and air pollution. A congressional study found that "free" parking of all kinds costs our society over $250 billion per year.

In 1998, Congress took steps to make tax policies more equal for all commuters, allowing employers to offer tax-free transit and vanpool benefits of up to $100 a month, with taxable cash-in-lieu-of-parking benefits allowable for the first time. Tax-free benefit limits for employer-provided parking were set at $175 per month—a practice which still leaves solo drivers at an advantage. Allowing employee-paid pre-tax transit benefits saves transit-using employees over $400 a year while saving employers a smaller amount on withholding. Having employers pay for transit is a bigger incentive for employees. Offering such a benefit to Federal executive agency employees in the national capital region induced 11 percent of employees who used to drive to work to switch to transit, taking 12,500 cars off the region's crowded roads every workday. At firms in California and Minnesota offering a $2 a day incentive instead of free parking, one out of eight who used to drive are finding another way to get to work. Such benefits help employers attract and retain employees and provide the greatest help to low and moderate wage workers who spend the largest share of their incomes commuting and often ride transit, carpool, bike, or walk to work.

The cost of such employer provided transit benefit programs to employers is very small and can easily be fit within the scope of ordinary cost-of-living increases offered by most employers to their employees on a periodic basis. State tax credits can make this cost even smaller. For example, in Maryland, if an employer offers an employee a cost of living increase, for each $1 in after-tax cost to the employer, the employee typically receives $0.53 in after-tax income. If that same $1 in after-tax employer expense is instead devoted to an employer-paid qualified transit benefit of $60 a month, the typical Maryland employee who receives it ends up gaining $1.76 in after-tax benefits, thanks to the leveraging effect of Federal and State tax provisions.

The savings for employees offered by the Federal tax law changes are significant and make a high level of employer and employee participation in the next several years realistic across America. For example, an employee earning $50,000 per year who spends $780 annually on transit ($65/month) could realize a tax savings (at 42 percent) of $328 as a result of paying their transit cost using pre-tax dollars, exercising one of the new Commuter Choice options, while their employer would gain payroll tax savings (at 7.65 percent) of $60 per employee (Arthur Andersen). Even if the cost to set up and administer the program equals 2 percent of the transit benefit, the employer will still enjoy payroll savings of $44. Employers are likely to face new costs to offer transit passes or added cash income in lieu of parking, but these can also translate into substantial cost savings of several types. It is much cheaper for an employer to boost non-taxable employee benefits than to offer added taxable income to retain or attract workers, which is an increasing issue in a tight labor market. If the employer is able to expand employment without adding more parking spaces or to otherwise avoid the cost of building, leasing, or maintaining parking spaces for workers, capital cost savings can amount to $5,000 to $20,000 per avoided space and operating costs can amount to $750 to $3,000 or more per year per avoided space. Such savings are often significant enough to more than pay for a cash in lieu of parking or transit pass benefit.

Commuter Choice programs have been shown to unite the diverse interests of environmentalists, business, labor and transit and highway advocates. Most realize that Commuter Choice is good for business and for communities. Commuter Choice is a voluntary incentive that boosts travel options and supports more efficient use of the roads and transit we already have. It can provide quick relief to traffic-strained communities and will expand market opportunities for new forms of access to suburban jobs. Low-and moderate-income workers benefit particularly, since commuting costs represent a larger relative burden on them, and they tend to be more reliant on ridesharing and transit. The Alliance for Clean Air and Transportation, a national group representing a diverse array of sectors, including the road builders, automobile industry, environmentalist and health groups, the American Association of State Highway and Transportation Officials, Highway User Federation, American Automobile Association, the National Association of Regional Councils, and the US DOT and EPA, in February 2000 adopted a consensus goal of making Commuter Choice benefit programs a standard part of the American worker benefit program over the next 5 years.

However, Commuter Choice will have an effect on air pollution only if people know about it and use it, and if the opportunities for cost savings offered by aggressive implementation of these incentives are made evident and available to developers, building owners and tenants, and commuters. Marketing alone has been shown to be inadequate to win widespread adoption of Commuter Choice incentives. There are many strategies that can be taken by States, regional bodies, and local municipalities to foster rapid and widespread adoption of Commuter Choice incentives so these might become available to the average commuter. Additional financial incentives and support by transportation agencies and other government bodies are essential to rapid adoption of Commuter Choice voluntary incentives and can be highly cost-effective in reducing congestion and pollution.

DOT and EPA are promoting Commuter Choice, but congressional action is needed to further expand efforts to foster widespread adoption of these voluntary incentives. EPA estimates that if half of all U.S. employees were covered under these commuter benefits, traffic and air pollution could be cut by the equivalent of taking 15 million cars off the road every year, saving American workers about $12 billion in fuel costs. For every 10 percent of U.S. employees participating, commute VMT would be cut by 3.2 percent, or 20 billion miles, with emission reductions of 54,000 tons VOC, 480,000 tons CO, 33,600 tons NOx, and 2.36 million tons CO_2. In SIP Development Guidance: Using Emission Reductions from Commuter Choice Programs to Meet Clean Air Act Requirements, EPA estimates reductions of 26–30 percent in commute vehicle trips for a full Commuter Choice program. Los Angeles research shows that those who receive free parking at work drive 72 cars per 100 employees, while those who paid for parking at work drove 53 cars per 100 employees, or 26 percent less (D. Shoup, "An Opportunity to Reduce Minimum Parking Requirements," Journal of the American Planning Association, Winter 1995, pp. 14–28.).

Congress should take further steps to encourage employer support for such 'Commuter Choice' initiatives. Congress should support for the following bills that would do this:

- The Commuter Benefits Equity Act of 2001 (H.B.318) would provide equal tax-treatment for parking and transit benefits.
- The Bike Commuter Act (H.R. 1265) would allow employees who bike to work the same financial incentives as transit users.
- The Mass Transit Tax Credit Act of 2001 (H.R. 906) would provide a 25 percent tax credit to employers for the cost of providing transit benefits to their employees. This is modeled after measures adopted by several States—including Maryland, Minnesota, Oregon, Washington, Georgia, New Jersey—that have begun offering tax credits of up to 50 percent and up to $50 per employee per month for employer-paid non-driving commuter benefits.

TEA–3 should also require that local and State officials do more to consider integrating Commuter Choice into their transportation plan and program development. In all non-attainment areas, transportation programs should assure that potential air pollution reduction benefits from Commuter Choice will be realized in a timely manner. These would include provision of these benefits to State and local government employees, aggressive marketing of these benefits to employers and employees, inclusion of Commuter Choice programs in local planning, development review, and other decisionmaking procedures and favorable local and State tax treatment. Such new travel demand management activities and incentives should be given priority by including them in air quality SIPs as Transportation Control Measures.

This promotion should include marketing, technical and administrative assistance, new transit fare products, such as deep-discount bulk purchase transit and vanpool benefits for 100 percent of an employer's work force in the region, and new financial incentives for employers and employees that are adjusted annually in an effort to meet Stated performance targets. State Implementation Plans should include targets, timetables, and expanded funding commitments for (a) providing different segments of the labor force with Commuter Choice options of various types and (b) achieving increased levels of use of various Commuter Choice incentives by various portions of the labor force. These targets could be used as the basis for estimating SIP credits if accompanied by commitments to reasonably linked funding and policy commitments that could be anticipated to meet these targets.

Financing Transit With Automated Road Pricing

Another promising option for curbing traffic and emissions growth while enhancing mobility is automated time-of-day tolls and High Occupancy Toll (HOT) lanes, which allow solo drivers to pay to use High Occupancy Vehicle (HOV) lanes, while giving a free ride to buses, vans, and sometimes carpools. These can put to work unused capacity in HOV lanes and help pay for expanded transit services. A net-

work of HOT lanes on existing highways is likely to provide more effective congestion relief than building new roads. New outer beltway toll roads are likely to bring more sprawl and put more jobs out of reach for those without cars, hurting the poor and the environment. Why not instead give time-stressed travelers a way to buy relief from growing congestion delays in existing freeway corridors and finance better transit?

HOT lanes in existing road corridors can expand both travel choices and equity. HOT lane critics unfairly bash them as "Lexus Lanes," serving only the rich. Real-world HOT lanes look more like "Lumina Lanes," used by people of widely varying incomes who occasionally need to bypass traffic delays that disrupt their social, family, or work life. A working class mom who is facing a $1 a minute penalty for picking her kids up late at day care is happy to pay $4 to save 20 minutes by using the HOT lane on those several days a month when she needs it. The typical users in California spend less than $20 a month on HOT lane tolls, using them on days they are in a real rush. If HOT lane revenues fund new bus services, as on San Diego's I–15 HOT lane, everyone wins. Lower income transit users and carpoolers get access to otherwise inaccessible suburban jobs. Drivers benefit from reduced road congestion and better services and choices. If HOT lane revenues help pay for the road, those who drive most are paying more of their fair share, helping all taxpayers win. Road user fees don't nearly cover the full cost of building and operating America's roads, which remain subsidized by broader taxes. And with new accounting rules forcing fuller disclosure of deferred maintenance, transportation providers need new sources of revenue to maintain systems, expand choices, and cope with growing travel demand.

New non-stop electronic toll technology means motorists don't need to slow down to pay tolls. And HOT lane fees—higher in rush hour and discounted at other times—keep traffic flowing without wasting scarce road capacity like HOV lanes do. This makes it possible to contemplate future conversion of some existing general-purpose lanes to HOT lanes, particularly where new capacity is being added to existing roads. HOT lane experience indicates this strategy can garner popular support. On California's Route 91, diversion of traffic onto HOT lanes has reduced congestion on the entire road and increased the number of passengers per car to 1.6, compared to the average of 1.2. Similar incentives have been implemented or are being considered in Texas, Florida, Colorado, Georgia, New Jersey, New York, and other States.

The Port Authority of NY-NJ in March 2001 introduced time-of-day tolls on Hudson River bridges and tunnels and Staten Island bridges, giving discounts for electronic toll payers who avoid rush hours and charging a premium in the time of most concentrated demand, just like movie theaters and many other services. This helps reduce congestion by shifting the time of day of traffic. Toll revenues support better PATH transit and regional transportation infrastructure and services. The NJ Turnpike, NY Thruway Authority, and other tolling agencies have implemented time-of-day tolls to manage traffic.

Congress should encourage States and transportation facility operators to replace obsolete toll booths that cause congestion and pollution with new barrier-free customer-friendly tolling systems using toll transponders and image processing and billing systems. Congress should encourage State motor vehicle agencies to issue toll transponders with motor vehicle registrations to encourage their widespread availability in States where tolls are used. Congress should eliminate restrictions on tolling highways that were constructed with Federal aid, which can now only be tolled under limited pilot projects authorized by TEA–21.

Promote Smart Transit Fare Payment Systems for Productivity Gains

New information technologies and smart management strategies are vital to making America's transit systems more efficient and attractive for users while controlling costs. There are many things that should be done in this regard, including improving fare collection systems and giving buses and trolleys greater priority in traffic. Enhancing priority for buses and trolleys in traffic can increase average transit travel speeds, schedule adherence, and the number of passenger seat-miles per hour that can be carried by existing transit vehicles. A key part of this strategy involves upgrading traffic signals to support greater priority in traffic for buses, so they can hold a green signal green for a few extra seconds, or advance a red signal to green to avoid an extra stop. The strategy can also include building or configuring bus queue jumper lanes at key traffic bottlenecks to speed bus traffic past congestion, creating dedicated bus lanes, and bus boarding stations. These are often combined to provide "Bus Rapid Transit", which can often provide many of the benefits of fixed guideway rail services quickly at a lower cost.

Across America, buses are slowed by passengers who must file through the vehicle's narrow front door to board and pay an exact cash fare. Encouraging near universal use of pre-paid transit fare instruments and other high efficiency transit payment options, as in Europe and Japan, enhances productivity of existing and new transit services by reducing delays related to fare payment at time of boarding. Instead of having people pay cash on boarding, require that passengers carry a prepaid transit pass, or other fare media that must be validated before or immediately after boarding a transit vehicle, and which at a premium cost could be purchased on board the vehicle. Greater use of daily, weekly, monthly, and annual transit passes helps accomplish this. Fare inspectors roaming transit systems and spot checking to verify that passengers are carrying a valid proof of fare payment or a pass, with large fines for fare evasion assure broad compliance. This enables boarding of buses through both front and rear doors, which boosts transit vehicle productivity.

Provide Safe Routes to Schools and Transit by Foot and Bike

Walking and biking are pollution free modes of transportation that millions of americans enjoy where street and community design allows them to be done safely. and public transit is only as useful when people can get to and from its stops, which usually requires walking at one or both ends of the trip. A key part of the transit success story of recent years—with U.S. transit ridership growing faster than vehicle miles driven for the past 5 years—is attributable to TEA–21's increased support for investments in walking and bicycling. TEA–21 reauthorization should take further actions to assure a safe route to schools and transit stops across America, adapting successful strategies from the most bicycle and pedestrian friendly communities. This should include requiring transit agencies to develop least-cost transit access plans that consider and compare walk, bike, and automobile access opportunities to expand the market reach along all their transit lines. It should include accelerated funding to local governments to enable the build-out of the 20 year bike and pedestrian plans in the next 3 years, planning funds to engage in local area pedestrian and bicycle planning to identify key barriers and safety problems, and delay of some road projects to provide funds to retrofit sidewalks, bike paths, and traffic calming measures within a half-mile of all transit stops and schools. Such measures should be required as reasonably available control measures in all non-attainment areas.

About 40 percent of Americans own bicycles, and many of these people live one-quarter mile to two miles away from express transit stops. Few of these people now use transit to get to work, in part because of the lack of an inexpensive, convenient, safe, and fast transit access system suited to trips of this distance. In the Silicon Valley of California, 40 percent of those using bicycle lockers at rail stations leave bicycles in them overnight and use them to get from the station each morning to their nearby schools and employment, just as in the Netherlands.

Another means of reducing traffic is to implement neighborhood traffic calming to reduce motor vehicle speeds on many streets to improve safety for pedestrians, bicyclists, and motorists, and reduce emissions from car travel. Traffic calming has been shown by research to reduce idle times by 15 percent, gear changing by 12 percent, brake use by 14 percent, and gasoline use by 12 percent, injuries by 60 percent, fatilities by 53 percent, and air pollution by 10 to 50 percent. The majority of all urban and suburban streets and roads are already quite suitable for bicycling, with relatively low traffic speeds and low traffic volumes. However, such residential streets usually lead to bicycle-hostile major roads before reaching major activity centers and schools. Frequently, development of small missing links can make the difference between safe bicycle access and lack of access.

Experience shows that high levels of bicycle use only occur where the street system is bicycle-friendly. Where well-connected networks of bicycle friendly streets, bicycle paths, and bicycle lanes have been provided—such as Davis, Palo Alto, and Santa Barbara, California, Madison, Wisconsin, and Gainesville, Florida—bicycle mode shares of 10–25 percent are common. Where such networks are not available, only the hardiest of cyclists take to the roads for purposeful travel, leading to bicycle mode shares of 2 percent or less. (Michael Replogle, Bicycle and Pedestrian Policies and Programs in Asia, Australia, and New Zealand, U.S. Federal Highway Administration, Washington, DC 1993). Marketing, education, and promotion programs are also needed to encourage greater and safer use of bicycles for short utilitarian trips, including transit access, particularly in conjunction with initiatives that reduce the current barriers of theft, security, safety, and legitimacy which impede non-recreational bicycle use in America.

Build Guarded Bike Parking at Major Transit Stops

U.S. metro areas have invested in costly park-and-ride systems that have made transit increasingly dependent on the automobile. Other regions, especially in Europe but also in some U.S. communities, have been strengthening the potential for people to walk and bicycle to and from transit, boosting ridership at a far lower cost. In much of Europe, the fastest growing and often predominant access mode to suburban express transit services is the bicycle. Bike-and-ride services expand the potential market area of express public transportation at low cost without the very high air pollution emission and energy use rates per VMT, excessive space requirements, and high capital costs of automobile park-and-ride systems. While park-and-ride enables those living in lower density areas to travel from home-to-transit stop, bike-and-ride systems providing secure overnight bicycle parking can facilitate both access and egress to transit, enabling travelers to get from transit stops to nearby workplaces and schools which are otherwise unreachable by transit. Bicycle access can be invaluable in adapting transit to serve 21st century suburban development patterns.

In many U.S. communities, transit access planning looks only at automobile access. Yet many people don't use transit because they can't find affordable or available parking nearby when they want it. It costs $5,000-$20,000 to build a single additional parking space, and $750–3,000 a year to operate a park-and-ride space. Providing bike lockers, bike racks, and guarded bicycle parking at transit stops can free up car parking spaces for those who can't bike or who live too far to bike to transit, while offering a low cost healthy way for those 1/2 mile to 2 miles from the transit station or stop get to and from transit. Guarded bike parking at transit is a predominant part of transit access in European and Japanese suburbs, where it costs 1/10 to 1/100 as much as auto parking at transit to provide and operate. And secure overnight bike parking at transit allows people to get from transit to nearby schools and jobs that are beyond walking distance of the transit stop.

In 1996 the city of Long Beach implemented the nation's first attended bicycle parking facility, or "Bikestation." These facilities provide a range of clean transportation options—including secure, bicycle parking, bicycle repairs and accessory sales, changing and restrooms, and bicycle rentals. Bikestations have sinced opened in the communities of Palo Alto and Berkeley and are under development in San Francisco, Denver, Seattle, Santa Barbara, Los Angeles and Pittsburgh, Pennsylvania. (see www.bikestation.org)

Congestion Mitigation Air Quality Funding: Vital For Clean Air

All of the traffic reduction strategies discussed above are eligible for funding under the $8.1 billion 6-year Congestion Mitigation Air Quality Program (CMAQ) and under most other flexible TEA–21 programs. However, spending by State DOTs of CMAQ projects have gone disproportionately toward more traditional investments, such as buying conventional fuel transit vehicles and making conventional improvements to facilitate traffic flow. States have flexed little STP or NHS funding to the kinds of traffic reduction programs described above.

CMAQ was first established in the 1991 ISTEA law to assure that regions and States would have funds to help cleanup pollution from transportation and to meet the conformity and planning requirements of the 1990 Clean Air Act. While funds could have been better spent in many cases on more innovative traffic reduction activities, the CMAQ program has proven its value and earned wide support.

Funding for CMAQ should be substantially expanded in TEA–21 reauthorization in recognition of the increased problem of air quality non-attainment. Traffic flow enhancement projects should have reduced eligibility for funding under CMAQ, as there are more than ample other sources of Federal and State funds available for these types of projects. CMAQ should not be opened up to become a general operating assistance program for transit, but should focus on funding innovative air pollution reducing initiatives and a wide array of strategies and programs to reduce or managing travel demand, including incentives for smart growth; revision of local zoning, parking, and design codes; creation of accessory apartments near jobs and transit; freight and goods movement management strategy planning; traffic calming; and much better data collection and analysis to support and evaluate these initiatives before and after implementation.

State and local air quality agencies should be given authority to allocate CMAQ funds in consultation with transportation agencies to foster more cost-effective and innovative investments. More funding for public-private partnerships working to reduce traffic and pollution growth should be funded with CMAQ. Projects producing reductions in greenhouse gas emissions and air toxics should be recognized and funded. And CMAQ project approvals should be simplified to facilitate innovation and timely response, with a stronger emphasis on program evaluation to facilitate

organizational learning. The obligation rate for CMAQ funds has been a major problem, with many State DOTs overspending other fund accounts and short-changing CMAQ eligible projects that could have delivered more timely progress on clean air. A significant portion of CMAQ funds should be sub-allocated to metropolitan areas and counties to assure a stronger local voice in project selection.

U.S. EPA has promulgated new health-standard based National Ambient Air Quality Standards (NAAQS) under the Clean Air Act in recognition that the old NAAQS were insufficiently protective of public health. The Supreme Court has upheld this new standard following an industry challenge, and new designations are now overdue. According to the latest available monitoring data from EPA, 123 million people live in the 333 counties violating the 8-hour ozone standard and 82 million live in 173 counties that violate the PM fine NAAQS. There is some overlap but it is reasonable to expect that the total population living in areas with unhealthy air will be approximately 150 to165 million. In 1999, nearly 54 million people live in areas that do not meet the 1-hour ozone standard. Currently only ozone non-attainment area population is recognized in TEA–21's CMAQ obligation formula.

It would be equitable to allocate CMAQ funds to help counties, cities, and States deal with fine particulates and air toxics in addition to ozone. Reauthorization apportionments should recognize the expanded scope of funding needs by proportionate expansion of CMAQ funding based on both population and the degree of pollution remediation needed. Otherwise existing non-attainment areas will suffer crippling cut-backs in funds for air pollution reduction programs even while being asked to take additional steps to further cut pollution to protect public health. An increase from the 54 million population in ozone non-attainment areas to 150 million in new non-attainment areas would imply far more than a doubling of funds is needed just to assure maintenance of effort in older non-attainment areas.

Some argue that CMAQ projects and TCMs are not cost-effective, but a recent TRB study concluded that it was not possible to undertake a credible scientific evaluation of the cost-effectiveness of the CMAQ program at the national level. Lack of data collection, deficiencies in regional travel analysis models, and the wide ranging nature and small scale of many CMAQ funded TCMs, which affect only a small segment of a large regional transportation system limits the ability of anyone to evaluate this program's cost-effectiveness.

The more answerable and important question to pose may be: What is the cost-effectiveness of overall regional transportation and growth plans vs. smart growth and transportation-choice-enhancing alternatives? This is a vital query that could be answered over the course of the next transportation reauthorization if Congress requires States and metropolitan areas to develop integrated transportation, environmental resource management, and growth management plans, with public involvement and consideration of alternatives.

VIII. Accountability and Stewardship: Key to Clean Air and Sustainable Mobility

Public support for transportation funding will be sustained only if Federal, State and local agencies improve transparency about how they spend money and can be held more accountable for the long-term effects of transportation projects, programs, and plans.

Some State DOTs are carrying through on the mandate of TEA–21 to integrate the Major Investment Study requirements into NEPA project reviews and the transportation planning process, despite the absence of DOT regulations, and by doing so are considering smart system management, pricing, partial build scenarios, and smart growth strategies as they consider major new investments. Some States are pursuing stewardship initiatives to change the culture of State DOTs and to foster closer planning and operational partnerships with State resource agencies and key stakeholders. Most States have improved interagency cooperation so that their transportation plans conform with their adopted air pollution control plans. To accomplish this, some regions, like Charlotte, NC, are adopting SIP TCM air pollution control strategies, such as new regional transit with supportive growth management to help offset future emission increases from highway transportation. Congress should encourage these best practices.

Other transportation agencies and road builders are trying to scapegoat environmental laws for their own administrative failures which are manifested in a lack of local consensus on proposed projects, insufficient State and local funding match dollars, and stalled reviews due to inadequate consideration of alternatives, inadequate mitigation and avoidance of adverse impacts, and efforts to end-run Federal requirements. These interests want to expedite transportation project delivery by weakening Clean Air Act conformity requirements, setting deadlines for project reviews, diminishing consideration of alternatives and indirect impacts, limiting op-

portunities for stakeholders and resource agencies to influence decisions, and limiting judicial review. Congress should reject these proposals that would undermine core environmental protections, spur greater conflict, erode public support for transportation funding, and make it less likely that communities will consider and implement investments and policies that improve and support transit.

In reauthorizing TEA–21, Congress should require all State and metropolitan areas to develop and periodically update, with public involvement, integrated transportation, natural resource protection, and growth management plans that consider at least one alternative scenario that considerably reduces traffic growth and enhances environmental performance through better system management. Agencies should annually report on the current and projected performance of their transportation system management, investment, and proposed programs and plans, accounting for cumulative and secondary impacts on growth patterns, public health, greenhouse gas emissions, the achievement of natural resource planning goals for air, water, and habitat protection, and the provision of equal access to jobs and public facilities for all residents, including those without cars, without undue time and cost burdens.

The GAO recently noted, "Those MPOs in areas without air quality problems that anticipate rapid growth in the future might benefit the most from conducting emissions assessments and considering land use because their areas still have the opportunity to shape growth in ways that will also protect against future air quality degradation. However, because so few of them conduct assessments and are not required to do so, they may not realize these benefits."[9]

California's recently enacted AB 2140 law provides a model for this, (1) establishing a standardized set of basic transportation performance indicators related to safety, congestion, road repair needs and public transit that each region must begin to track; (2) establishing a standard method of financial reporting to help the public and local officials know what their money's being spent on; and (3) requiring an "alternative planning scenario" in the development of each region's 20 year transportation plan in order to provide a clear alternative to present growth patterns that could minimize future demand on transportation infrastructure while reducing congestion, protecting open space, and saving taxpayers money. Adopting a Federal version of AB 2140 in TEA–3 would give the public and local elected officials expanded transportation investment choices including options to better support transit and manage both traffic and land development, supporting an environmentally sound approach to expediting project delivery.

Proposals to weaken transportation conformity by having it apply less frequently to combined 5-year TIPs and RTPs threaten to put this accountability system into a deep freeze where it can be ignored except during periodic conformity crises that occur each time conformity analysis is performed. Rather than helping transportation agencies make accountability for air quality an ordinary part of doing business, less frequent conformity analysis requirements would allow much greater pressures to build in the system between analyses, causing more frequent failure of SIP control strategies and more frequent conformity lapse surprises. By demonstrating conformity of TIP amendments routinely, transportation agencies get early warning of problems with 'conformity lockdowns' that prevent new traffic and pollution inducing projects from being added to RTPs and TIPs until resolved. Most agencies are thus able to act in a timely manner to avoid conformity lapses, which more seriously limit them to advancing projects that already have funding agreements, exempt projects, and TCMs.

Proposals to weaken conformity by having it apply only to the first 10 years of the RTP or to the last horizon year in the SIP also threaten to cause a renewed widespread failure of SIP control strategies. This proposal would allow major projects, such as new outer beltways, to advance far into planning, development, and construction before accounting more fully for their profound long-term impacts on regional growth and traffic patterns, and related air pollution. Regional traffic models are already too insensitive to induced traffic and land use effects. This proposal would exacerbate this problem. Some State DOTs complain that they must make up for pollution growth from traffic in the out years of their 20 year transportation plans, without help from SIP control strategies after the attainment year. While SIPs are not required to adopt control strategies beyond the attainment year until the attainment year is reached and requirements for a 10 year maintenance plan are triggered, at least a half dozen States have adopted SIP control strategies that extend beyond or begin after the attainment year, to help transportation agencies deal with this problem.

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[9]U.S.GAO–02–12, op. cite, page 45.

For example, Denver was faced with a terrible PM problem in the 1980's. Agencies began taking action against wood burning. There was progress made during this period, but PM was still measuring 185 g/m3 compared to the NAAQS of 150 g/m3. Conformity made transportation planning and air quality agencies look at other sources of PM. They started looking at street maintenance practices and implemented street sanding and sweeping strategies in the mid 1990's. Strategies have been implemented beyond what is legally required by the CAA. Within 2 years PM level dropped to 80 g/m3. Conformity really woke everyone up. Denver legally has enough measures in maintenance plan to meet health standards through 2015. Conformity provided additional incentive for developing light rail in Denver since it would help mitigate the PM problem. Conformity also led to the development of Metro Vision 2020 which recommends limiting growth to a 700 square mile area and is committed the region to transportation alternatives to support this goal. Denver also has a number of TDM strategies in their long range plan such as a RideArrangers program and a telework program. They do not take credit for TDM system management in the 2025 conformity finding, but they recognized the potential for reduction and retain them as a safety margin in meeting the emissions budget.

TCMs represent nearly 5 percent of total emission reductions in the San Joaquin region of California. The SJCOG Model projects that TCMs will deliver as much as 10 percent reduction in emissions by 2020. In San Joaquin County rideshare, vanpool, and commuter rail provide significant emissions reductions, with a large percentage of San Joaquin County residents facing long distance commutes into the San Francisco Bay Area.

Charlotte, North Carolina's struggle with conformity in the out years of its RTP has helped it to recognize the importance of making careful land use and transit decision to avoid losing jobs and housing to areas outside the center city, and becoming overburdened by congestion, problems that other cities are currently facing. The 2025 Transit Land/Use plan for Charlotte-Mecklenburg proposes a rapid transit system to support the five major transportation and development corridors identified in the 1994 Centers and Corridors Plan as well as connections to key development hubs between these corridors. The plan includes proposals to:

- Concentrate jobs around stations
- Provide residential multi-family housing at stations
- Develop rail technology
- Establish Bus Rapid Transit

Capital costs, plus operation, maintenance and other expenditures will cost $1.085 billion over 25 years and quantifiable benefits such as travel time savings and vehicle operating cost savings total $72 million a year, generating a benefit cost ratio of 1.6. There are also numerous benefits of the plan that are not quantifiable such as improved access to jobs and revitalization of the core center. Funding for the plan will come from a combination of local, State, and Federal funding. Mecklenburg County Voters approved a half cent local sales tax in 1998 to fund expansion of bus service and rapid transit improvements in major corridors. The requirement that the RTP conform 20 years into the future was a vital element in motivating this regional progress and action. Limiting conformity determinations to a 10-year time horizon might reduce the incentive for other regions to take the kind of leadership initiatives seen in Charlotte.

States and local governments have the opportunity to use their SIP process to establish caps on pollution from the transportation sector that will make conformity a meaningful performance objective for progress in attaining more healthful air quality by reducing traffic growth. If they choose, by law they may increase technology-based emission controls on transportation vehicles and fuels and non-transportation sources to allow extra room for growth in motor vehicle use while still meeting deadlines for timely attainment of healthful air quality. If States relax emission controls or allow increased emissions from power plants, new energy development, airport expansions, or other activities, States may need to further curb motor vehicle emissions to offset these other sources of pollution and protect public health.

Conformity will help assure progress toward timely attainment of newly revised National Ambient Air Quality Standards (NAAQS). Proposed and potential emission controls on diesel engines and fuels and off-road mobile emissions will create considerable new room for growth in motor vehicle use within conforming 1-hour ozone transportation plans until new 8-hour ozone SIPs are put in place unless the on-road SIP motor vehicle emission budgets are reduced to assure more timely attainment of healthful air quality. Many transportation agencies will seek to use such near-term emission controls to make irretrievable commitments to sprawl-inducing

outer beltways and other traffic and pollution generating investments in advance of the setting of new more stringent motor vehicle emission budgets that are part of attainment demonstrations to the new NAAQS. If this occurs, the public, utilities, and industry alike will face higher costs and greater delay to attain healthful air quality.

Congress should resist pressure from the road builders to weaken or rework conformity before it has had opportunity to operate under the framework of adopted emission budgets demonstrating attainment, which have only taken effect during the last year in most seriously polluted regions. Conformity is working. We need to strengthen its accountability to help reinforce the trend that is evident in some States for stronger environmental stewardship by transportation agencies.

The concerns I raise today are shared by hundreds of thousands of members of diverse environmental and public health groups, represented by the two letters, Attachments 9 and 10, enclosed for the record.

ADDENDUM TO THE 1997 FEDERAL HIGHWAY COST ALLOCATION STUDY

FINAL REPORT—U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

MAY 2000

Introduction

When the 1997 Federal Highway Cost Allocation Study (HCAS) was sent to Congress in August 1997, estimates of air pollution-related costs of highway use were not included. Research by the Environmental Protection Agency (EPA) on social costs associated with air pollution was being completed and the Department of Transportation wanted estimates of air pollution costs attributable to highway use by motor vehicles to reflect the new EPA research. This addendum to the 1997 Federal HCAS presents estimates of air pollution-related costs of highway use and summarizes how these costs relate to other costs analyzed in the 1997 Federal HCAS. In this addendum, as in the 1997 HCAS report, costs of air pollution, congestion, and other impacts of highway use not borne by transportation agencies represent social and economic costs incurred by affected individuals, not engineering costs to comply with standards or to mitigate adverse impacts as the term "costs" is often used in the environmental literature.

Two changes relevant for highway cost allocation have occurred since the 1997 Federal HCAS was submitted to Congress. First, proceeds of 4.3 cents per gallon of motor fuel tax that had been dedicated for deficit reduction by the Omnibus Budget Reconciliation Act of 1993 (P.L. 103–66) were directed to the Federal Highway Trust Fund beginning October 1, 1997 by the Taxpayer Relief Act of 1997 (P.L. 105–34). This not only increased total highway user revenues available for highway and related improvements, but it also changed the relative shares of Federal user fees paid by different vehicle classes. Ratios of user fee payments to highway cost responsibility for different vehicles (so-called equity ratios) were affected by this change.

The second change was passage of the Transportation Equity Act for the 21st Century (TEA–21) (P.L. 105–178). While this watershed legislation builds upon initiatives established in the Intermodal Surface Transportation Assistance Act of 1991 (ISTEA) (P.L. 102–240), it significantly increases overall surface transportation funding levels and has new initiatives to meet challenges of improving safety, enhancing the natural and human environment, and advancing America's economic growth and competitiveness. Changes in authorization levels for different program areas have affected the relative cost responsibility of different vehicle classes and ratios of user fee payments to cost responsibility for different vehicles. These changes are analyzed in this report.

For ease of comparison, this report is organized similarly to the Summary Report of the 1997 Federal HCAS. The analysis year continues to be 2000, and the same vehicle classes, vehicle miles of travel, and other vehicle characteristics are used. This not only facilitates comparison with the earlier report, but is essential if results are to be directly useful for the Department's Comprehensive Truck Size and Weight (TS&W) Study which uses travel characteristics developed for the 1997 Federal HCAS in its base case.

Summary of Findings

Total social costs of air pollution associated with motor vehicle use are estimated to range from $30 billion to $349 billion per year.(1) Most of those costs are associ-

ated with premature death and illness caused by particulate matter, including both direct particulate emissions and the secondary formation of particulates from other emissions. The wide range of air pollution cost estimates is indicative of the many uncertainties surrounding costs of motor-vehicle-related air pollution.

The 1997 HCAS discussed four main costs of highway use not borne directly by transportation agencies—crash costs, air pollution, congestion, and noise. Based on mid-range estimates, crash costs are the largest of those costs, accounting for about 75 percent of total costs for those four impacts. Congestion costs represent the next highest cost (14 percent), followed by air pollution (9 percent) and finally noise (1 percent). Most crash and congestion costs are borne directly by motorists, but impacts of air pollution and noise are not directly tied to an individual's use of the highway.

As noted above, the Omnibus Budget Reconciliation Act of 1993 imposed a 4.3 cents per gallon tax on transportation fuels to be used for deficit reduction. Proceeds of this tax were not considered to be highway user fees—they were deposited in the General Fund rather than the Highway Trust Fund, and were not available to finance highway, transit, or other transportation improvements. Since proceeds of the 4.3 cents per gallon deficit reduction tax were not highway user fees, they were not included in the 1997 Federal Highway Cost Allocation Study.

The Taxpayer Relief Act of 1997 directed that proceeds of the 4.3 cents per gallon tax on highway motor fuels that had been dedicated for deficit reduction should be deposited in the Highway Trust Fund beginning October 1, 1997 and be available for transportation purposes. This made the 4.3 cents per gallon tax a highway user fee which should be included with other fuel tax revenues in highway cost allocation. The change affects the relative equity of the Federal highway user fee structure. The share of total Federal highway user revenues paid by heavy trucks declines, thereby reducing the share of highway cost responsibility that heavy trucks pay through user fees.

In the 1997 HCAS combination trucks were found, on average, to pay 90 percent of their Federal highway cost responsibility through user fees, but with changes in the fuel tax they now pay only 80 percent of their cost responsibility. The heaviest combinations, those over 80,000 pounds, pay only half of their cost responsibility.

Programmatic changes enacted in the recent TEA–21 are anticipated to have virtually no effect on user fee equity.

The Department plans to update the 1997 HCAS before the next surface transportation reauthorization. Potential options to improve overall user fee equity will be examined in greater depth in that study.

Vehicle Travel Characteristics and Population by Different Vehicle Classes

Table 1 shows total 2000 vehicle miles of travel (VMT) by different groups of vehicles. Travel for single unit and combination truck classes is broken down by registered weight groups. Passenger vehicles account for about 93 percent of total VMT in the United States. Single unit trucks and combination trucks account for 3 and 4 percent of total travel, respectively. Over two-thirds of single unit truck travel is by vehicles registered below 25,000 pounds while among combination vehicles, 75 percent of travel is by vehicles registered between 75,000 and 80,000 pounds.

Table 1. Total 2000 Travel and Number of Vehicles by Class and Registered Weights

Vehicle Class/Registered Weight	Vehicle Miles of Travel (millions)		Number of Vehicles	
	Total	Percent	Total	Percent
Passenger Vehicles				
Autos	1,818,461	67.5	167,697,897	70.0
Pickups/Vans	669,198	24.8	63,259,330	26.4
Buses	7,397	0.2	754,509	0.3
Total	2,495,056	92.6	231,711,736	96.7
Single Unit Trucks				
>25,000 pounds	56,451	2.1	4,126,241	1.7
25,001—50,000 pounds	18,631	0.7	1,352,441	0.6
<50,000 pounds	8,018	0.3	491,745	0.2
Total	83,100	3.1	5,970,431	2.5
Combination Trucks				
>50,000 pounds	6,744	0.3	253,022	0.1
50,001—70,000 pounds	16,685	0.4	225,347	0.1
70,001—75,000 pounds	5,926	0.2	94,509	0.0
75,001—80,000 pounds	86,176	3.2	1,295,973	0.5

Table 1. Total 2000 Travel and Number of Vehicles by Class and Registered Weights—Continued

Vehicle Class/Registered Weight	Vehicle Miles of Travel (millions)		Number of Vehicles	
	Total	Percent	Total	Percent
80,001—100,000 pounds	3,879	0.1	64,365	0.0
<100,001 pounds	2,279	0.1	37,788	0.0
Total	115,689	4.3	1,971,004	0.8

In Chapter II of the main 1997 HCAS report, VMT, operating weight, and registered weight distributions for 20 different vehicle classes were presented. Vehicle classes include automobiles, pickups and vans, buses, three types of single unit trucks, six types of single trailer combinations, three types of truck-trailer combinations, four types of twin-trailer combinations, and a triple trailer combination. Truck travel and operating weight distributions on each of 12 highway functional classes are also estimated for each vehicle configuration. Data needs of the Department's Comprehensive TS&W Study were important considerations in selecting configurations to be included in the 1997 Federal HCAS.

Figure 1 shows VMT for different vehicle classes in rural and urban areas. Almost two-thirds of total automobile travel is in urban areas, a much higher percentage than for other vehicle classes. Over half of the annual travel by pickups, vans, buses, and single unit trucks is in urban areas, but only 40 percent of combination truck travel is in urban areas.

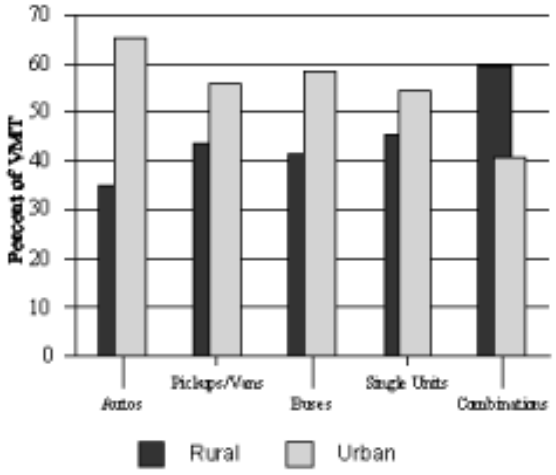


Figure 1. Distribution of VMT in Rural and Urban Areas

Federal-aid Highway Program Costs

The distribution of Federal obligations by improvement type and highway functional class has a strong influence on the relative cost responsibility of different vehicle classes. Estimates of the 2000 distribution of Highway Trust Fund (HTF) obligations by improvement type in the 1997 HCAS were based on the actual distribution of obligations during the 1993 to 1995 base period. For analysis purposes total 2000 obligations were assumed to equal total revenues to the HTF in Calendar Year 2000 which were estimated to be $27,174 million including $3,380 million for the Mass Transit Account (MTA) of the HTF.

As noted above two laws passed since the 1997 HCAS have affected the level and distribution of Federal obligations for highway-related purposes. First, the Taxpayer Relief Act of 1997 transferred proceeds of 4.3 cents per gallon of Federal motor fuel taxes that had been dedicated for deficit reduction to the HTF, thereby increasing overall funds available for highway-related purposes. Second, TEA–21 reauthorized surface transportation programs for 6 years, raising most program levels with some changes in the distribution of funds among the various programs. TEA–21 also guarantees that highway and transit program funding will be aligned with actual

and projected HTF receipts. The most recent estimate of calendar year 2000 HTF receipts, including proceeds of the 4.3 cents per gallon that previously had been dedicated for deficit reduction, is $33,233 million.

Table 2 compares the relative authorizations for major program areas under TEA–21 with those under ISTEA. In most cases the distribution of funds is quite similar. One notable exception is the elimination of a separate Interstate Construction program in TEA–21. All remaining work to complete the Interstate System was fully funded under prior legislation. Certain improvements to the Interstate System are eligible under the Interstate Maintenance program and Interstate System lane additions are eligible from National Highway System funds.

Table 2. Comparison of TEA–21 and Major ISTEA Program Authorizations

Program Area	TEA–21 (percent)	ISTEA (percent)
Interstate Maintenance	13.8	13.8
Interstate Construction	0	5.9
National Highway System	16.5	17.1
Bridge	11.8	13.1
Surface Transportation Program	19.2	19.4
Congestion Mitigation and Air Quality	4.7	4.9
Minimum Allocation	13.7	9.3
Other	20.3	16.5
Total	100.0	100.0

Translating changes in authorization levels for different programs into changes in the distribution of obligations by improvement type and highway functional class is difficult. TEA–21, like ISTEA, provides States considerable flexibility to shift funds among program categories. In this analysis, the distribution of funds by improvement type for each program area in 2000 is assumed to be the same as the distribution for that program area in 1997.

Table 3 compares 2000 Federal obligations by improvement type estimated for the 1997 HCAS with revised estimates based on the TEA–21 program composition. Assuming that funds from each program area are spent in the same manner as they were in 1997, the TEA–21 program composition would be expected to have slightly more capacity expansion, and slightly less system preservation than was estimated for the 1997 HCAS based on the overall 1993–1995 distribution of obligations by improvement type.

Table 3. 2000 Distribution of Federal Highway Program Costs

Estimated in 1997 HCAS and Under TEA–21 ($ Millions)

Category	Improvement Type	1997 HCAS		TEA–21	
		Amount	Percent	Amount	Percent
New Capacity	New Construction	$2,941	10.8	$2,879	8.7
	Reconstruction—Added Lanes	$937	3.4	$2,864	8.6
	Major Widening	$1,836	6.8	$2,007	6.0
Total		$5,713	21.0	$7,750	23.3
System Preservation	3R Preservation	$7,250	26.7	$7,934	23.9
	Minor Widening	$484	1.8	$651	2.0
	Bridge Replacement	$2,114	7.8	$2,480	7.5
	Major Bridge Rehabilitation	$1,198	4.4	$1,110	3.3
	Minor Bridge Rehabilitation	$445	1.6	$643	1.9
Total		$11,490	42.3	$12,819	38.6
System Enhancement	Safety/TSM	$2,542	9.4	$3,112	9.4
	Environmentally Related	$530	2.0	$1,064	3.2
	Other Projects	$1,113	4.1	$590	1.8
Total		$4,184	15.4	$4,766	14.3
MTA		$3,380	12.4	$4,597	13.8
Other		$2,407	8.9	$3,302	9.9
Total		$27,175	100.0	$33,233	100.0

Again, for analysis purposes, the distribution of obligations by highway functional class is assumed to be the same in 2000 as in the 1993–1995 base period. Two-thirds of Federal obligations are on urban highways and one-third on rural highways. In both urban and rural areas more Federal moneys are obligated for im-

provements on higher order highway systems (Interstate and other principal arterial highways) than on lower order systems

The distribution of program expenditures by highway type can significantly influence the relative cost responsibilities of different vehicle classes. The distribution of travel on different types of highways varies substantially by vehicle class, and other physical and operational characteristics of highways that can affect cost responsibility also vary by highway type.

Allocation of 2000 Federal Highway Program Costs

In this analysis, procedures for allocating various highway improvement costs among vehicle classes are the same as used in the 1997 HCAS. Table 4 summarizes the cost responsibility of different vehicles for anticipated obligations under the TEA–21 program structure, assuming that funds for each program element under TEA–21 are obligated in the same way they were obligated under ISTEA.

Table 4. 2000 Federal Cost Responsibility by Vehicle Class Under TEA–21 Program Structure

($ Millions)

Vehicle Class/ Registered Weight	Total Program Costs	Cents per Mile	Shares of Total
Autos	$14,501	0.80	43.6
Pickups/Vans	$5,103	0.76	15.4
Buses	$237	3.20	0.7
All Passenger Vehicles	$19,841	0.80	59.7
Single Unit Trucks			
<25,000 pounds	$1,245	2.20	3.7
25,001—50,000 pounds	$1,049	5.46	3.2
>50,000 pounds	$1,344	18.12	4.0
All Single Units	$3,638	4.38	10.9
Combination Trucks			
<50,000 pounds	$231	3.43	0.7
50,001—70,000 pounds	$557	5.21	1.7
70,001—75,000 pounds	$452	7.62	1.4
75,001—80,000 pounds	$7,458	8.65	22.4
80,001—100,000 pounds	$594	15.32	1.8
>100,001 pounds	$462	20.28	1.4
All Combinations	$9,754	8.43	29.4
All Trucks	$13,392	6.74	40.3
All Revenues	$33,233	1.23	100.0

Figure 2 compares shares of cost responsibility under the TEA–21 program structure with cost responsibility estimated in the 1997 HCAS based upon the distribution of program costs during the 1994–1995 period. The small differences in program structure between TEA–21 and ISTEA are not large enough to substantially affect the relative cost responsibilities of different vehicle classes. Passenger vehicles have a slightly higher share of cost responsibility under TEA–21 while combinations have a slightly lower share.

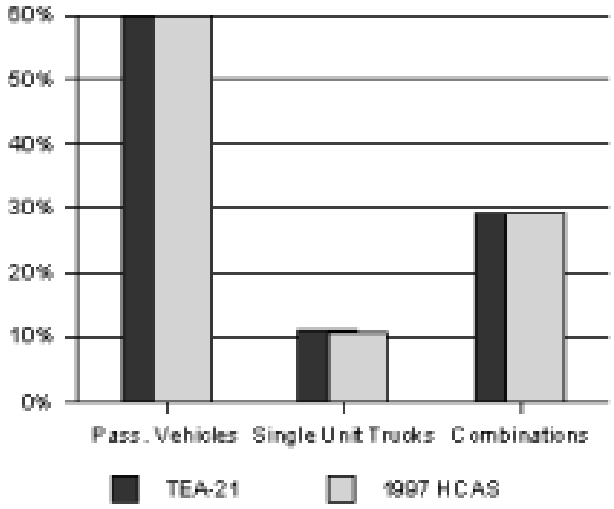


Figure 2. Shares of Highway Cost Responsibility Under TEA-21 Program Structure Compared to 1997 HCAS Shares

Source: FHWA Estimate

Highway User Fee Payments

Highway user charges are fees upon owners and operators of motor vehicles for their use of public highways.

Historically, the primary purpose for imposing highway user fees at both the Federal and State levels has been to raise revenues to finance highway improvement programs. This direct relationship between highway user fees and highway program funding is highlighted by the fact that the Federal Government and many States deposit large parts of their highway user fees in dedicated highway or transportation trust funds rather than in the general fund. The linkage between highway user fees and highway program financing is central to HCASs which seek to determine whether fees paid by each vehicle class cover costs occasioned by those vehicles.

Current Federal highway user fees and rates are shown in Table 5. Federal highway user taxes include taxes on various highway fuels, an excise tax on the sale of heavy trucks, a tax on tires weighing over 40 pounds, and a heavy vehicle use tax (HVUT) on trucks with registered weights over 55,000 pounds. Each of these taxes has been in place for many years, although rates and the specific equipment that is taxed have changed from time to time.

Table 5. Current Federal Highway User Tax Rates

Current Tax	Tax Rate Under Current Law
Fuel	
Gasoline	18.3 cents per gallon[1]
Diesel	24.3 cents per gallon[1]
Alternative Fuels	0—18.3 cents per gallon[1]
Vehicle Excise Tax	
Heavy Trucks >33,000 pounds, trailers >26,000pounds GVW.	12 percent of retail sales for new vehicles (trucks, tractors, or trailers)
Tire Tax	
41 to 70 pounds	15 cents per pound over 40 pounds
71 to 90 pounds	$4.50 plus 30 cents per pound over 70 pounds
Over 90 pounds	$10.50 plus 50 cents per pound over 90 pounds

Table 5. Current Federal Highway User Tax Rates—Continued

Current Tax	Tax Rate Under Current Law
HVUT	
Annual tax on vehicles 55,000 pounds gross weight or more.	$100 plus $22 per 1,000 pounds over 55,000 with an annual cap of $550

[1]excludes 0.1 cents per gallon to Leaking Underground Storage Tank Fund

Federal User Fee Payments by Vehicle Class

When the 1997 HCAS was conducted, 4.3 cents per gallon of Federal fuel tax was dedicated for deficit reduction and was not considered a highway user fee. Proceeds of the 4.3 cents per gallon are now deposited in the HTF to be used for purposes eligible under TEA–21, and are now considered highway user fees. This change affects the relative shares of highway user fees paid by different vehicle classes. Table 6 shows Federal highway user revenues (HURs) projected to be paid by different vehicle classes in 2000 under the current user fee structure. Passenger vehicles, which account for 93 percent of total highway travel, pay 68 percent of total Federal highway user fees. Combination trucks, on the other hand, pay 23 percent of total highway user fees even though they travel less than 5 percent of total mileage. Among the truck classes, user fees vary substantially by vehicle weight. Single unit trucks registered at 50,000 pounds or more pay 2.2 times as much per mile in Federal user fees as single unit trucks registered at 25,000 pounds or less. User fees paid by combination trucks do not vary as much with weight as for single unit trucks, but the variation is still substantial.

Table 6. 2000 Federal User Fee Payments by Vehicle Class Under the Current Federal User Charge Structure

($ Millions)

Vehicle Class/ Registered Weight	Total User Fee Payments	Cents per Mile	Shares of Total (percent)
Autos	$14,819	0.81	44.6
Pickups/Vans	$7,416	1.11	22.3
Buses	$50	0.67	0.1
All Passenger Vehicles	$22,285	0.89	67.1
Single Unit Trucks <25,000 pounds	$1,853	3.28	5.6
25,001—50,000 pounds	$746	3.88	2.2
>50,000 pounds	$543	7.32	1.6
All Single Units	$3,142	3.78	9.5
Combination Trucks <50,000 pounds	$332	4.92	1.0
50,001—70,000 pounds	$561	5.25	1.6
70,001—75,000 pounds	$402	6.78	1.2
75,001—80,000 pounds	$6,006	6.97	18.1
80,001—100,000 pounds	$300	7.74	0.9
>100,001 pounds	$205	9.01	0.6
All Combinations	$7,806	6.75	23.5
All Trucks	$10,948	5.51	32.9
All Revenues	$33,233	1.23	100.0

Figure 3 summarizes the average Federal user fees paid per mile of travel by different vehicle classes.

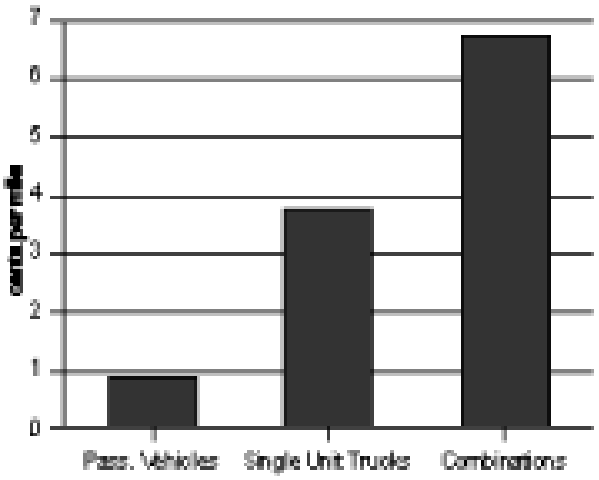


Figure 3.

Figure 4 compares shares of Federal highway user fees paid by passenger vehicles, single unit trucks, and combination trucks under the current user fee structure with shares estimated in the 1997 HCAS when proceeds of the 4.3 cents per gallon were dedicated for deficit reduction and not considered highway user fees. The share of Federal user fees estimated to be contributed by passenger vehicles in 2000 has increased by almost 4 percentage points while the share of total user fees paid by combination vehicles decreased by almost the same amount. This difference arises because combination vehicles also pay other Federal user charges that have not changed since 1997 except for a minor technical change in the taxation of tires on new vehicles. The higher fuel taxes thus have a relatively smaller effect on total user fees paid by combination vehicles than they have on total fees paid by passenger vehicles.

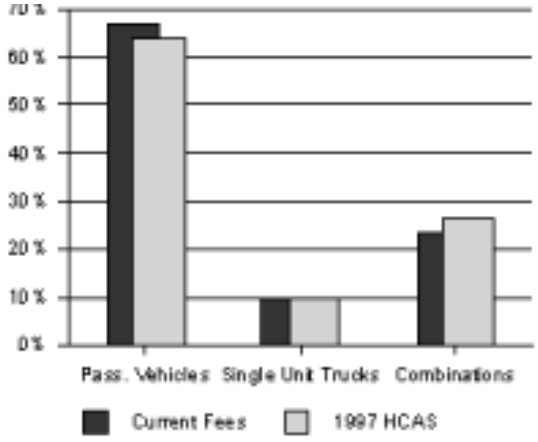


Figure 4. Shares of User fees for Different Vehicle Classes Under Current and 1997 User Fee Structures

2000 Federal Highway User Fee Equity Ratios

The equity of highway user charges typically is measured in HCASs as the ratio of the shares of revenues contributed by each vehicle class to the shares of highway

costs that vehicle class occasions. This ratio is often called a revenue/cost ratio or an "equity ratio." As discussed in the 1997 HCAS, highway agency costs are different from the economic costs associated with the operation of different vehicle classes. Analyses of economic costs occasioned by each vehicle class, which include environmental, safety, and delay costs imposed on others as well as pavement, bridge, and other infrastructure costs, are important in considering the economic efficiency of highway user fees. However, HCASs traditionally have focused primarily on the equity of highway user fees as measured by the extent to which each vehicle class pays the share of highway agency costs for which it is responsible. Agency costs considered in HCASs do not reflect what transportation agencies should spend in various areas, but are estimates of how obligations actually are being distributed. The Department's Surface Transportation Conditions and Performance report provides overall estimates of investment requirements to meet system performance and condition objectives, although it does not suggest how much of those costs should be borne by Federal, State, and local transportation agencies.

Table 7 shows estimated Federal equity ratios in 2000 under the current highway user charge structure and the TEA–21 program structure. Equity ratios estimated in the 1997 HCAS are shown for comparison. As a class, automobiles continue to pay about the same share of Federal highway user fees as their share of highway costs, and pickups and vans continue to pay substantially more than their share of highway costs. Differences in equity ratios between automobiles and other passenger vehicles are primarily attributable to the automobiles' better fuel economy (higher miles per gallon) which means they pay less fuel tax per mile of travel than pickups and vans.

Table 7. Ratios of 2000 Federal User Charges to Allocated Costs by Vehicle Class

Vehicle Class/Registered Weight	1997 HCAS Ratios	Updated Ratios
Autos	1.0	1.0
Pickups/Vans	1.4	1.5
Buses	0.1	0.2
Passenger Vehicles	1.1	1.1
Single Unit Trucks		
<25,000 pounds	1.5	1.5
25,001—50,000 pounds	0.7	0.7
> 50,001 pounds	0.5	0.4
Total Single Unit	0.9	0.9
Combination Trucks		
<50,000 pounds	1.6	1.4
50,001—70,000 pounds	1.1	1.0
70,001—75,000 pounds	1.0	0.9
75,001—80,000 pounds	0.9	0.8
80,001—100,000 pounds	0.6	0.5
>100,001 pounds	0.5	0.4
Total Combinations	0.9	0.8
Total All Vehicles	1.0	1.0

User fee equity for single unit and combination trucks is highly dependent on the weight of the vehicles. As a class single units continue to pay about 90 percent of their Federal highway cost responsibility under the new user fee and TEA–21 program structure. In the 1997 HCAS combination trucks as a group were estimated to pay 90 percent of their highway cost responsibility in 2000, but under the new user fee and program structure, combinations will pay only about 80 percent of their cost responsibility. This reduction in the equity ratio for combination trucks primarily arises because combination trucks will pay a smaller share of Federal user fees under the new user fee structure than they did under the former fee structure while their share of cost responsibility remains virtually the same. For both single unit and combination trucks, there continue to be large differences in equity ratios for vehicles in different weight groups.

Other Highway-Related Costs

The 1997 HCAS included extensive discussions of highway-related costs that are not borne by transportation agencies, but by motorists or society at large. These costs include environmental, safety, congestion, and other costs associated with highway use. While transportation agencies do not bear these costs directly, their concern about such costs is evidenced by a broad range of regulatory and programmatic initiatives to reduce crashes, emissions, and other consequences of high-

way use that create costs for society. Significant progress has been made in reducing many of these social costs of highway use, but substantial costs remain. As discussed in the 1997 HCAS, crashes, congestion, air pollution, and noise are generally acknowledged to be the most significant social costs that can be quantified.

As noted in the Introduction to this Addendum, the 1997 HCAS did not include estimates of air pollution costs. Work on a major EPA study on Benefits and Costs of the Clean Air Act was still underway which was relevant to estimates of air pollution costs associated with motor vehicle use. The Department postponed estimating highway-related air pollution costs until that work was completed and the same methods could be used for the Department's highway cost allocation study.

One point emphasized in the 1997 HCAS is the uncertainty surrounding estimates of most social costs of highway use. Differences between high and low cost estimates may vary by one or more orders of magnitude. Many factors contribute to this uncertainty including (1) the difficulty in isolating effects of highway-related factors from other factors that contribute to health and other social costs; (2) the site-specific nature of many social costs of highways; and (3) uncertainties in valuing costs of premature deaths attributable to highway crashes and motor vehicle emissions.

Highway-Related Air Pollution Costs

Motor vehicles produce emissions that in sufficient pollutant concentrations can cause a variety of health and other impacts including shortness of breath, respiratory and other disease, death, structural deterioration, crop damage, and decreased visibility. Since 1970, the Federal Clean Air Act (CAA) and 1977 and 1990 Clean Air Act Amendments (CAAA) have provided a framework for nationwide efforts to reduce motor vehicle and other sources of air pollution. Important provisions of those laws include establishment of National Ambient Air Quality Standards for key pollutants, requirements that States develop implementation plans for attaining those standards, and limits on allowable motor vehicle tailpipe emissions. The ISTEA and TEA–21 complement the CAA by providing funding to implement balanced transportation programs that will reduce emissions.

In 1997, EPA developed a report, The Benefits and Costs of the Clean Air Act, 1970–1990. This report reflects EPA's findings and not necessarily those of other agencies in the Administration. Other agency's concerns included, among other things, the methods used to estimate the number of premature deaths and illnesses avoided due to the CAA, and the methods used to value non-health related benefits. Part of these concerns arise from the no-control baseline EPA uses to estimate reductions that have been achieved in emissions since passage of the CAA. Mindful of other agencies concerns, this Addendum uses EPA's estimates as an illustrative bounding case example of the impact of motor vehicle emissions.

Table 8, based on data in EPA's 1998 report, shows the estimated contribution of on-highway motor vehicles to total emissions for key air pollutants in 1990. The EPA estimates that in 1990 motor vehicles accounted for only 2 percent of total sulfur dioxide emissions and 11 percent of total suspended particulate emissions. Conversely, motor vehicles accounted for 70 percent of total carbon monoxide and 2/3 of lead emissions.

Table 8. Major Highway-Related Air Pollutants

Pollutant	Percent of Total 1990 Emissions from Highway Motor Vehicles (percent)
Total Suspended Particulates	11.1
Sulfur Dioxide	2.4
Nitrous Oxides	36.0
Volatile Organic Compounds	37.1
Carbon Monoxide	70.4
Lead	66.7

Despite the progress that has been made to date in reducing harmful motor vehicle emissions, air pollution remains a concern in many parts of the country. In its report, The Benefits and Costs of the Clean Air Act, 1970—1990, EPA estimates the economic benefits of air pollution reductions achieved under the CAA. Methods used by EPA in its 1998 study are the primary bases of air pollution cost estimates in this report. As noted in the Introduction, costs of air pollution estimated in this Addendum are social and economic costs of air pollution, not the engineering costs to comply with standards or to mitigate adverse impacts as the term "costs" is often used in the environmental literature.

Table 9 shows estimates of economic costs associated with highway-related air pollution based upon data and methods used by EPA in its study. Almost all costs are attributable to mortality, chronic bronchitis, and other respiratory and heart diseases caused by inhalation of particulate matter, but some costs also arise from ozone, sulfur dioxide, nitrogen dioxide, and carbon monoxide. Other effects of air pollution including infant mortality, changes in pulmonary function, lung inflammation, and reduced crop yields are known to arise from air pollution but are not included in these costs because researchers have not yet quantified those effects. Future research should allow a more complete accounting of air pollution costs arising from motor vehicles and other sources.

Table 9. Estimated Economic Costs of Motor Vehicle-Related Air Pollution in 2000[1]

Pollutant	Impact	Costs of Rural Motor Vehicle Travel $1990 (millions)	Costs of Urban Motor Vehicle Travel $1990 (millions)	Costs of All Motor Vehicle Travel $1990 (millions)
Particulate Matter	Mortality[2]	12,695	21,558	31,162
Particulate Matter	Non-fatal Illness	3,683	6,232	9,183
Sulfur dioxide, nitrogen dioxide, carbon monoxide.	Non-fatal Illness	0	51	51
Ozone	Non-fatal Illness	28	16	47[3]
Total	16,406	27,857	40,443[4]	

[1]Costs for ''criteria'' pollutants only (does not include toxic pollutant costs). Excludes certain health-related costs and costs of reduced visibility, crop damage, and material damage not quantified by EPA.
[2]Mortality costs based on DOT's $2.7 million estimated cost of a premature death.
[3] Does not include ozone mortality costs, which are highly uncertain.
[4] Comparable estimate using EPA's value of life is $64,681.
Source: Abt Associates, 1998, pages 9–11.

Even costs quantified in Table 9 are highly uncertain due to data and methodological limitations and should be viewed as indicative only of the order of magnitude of costs. Chemical processes that transform emissions into ozone, particulate matter, and other pollutants are very complex, as is the transport of pollutants from their source to where they ultimately affect human health. Sources of some pollutant types are not well understood, nor are some aspects of the health impacts due to motor vehicle emissions. Scientific data on relationships between air pollution and premature death also are weak in many cases. This Addendum does not fully discuss these limitations and uncertainties. Technical reports by Systems Applications International(2) and Abt Associates,(3) from which air pollution cost estimates shown in Table 9 and subsequent tables are derived, discuss many of those factors and indicate areas where further research is needed. They also discuss the various empirical studies that have attempted to estimate economic costs for different pollutants and issues involved in extrapolating results of those case-specific studies to nationwide cost estimates.

There is considerable debate about valuing economic costs of premature deaths associated with air pollution. This debate is important because costs associated with premature deaths from particulate matter account for over three-quarters of total air pollution-related costs.

In policy and regulatory analyses, EPA uses a value of $4.8 million to represent the cost of a premature death. This value is the mean of estimates from 26 studies dating back to the mid 1970's that have attempted to place a value on the cost of premature deaths. Estimates from those studies range from $0.6 million to $13.5 million, reflecting the large uncertainties in trying to estimate the public's willingness to pay to avoid premature death.

The Department of Transportation has adopted a value of $2.7 million per premature death, based on a comprehensive 1991 study by the Urban Institute. While that study focused on the costs of premature deaths associated with highway crashes, it drew upon many of the same studies that EPA used, and the results apply to premature deaths attributable to factors other than highway crashes. Both DOT and EPA have devoted significant efforts in developing these cost estimates, and while their costs differ somewhat, they fall within a much broader range of costs that have been estimated by others.

The EPA's study, The Benefits and Costs of the Clean Air Act, notes that the Science Advisory Board charged with reviewing the study recommended comparing cost estimates based upon EPA's traditional value of life estimates with costs using an alternative approach for valuing costs of air pollution-related deaths. That approach explicitly considers the number of years by which lives may be shortened as

a result of exposure to air pollution. Under this life-years lost approach, costs of premature death are estimated to be about 55 percent of EPA's value of $4.8 million per premature death. This translates into an average value of about $2.6 million per premature death, which coincidentally, is very close to the value DOT uses for the cost of premature deaths. The EPA has additional research underway in this area.y Figure 5 compares total motor vehicle-related air pollution costs estimated using DOT's cost of premature death with costs estimated using EPA's value. As noted above, preliminary estimates using an alternative life-years lost approach would be slightly less than costs using the DOT cost estimates, but more work needs to be done to develop a consensus on the advisability and applicability of a life-years approach to valuing costs of premature death associated with air pollution and to refine those cost estimates. It is also important to note that data and methods used by EPA that were the basis for these cost estimates continue to be improved.

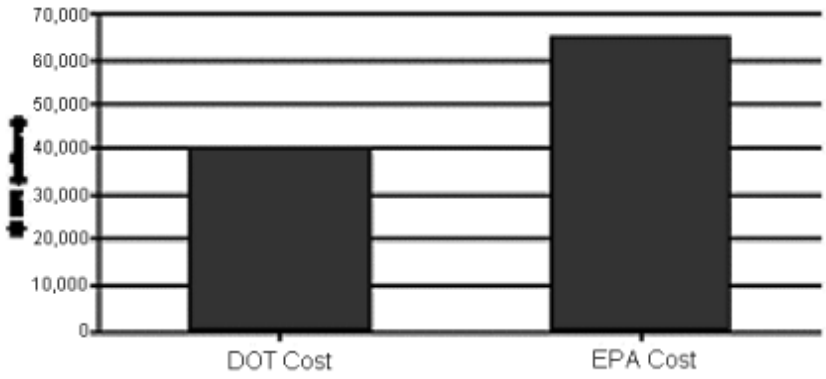


Figure 5. Comparison of Social Costs of Highway Related Air Pollution in 2000 Based on DOT and EPA Costs of Premature Death

Source: Abt Associates for EPA and FHWA.

Air pollution costs attributable to motor vehicles were estimated by comparing levels of air pollution when all sources of pollution were present with air pollution when motor vehicle emissions were eliminated. Costs attributable to rural motor vehicle travel were estimated by eliminating all urban motor vehicle travel, and urban costs were estimated by eliminating rural travel. These methods were necessary to eliminate interactions between emissions in rural and urban areas that would make it impossible to estimate whether there are significant differences in costs associated with travel in rural and urban areas.

About two-thirds of motor vehicle-related air pollution costs are attributable to urban travel and one-third to rural travel. As can be seen in Table 9, the sum of these costs for urban and rural travel individually is slightly greater than costs for all motor vehicle travel. This is explained by regional transport of both precursor emissions and air pollutants and the complex chemistry leading to the production of ozone and particulate matter. Figure 6 shows overall average air pollution costs per mile of travel in rural and urban areas. Average costs for rural travel are about 1.5 cents per mile compared to 1.75 cents per mile for urban travel. Average costs for all motor vehicle travel are about 1.5 cents per mile. Costs for all travel are lower than would be expected based on costs for urban and rural travel alone because, as noted above, total costs for all motor vehicle travel are less than the sum of costs of rural and urban travel when those costs are estimated individually.

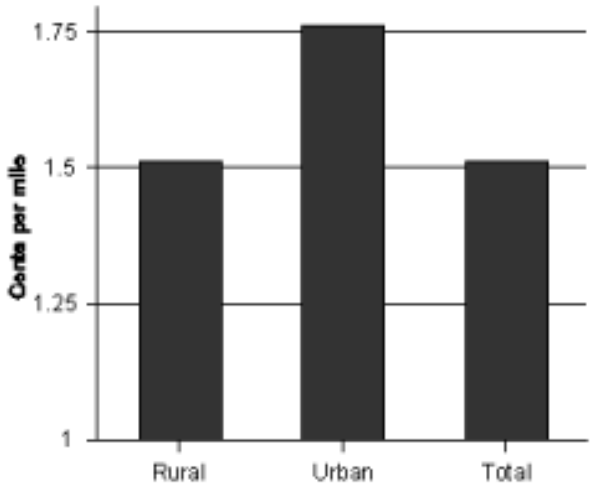


Figure 6. Average Air Pollution Costs per Mile in Rural and Urban Areas

Source: FHWA estimates based on SAI and Abt Associates data.

The average costs shown in Figure 6 mask large differences in highway-related air pollution costs in various parts of the country. They also do not reflect differences in costs associated with travel by different vehicle classes.

While the uncertainty of cost estimates was emphasized in technical reports submitted by consultants for this study, no explicit range of high, medium, and low estimates of motor vehicle-related air pollution costs was developed. A recent study of air pollution costs attributable to motor vehicles by Mark Delucchi and Donald McCubbin estimated that costs range from 0.9 to 14 cents per mile.(4) This is a wide range, but it is consistent with ranges estimated for other social costs of highway use.

A major source of variation in estimates of air pollution costs attributable to motor vehicles is whether or not road dust is included. The EPA does not classify road dust as a pollutant attributable to motor vehicles, but others have included road dust in cost estimates.

Table 10 shows high, medium, and low estimates of the costs of air pollution attributable to motor vehicle use along with the costs of crashes, congestion, and noise that were included in the 1997 HCAS. The mid-range air pollution cost estimate is taken from costs shown in Table 9. The EPA did not develop ranges of motor-vehicle-related air pollution costs; high and low cost estimates shown in Table 10 are taken from McCubbin and Delucchi's estimates of total social costs of motor vehicle use. None of the air pollution cost estimates include costs associated with road dust stirred up by the passage of motor vehicles.

Table 10. 2000 High, Mid-Range, and Low Estimates for Social Costs of Motor Vehicle Use

($ Millions)

	High	Mid-Range	Low
Congestion	$181,635	$61,761	$16,352
Crash Costs	$839,463	$339,886	$120,580
Air Pollution	$349,100	$40,443	$30,300
Noise	$11,446	$4,336	$1,214
Total	$1,533,344	$446,319	$170,246

Crash costs represent the largest social cost of motor vehicle use shown in Table 10 across all cost ranges. The high estimate of air pollution costs ranks second

among high cost estimates, but mid-range estimates of congestion costs are 50 percent higher than corresponding estimates of air pollution costs.

For each of the impact areas shown in Table 10 the mid-range estimate is closer to the low than to the high estimate. This is another reflection of uncertainties surrounding economic costs of highway use. The high cost estimates often include costs which some analysts do not believe should be attributed to highway use, costs that are difficult to quantify, or costs for which only limited evidence exists. Also, the high range costs generally include the highest values that have been estimated for key cost components from among the various studies that have been done whereas mid-range costs typically use values that approximately reflect mean values estimated in other studies. Mid-range cost estimates rely on the soundest evidence available to date for each impact area, but are subject to change over time as new research results become available.

Figure 7 compares highway agency costs with social costs of highway use. Social costs are broken into costs borne by highway users (congestion costs and most crash costs) and costs borne by non-users (air pollution, noise, and a small share of crash costs). While most social costs of highways included in Figure 7 are borne by highway users, the $90 billion borne by society in general is significant.

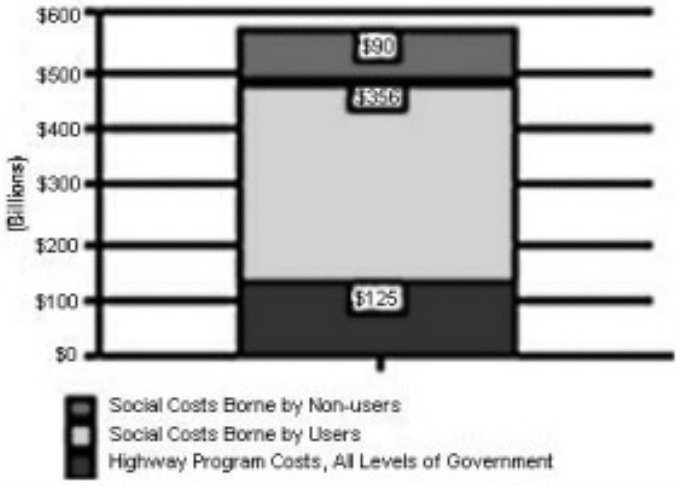


Figure 7. Total 2000 Highway Program Costs and Social Costs Borne by Users and Non-Users

Source: FHWA estimates.

Air Pollution Costs Attributable to Different Vehicle Classes

Table 11 shows percentages of different types of emissions attributable to the vehicle classes included in EPA models. These vehicle classes do not correspond well with vehicle classes used by the Department for highway cost allocation and truck size and weight analyses. In particular, most of the trucks with three or more axles are all grouped in the EPA class of heavy duty diesel vehicles. Thus, it is difficult to directly use the EPA models to estimate air pollution costs attributable to the different highway cost allocation study vehicle classes.

Table 11. Distribution of Various Emissions by Vehicle Class

Percent

	LD Gas Vehicles	LD Gas Trucks 1	LD Gas Trucks 2	HD Gas Vehicles	LD Diesel Vehicles	LD Diesel Trucks	HD Diesel Vehicles	Motorcycles	Total
SOA	51	15	10	5	0	0	17	1	99
SOx	45	15	8	3	0	0	29	0	100
NOx	42	29	0	4	0	0	25	0	100

Table 11. Distribution of Various Emissions by Vehicle Class—Continued

Percent

	LD Gas Vehicles	LD Gas Trucks 1	LD Gas Trucks 2	HD Gas Vehicles	LD Diesel Vehicles	LD Diesel Trucks	HD Diesel Vehicles	Motorcycles	Total
VOC	60	30	0	5	0	0	5	0	100
PM_{10}	26	7	4	3	0	0	59	0	99
PM, coarse	47	12	7	4	0	0	29	0	99
$PM_{2.5}$	19	6	3	3	0	0	68	0	99
Group 1	50	29	0	4	0	0	16	0	99
Group 2	50	28	0	4	0	0	17	0	100
Group 3	50	28	1	4	0	0	17	0	100

LD Gas Vehicle—gas-powered automobile
LD Gas Truck 1—gas-powered trucks weighing 6,000 pounds or less (pickups, vans, etc.)
LD Gas Truck 2—gas powered trucks weighing between 6,001 and 8,500 pounds
HD Gas Vehicles—gas powered trucks and buses weighing more than 8,500 pounds
LD Diesel Vehicle—Diesel-powered automobiles
LD Diesel Trucks—diesel-powered trucks weighing 8,500 pounds or less
HD Diesel Vehicles—diesel-powered vehicles weighing more than 8,500
SOA—secondary organic aerosols
SOx—sulfur dioxide
NOx—nitrogen oxide
VOC—Volatile organic compounds
PM_{10}—directly emitted particulate matter less than 10 microns
PM, coarse—directly emitted particulate matter between 10 and 2.5 microns
$PM_{2.5}$—directly emitted particulate matter less than 2.5 microns
Group 1—VOC and NOx, the primary precursor emissions for ozone
Group 2—Group 1 plus $PM_{2.5}$, SOx, and SOA, precursors for both ozone and PM formation
Group 3—Group 2 plus ammonia, a precursor for both ozone and PM formation

Except for PM_{10} and $PM_{2.5}$, automobiles account for the largest share of various motor vehicle emissions. Because of the complex chemical processes by which emissions are transformed into particulate matter, ozone, and other secondary pollutants, and variations in the transport of pollutants in different regions of the country, relative emissions attributable to different vehicle classes cannot be directly translated into relative air pollution costs without detailed air quality modeling that was beyond the scope of this project. For instance, while heavy trucks account for a large share of particulate emissions, they account for a smaller share of costs because significant portions of particulate matter are formed through chemical reactions involving other compounds emitted predominantly by light trucks and passenger vehicles.

Four vehicle classes are responsible for 99 percent of all emissions: automobiles; pickups, vans, and sport utility vehicles; heavy duty gas vehicles; and heavy duty diesel vehicles. Other vehicle classes have much less VMT, and thus their total emissions are lower, although emissions per mile of travel would be comparable. The emissions modeling approach used in this study did not differentiate emissions more finely than the eight vehicle classes shown in Table 11. While the relative emissions shown in Table 11 do not directly correspond to the relative contribution to pollution and pollution-related costs for different vehicle classes, they do indicate the relative order of magnitude of the contribution by different vehicle classes. Further work is underway to improve estimates of emissions by different vehicle classes under a variety of operating conditions. This work should improve the ability to estimate the relative contribution to air pollution costs by different vehicle classes.

Table 12 uses the percentages from Table 11 to estimate total costs attributable to the four EPA vehicle classes that account for the majority of costs along with the average costs per mile of travel for each vehicle class. Costs are estimated by taking proportions of total precursor emissions for each vehicle class, based upon the Group 3 set of emissions shown in Table 11, and multiplying by total air pollution costs. Costs per mile are estimated by dividing total costs for each vehicle class by the VMT for that class. Passenger vehicles (automobiles, pickups and vans) account for about three-quarters of total estimated costs. Costs per mile for pickups and vans are closer to those of trucks than they are to costs per mile for automobiles because pickups and vans are not subject to the same tailpipe emissions standards as automobiles and because they get poorer fuel economy than automobiles.

Table 12. Air Pollution Costs Attributable to Different Vehicle Classes

Vehicle Class	Total Estimated Cost ($1990 millions)	Cents Per Mile of Travel
Automobiles	$20,343	1.1
Pickups, Vans	$11,324	2.6
Gasoline Vehicles > 8,500 pounds	$1,699	3.0
Diesel Vehicles > 8,500 pounds	$6,794	3.9
Overall	$40,443	1.5

Marginal Costs of Highway Use

Marginal costs of highway use reflect changes in total costs associated with an additional increment of travel. Marginal costs include incremental costs to the highway user (e.g., added vehicle operating cost and travel time), costs to public agencies (added use-related rehabilitation and maintenance costs), and external costs such as air pollution and congestion costs imposed on others. Many marginal costs vary by either location of travel or time-of-day. For instance, incremental pavement deterioration associated with an extra mile of travel by particular vehicle classes depends on the design and condition of the pavement upon which they travel, temperature, and other local characteristics. Congestion costs associated with an additional mile of travel on low-volume rural Interstate highways are negligible, but costs on urban Interstate highways may be high, particularly during peak periods when traffic volumes are greatest.

With the exception of their own travel time, vehicle operating costs, and perhaps risks of having a crash, highway users normally do not consider many of these marginal costs when deciding whether to make a trip. In general, economic efficiency would be enhanced if users had to pay those marginal costs they do not consider in trip-making decisions.

Since many marginal costs vary according to when or where a trip is made, charges based on average costs will not necessarily promote improved economic efficiency. To achieve the greatest degree of efficiency, fees reflecting the marginal costs of trips made in various locations at various times of the day should be charged. Then, only trips whose benefits equal or exceed the full cost of the trip would be made.

Table 13 shows estimates of marginal pavement, congestion, crash, air pollution, and noise costs in 2000 for selected vehicles operating under different conditions. Costs reflect typical or average conditions; in certain locations, costs could be expected to vary from values shown. The relative costs of pavement damage, congestion, crashes, air pollution, and noise for different vehicle classes operating in rural and urban areas are as important as the individual costs themselves.

Table 13. 2000 Pavement, Congestion, Crash, Air Pollution, and Noise Costs for Illustrative Vehicles Under Specific Conditions

Vehicle Class/Highway Class	Cents per Mile					
	Pavement	Congestion	Crash	Air Pollution	Noise	Total
Autos/Rural Interstate	0	0.78	0.98	1.14	0.01	2.91
Autos/Urban Interstate	0.1	7.70	1.19	1.33	0.09	10.41
140 kip 4-axle S.U. Truck/Rural Interstate	1.0	2.45	0.47	3.85	0.09	7.86
40 kip 4-axle S.U. Truck/Urban Interstate	3.1	24.48	0.86	4.49	1.50	34.43
60 kip 4-axle S.U. Truck/Rural Interstate	5.6	3.27	0.47	3.85	0.11	13.3
60 kip 4-axle S.U. Truck/Urban Interstate	18.1	32.64	0.86	4.49	1.68	57.77
60 kip 5-axle Comb/Rural Interstate	3.3	1.88	0.88	3.85	0.17	10.08
60 kip 5-axle Comb/Urban Interstate	10.5	18.39	1.15	4.49	2.75	37.28
80 kip 5-axle Comb/Rural Interstate	12.7	2.23	0.88	3.85	0.19	19.85
80 kip 5-axle Comb/Urban Interstate	40.9	20.06	1.15	4.49	3.04	69.64

NOTE: S.U. = Single Unit, Comb. = Combination; Air pollution costs are averages of costs of travel on all rural and urban highway classes, not just Interstate. Available data do not allow differences in air pollution costs for heavy truck classes to be distinguished.

Pavement costs represent the contribution of a mile of travel by different vehicles to pavement deterioration and the costs of repairing the damage. Congestion costs reflect the value of added travel time due to additional small increments of traffic. Crash costs include medical costs, property damage, lost productivity, pain and suffering, and other costs associated with highway crashes. Air pollution costs are

measured in terms of the cost of premature death, illness, and other effects of various highway-related emissions. Noise costs reflect changes in the value of adjacent properties caused by motor vehicle-related noise.

Marginal air pollution costs are particularly difficult to estimate because they are influenced by other sources of pollution in an area, climatic and atmospheric conditions, the complex chemistry of secondary pollutant formation, and other factors that vary over time and location. Not only do emissions per mile of travel vary depending on local conditions, but more importantly, contributions of those emissions to changes in pollutant concentrations and to health and other air pollution-related costs vary widely.

Marginal air pollution costs were estimated for this study by first estimating differences in air pollution concentrations with and without highway traffic. Costs of the air pollution attributable to motor vehicle use were then estimated based on marginal costs of changes in pollutant concentrations estimated in other recent studies and used by EPA in its study, The Benefits and Costs of the Clean Air Act, 1970—1990. Finally, per-mile costs were estimated by dividing total costs by VMT. While strictly speaking these are average rather than marginal costs with respect to VMT, they are derived from estimates of the marginal costs of changes in air pollution concentrations. Furthermore changes in air pollution concentrations with and without motor vehicle emissions were less than 10 percent at most locations where changes were estimated. Since resource constraints did not allow direct estimation of marginal air pollution costs of motor vehicle use, the average cost estimates are used to approximate marginal costs.

Separate estimates were made of costs of rural and urban travel but those estimates do not show the large variations that occur in specific rural or urban locations. No separate estimates were made for travel on different highway functional classes. Costs for different vehicle classes are estimated simply on the basis of relative emissions. Considerable work remains to improve estimates of marginal air pollution costs by different vehicle classes.

While marginal pavement, safety, congestion, and noise costs more closely represent true marginal costs than do marginal air pollution costs, they all represent average or typical marginal costs estimated for a broad cross section of Interstate highways. Costs at specific locations could vary considerably from costs shown, especially for noise costs which, like air pollution costs, are subject to many external factors.

Variations in marginal costs among vehicles and locations are not uniform; they are highly dependent on the type of cost being considered. Pavement, congestion, air pollution, and noise costs are higher in urban areas than rural areas, but marginal crash costs are higher in rural areas, reflecting the higher fatality rates for travel in rural areas. Cost differences among vehicle classes also vary widely. The 80,000 pound 5-axle combination truck operating in urban areas, has marginal costs many times greater than those of autos operating in rural areas, but marginal costs for 60,000 pound combination trucks operating in rural areas are less than marginal costs of automobiles operating on congested urban Interstate highways.

Figure 8 shows high and low ranges of air pollution, noise, congestion, and crash cost estimates along with best estimates (middle range) of those costs based upon the best research in each area. The large uncertainty surrounding these estimates suggests that caution should be exercised in making decisions that could significantly influence either user costs or highway investment based upon these social costs.

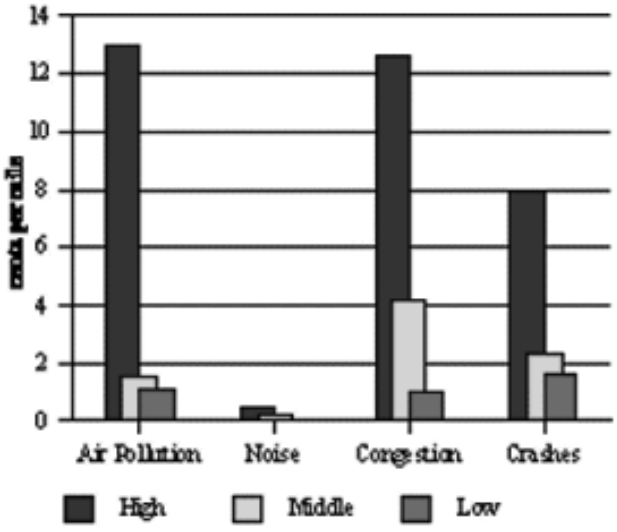


Figure 8. 2000 Estimated Ranges of Marginal Costs of Highway Travel

Highway marginal costs cannot directly be separated into Federal and non-Federal costs. Costs result from travel on all highways and to one extent or another affect all segments of society and all geographic areas. All units of government working together have joint responsibilities to take appropriate steps to reduce these costs. These steps may include mitigating costs through regulatory means, making investment decisions that contribute toward reducing highway marginal costs, or using pricing mechanisms to more nearly reflect marginal costs in the prices that motorists pay for highway transportation.

While highway marginal costs cannot be assigned to one level of government or another, there is an interest in how close current Federal user fees are to efficient fees. To compare cost allocations based on efficiency criteria with Federal user fee payments by different vehicles, marginal costs must be distributed among different levels of government. The 1982 Federal HCAS distributed marginal costs in proportion to the shares of total highway user revenues produced at each level of government on the grounds that this would leave the relative roles of each level of government for financing and charging for highways unchanged. The same approach is used in this study.

Table 14 compares the estimated Federal shares of marginal costs from Table 13 to Federal highway cost responsibility estimated in the equity analysis and to Federal user fees paid by different vehicle classes. Comparing Federal user fees with the Federal share of marginal costs reflects the efficiency of the user fee structure while comparing user fees to program cost responsibility is a measure of equity. Marginal costs and program costs are estimated by different methods for completely different purposes and cannot be added together.

Table 14. 2000 Comparison of Assumed Federal Share of Marginal Highway Costs to Federal Agency Costs and Federal User Fees

(cents per mile)

Vehicle Class/Highway Class	Marginal Costs	Federal Program Costs	Federal User Fees
Autos/Rural Interstate	0.9	0.4	0.8
Autos/Urban Interstate	3.1	1.8	0.8
40 kip 4-axle S.U. Truck/Rural Interstate	2.4	2.1	12.4
40 kip 4-axle S.U. Truck/Urban Interstate	10.3	4.6	12.4
60 kip 4-axle S.U. Truck/Rural Interstate	4.0	8.6	14.0
60 kip 4-axle S.U. Truck/Urban Interstate	17.3	15.3	14.0

Table 14. 2000 Comparison of Assumed Federal Share of Marginal Highway Costs to Federal Agency Costs and Federal User Fees—Continued

(cents per mile)

Vehicle Class/Highway Class	Marginal Costs	Federal Program Costs	Federal User Fees
60 kip 5-axle Comb*/Rural Interstate	3.0	3.3	6.9
60 kip 5-axle Comb*/Urban Interstate	11.2	8.1	6.9
80 kip 5-axle Comb*/Rural Interstate	5.9	9.5	7.4
80 kip 5-axle Comb*/Urban Interstate	20.9	21.2	7.4

Federal program costs are greater than the estimated Federal share of marginal costs for rural travel by heavy single unit trucks and combinations, but less than marginal costs for automobiles and light single unit trucks. Marginal costs of congestion, noise, and safety are relatively low in rural areas, and overall agency cost responsibility in rural areas exceeds marginal costs for all but the lightest vehicle classes. In urban areas the opposite is true. Not only are costs of congestion, air pollution, and noise higher in urban than rural areas, but marginal pavement costs also are higher, reflecting among other things the higher construction costs in urban areas and the delay incurred by users when pavements are being rehabilitated. Federal user fees per mile of travel exceed marginal costs of rural travel for all vehicle classes except automobiles. Marginal costs of urban travel exceed Federal user fees per mile for all vehicle classes except the light single unit truck.

There currently are no Federal, State, or local user fees imposed that directly reflect congestion, air pollution, noise, or other external costs of highway use. There is interest, however, among some State and local agencies in exploring the feasibility of variable or time-of-day pricing to help manage highway travel in certain corridors. For instance on State Route 91 in California, four additional lanes were constructed with private funds on which tolls are charged that vary by time of day. A project is underway in San Diego under the Value Pricing Pilot Program that has tolls which vary according to the level of congestion.

Fees on "gross emitters," the most polluting of vehicles that are responsible for large percentages of total pollutants, have been suggested as a way to charge the worst polluters for air pollution costs they impose, and general increases in fuel taxes have also been suggested to address air pollution costs. A gross emitter tax could directly reflect air pollution costs, but questions of equity and other implementation issues have prevented such a tax from being implemented to date. General fuel tax increases implemented at the local level would not be as sensitive to factors affecting air pollution as the gross emitter tax, but could reflect regional differences in air pollution costs.

While there are opportunities at the local level to develop user fees that could reflect congestion, air pollution, and other external costs, implementing charges that could reflect the locational and temporal variability or most such costs would be difficult.

Summary and Conclusions

Since the 1997 HCAS was completed, several changes affecting conclusions about the equity and economic efficiency of Federal highway user fees have occurred. First and most importantly, proceeds of 4.3 cents per gallon of Federal fuel taxes have been shifted from the General Fund where they were dedicated to deficit reduction to the Highway Trust Fund where they may be used for highway-related purposes under the new TEA–21 legislation. Second, TEA–21 significantly increased total authorizations for highway, transit and related purposes and shifted the distribution of funding among different program areas. Third, additional information has been developed concerning air pollution-related costs of highway use which fills a large gap in estimates of social and marginal costs of highway travel.

From an equity perspective, the most significant change is an increased spread in ratios of user fee payments to highway cost responsibility between lighter vehicles and heavier vehicles. Table 7 showed that equity ratios for the heaviest single unit trucks and all the weight groups of combination trucks went down. Now only the very lightest combination trucks pay their share of Federal highway cost responsibility. The most common combination vehicles, those registered at weights between 75,000 and 80,000 pounds, now pay only 80 percent of their share of Federal highway costs and combinations registered between 80,000 and 100,000 pounds pay only half their share of Federal highway costs. Any future increase in Federal fuel

taxes without corresponding increases in taxes on the heaviest trucks will further exacerbate the underpayment of Federal user fees by heavy trucks.

Changes in program composition and funding levels between ISTEA and TEA–21 did not have a large effect on the relative cost responsibility of different vehicle classes. Much larger changes in relative program funding levels would be required to substantially affect cost responsibility, and the flexibility for States to shift funds from one program to another would temper even large changes in program composition.

Economic costs of motor vehicle-related air pollution remain large, even though substantial progress has been made in abating emissions through a variety of initiatives. While average air pollution costs per mile of travel in rural areas are not much lower than average costs of urban travel—1.5 cents per mile in rural areas compared to 1.75 cents per mile in urban areas—care must be exercised in interpreting these results because they mask real differences in air pollution-related costs of motor vehicle use in different areas. Air pollution costs of travel in very rural areas away from population centers would be lower than the average rural costs shown in this report, and likewise, costs of travel in urban areas with the highest ambient air pollution levels would be higher than average costs of urban travel shown in this report. Air pollution is one of the most difficult social costs of highway use to evaluate from a policy perspective because effects vary geographically and spill over to other areas in ways that vary from region to region. More research will be needed to further refine estimates of marginal air pollution costs in various locations.

The Department plans to update the 1997 HCAS before the next surface transportation reauthorization. Potential options to improve overall user fee equity will be examined in greater depth in that study and additional research to improve estimates of air pollution and other social costs of highway travel will be conducted.

Footnotes

1. McCubbin, Donald and Delucchi, Mark, "The Annualized Social Cost of Motor-Vehicle Use in the U.S., 1990–91: Summary of Theory, Data, Methods, and Results." Institute of Transportation Studies, University of California, Davis. UCD-ITS-RR–96–3 (1), 1998, p.55.

2. Douglas, Sharon G., et. al., Air-Pollution-Related Social Costs of On-Highway Motor Vehicles, Part 1: Air Quality Modeling, Systems Applications International, June 1998.

3. Abt Associates, Air-Pollution-Related Social Costs of On-Highway Motor Vehicles, Part 2: Physical and Economic Valuation Modeling, June 1998.

4. McCubbin and Delucchi, 1997.

ATTACHMENT 2: EMISSIONS EFFECTS OF ATLANTA SPEED STUDY

MEMORANDUM

To: Southern Environmental Law Center
From: Brian Grady and Norm Marshall
Subject: Atlanta Non-Attainment Area Speed Study
Date: 20 July 2001

Introduction

In February 2000, we were retained by the Southern Environmental Law Center (SELC) to review the 2001–2003 Transportation Improvement Program (TIP), the 2025 Regional Transportation Plan (RTP), and the Conformity Determination Report (CDR) prepared by the Atlanta Regional Commission (ARC). In our initial critique, we demonstrated that observed freeway speeds were much higher than the speeds in the ARC travel demand model using data from the Georgia Navigator Intelligent Transportation System (ITS). Furthermore, we demonstrated that the major discrepancy between observed and modeled freeway speeds resulted in a significant underestimation of mobile source nitrogen oxide (NOx) emissions.

In October 2000, the Georgia Regional Transportation Authority (GRTA) commissioned a speed study to examine and update the parameters used in developing peak and off-peak speeds in the ARC regional travel demand model. The final draft of the study conducted by Wilbur Smith Associates (WSA) was released in January 2001. The findings of the Atlanta Non-Attainment Area Speed Study substantiate and validate our earlier findings and conclusions. Specifically, that observed freeway speeds in the Atlanta non-attainment area are higher than the freeway speeds modeled in the ARC travel demand model, and produce much higher NOx emissions

than calculated in the conformity process. After correcting for this error, the NOx emissions exceed the allowable amount by a wide margin.

Speed Study Findings

The Final Draft of the Atlanta Non-Attainment Area Speed Study was prepared by Wilbur Smith Associates on behalf of the Georgia Regional Transportation Authority. After analyzing the speed data collected for the region's freeways, three trends were evident when comparing the observed speeds against the modeled ARC speeds. These findings are presented on page 35 of the speed study.

(With exception of the central business district (CBD) area, off peak observed weighted speeds are higher than the peak speeds and fairly constant across area types at close to 60 miles per hour (MPH).

(The observed peak-period speeds vary considerably without a discernable pattern: from 31.9 MPH during the AM peak to 57.7 MPH during the PM peak in the CBD area and from 36.7 MPH in the Suburban area during the PM peak to 57.0 MPH in the Exurban/Rural area during the PM peak.

(Observed speeds are consistently higher than modeled speeds (9 out of 12 averages are higher) and in some cases the difference is relatively large (5 averages are more than 10 MPH higher).

Table 10.2.1 on page 35 of the speed study contains the observed weighted average speeds and weighted ARC modeled speeds for freeways. The same data is presented here in Table 1.

Table 1: Observed Weighted Average Freeway Speeds

Area Type	Period	Observed Weighted Avg. Speed (MPH)	Weighted ARC Modeled Speed (MPH)
CBD	AM Peak	31.9	21.1
	Off Peak	40.0	22.8
	PM Peak	57.7	20.7
Urban	AM Peak	40.1	41.3
	Off Peak	59.8	50.2
	PM Peak	50.4	43.9
Suburban	AM Peak	54.4	47.2
	Off Peak	59.9	43.9
	PM Peak	36.7	37.7
Exurban/Rural	AM Peak	40.9	53.5
	Off Peak	58.8	45.1
	PM Peak	57.0	51.9

The authors of the speed study concluded the following about the Volume Delay Functions (VDF) and resulting model freeway speeds used in the ARC regional travel demand model:

In conclusion, it appears that the existing shape of the existing ARC regional travel demand model VDF freeway curves is not supported by the observed speed data and additional samples are required at higher V/C ratios to better estimate the shape at the higher V/C ratios. Further with many observed speeds generally higher than what the VDF curve would estimate, it is likely that the overall freeway average speed is underestimated.

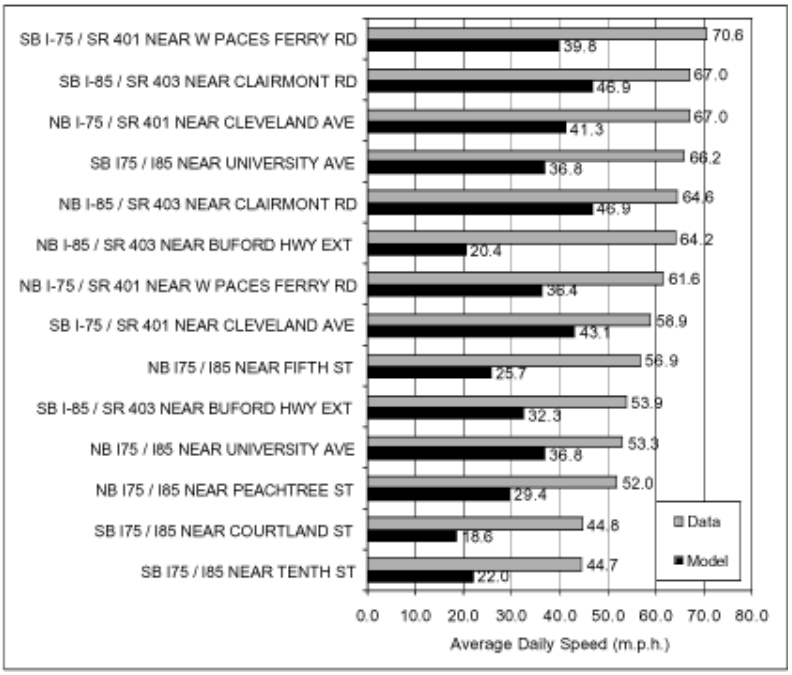
We are in complete agreement with this conclusion, as we drew the same conclusion about the ARC model freeway speeds after examining data collected by the Georgia Navigator ITS. Prior to the speed study, the most comprehensive speed data available in the region were those collected by the Georgia Navigator ITS. In particular, there are 14 Autoscope stations located on I–75 and I–85 that are judged by the Georgia Department of Transportation (GDOT) to be the most accurate in the system. These installations include advanced video equipment that measure speed within each travel lane continuously.

Data for 1 weekday per month were obtained from GDOT for the previous 13 months (January 1999—January 2000), with data summarized for each of 24 hours by each lane. Average daily speeds were calculated from these summaries.1 Figure 1 on the next page shows these speeds by location compared to final adjusted travel speeds for the 2000 ARC model.

The ARC dismissed our initial comments regarding the discrepancy between observed and modeled freeway speeds. ARC claimed we had relied on data from a sample that was not only small but also inaccurate. However, the data from the Georgia Navigator ITS and the findings in the speed study, which collected speed data for hundreds of roadway segments, tell the same story. The VDF freeway

curves used in the ARC model yield speeds that are much lower than observed speeds.

Figure 1: ARC Model Speeds Compared with Georgia Navigator ITS Speed Data



Impact on Mobile Source Emissions

As a short-term improvement, the study recommends the development of a post-processor to predict speeds based on data in the study for use in the State Implementation Plan and Conformity Determination. This post-processor would estimate speeds based on enhanced VDF curves and volume output from the ARC regional travel demand model. The authors of the study recognize the importance of post-processing the ARC model speeds because the MOBILE5b emission factor model is extremely sensitive to speed inputs.

Despite recognizing the problem with ARC modeled freeway speeds, enhanced VDF curves were not generated by WSA to facilitate development of a post-processor. Citing insufficient data, new enhanced VDF curves were not developed. The speed study identifies a problem, but does not provide any practical means of fixing it. The study is therefore incomplete. This is particularly disturbing because the development of new VDF curves was an explicit part of GRTA's speed study project when the Request For Qualifications (RFQ) was issued.

The discrepancy between observed and modeled freeway speeds has a significant impact on mobile source nitrogen oxide emissions. This fact may partially explain why the authors don't suggest implementing many of the recommended improvements until 2006 and beyond. To quantify the emission impacts from underestimation of freeway speeds, we have calculated 2003 nitrogen oxide emissions from freeways using both sets of speeds presented in Table 1 of this memorandum (Table 10.2.1 in the speed study). Table 2 contains NOx emissions from freeways using the observed weighted average speeds by time period and area type. Table 3 contains NOx emissions from freeways using the weighted ARC modeled speeds by time period and area type.

Table 2: NOx Emissions From Freeways Using Observed Weighted Average Speeds

Area	Time Period	2003 ARC Vehicle Miles	Observed Weighted Avg. Speed (MPH)	2003 MOBILE5b Emission Factor (grams/mile)	Total Emissions (grams)
CBD	AM	230,407	31.9	1.595	367,498
	Off	245,594	40.0	1.631	400,564
	PM	782,192	57.7	2.236	1,748,982
Urban	AM	1,639,888	40.1	1.631	2,674,657
	Off	1,851,089	59.8	2.363	4,374,122
	PM	5,105,091	50.4	1.815	9,265,740
Suburban	AM	4,223,728	54.4	2.011	8,493,916
	Off	4,813,253	59.9	2.363	11,373,717
	PM	12,970,190	36.7	1.611	20,894,976
Exurban/rural	AM	3,436,841	40.9	1.639	5,632,983
	Off	3,946,154	58.8	2.299	9,072,207
	PM	10,424,177	57.0	2.177	22,693,433
Total Daily Emissions (tons/day)					106.9

Table 3: NOx Emissions From Freeways Using Weighted ARC Modeled Speeds

Area	Time Period	2003 ARC Vehicle Miles	Weighted ARC Modeled Speed (MPH)	2003 MOBILE5b Emission Factor (grams/mile)	Total Emissions (grams)
CBD	AM	230,407	21.1	1.630	375,563
	Off	245,594	22.8	1.616	396,880
	PM	782,192	20.7	1.630	1,274,973
Urban	AM	1,639,888	41.3	1.639	2,687,776
	Off	1,851,089	50.2	1.815	3,359,726
	PM	5,105,091	43.9	1.670	8,525,502
Suburban	AM	4,223,728	47.2	1.710	7,222,574
	Off	4,813,253	43.9	1.670	8,038,132
	PM	12,970,190	37.7	1.616	20,959,827
Exurban/rural	AM	3,436,841	53.5	2.011	6,911,487
	Off	3,946,154	45.1	1.682	6,637,430
	PM	10,424,177	51.9	1.909	19,899,754
Total Daily Emissions (tons/day)					95.1

Total daily NOx emissions from freeways are estimated as 106.9 tons/day when observed weighted average freeway speeds from the speed study are used in the emissions calculation. Total daily NOx emissions from freeways are only estimated as 95.1 tons/day when weighted ARC modeled freeway speeds are used in the emissions calculation. Therefore, by using incorrect freeway speeds which are less than actual observed speeds in the emissions analysis, NOx emissions are underestimated by 11.8 tons/day. This represents 11 percent of the total freeway emissions.

The speed study also presented speed data for Class I, Class II and Class III Arterials as well as Class I Collectors. Observed weighted average and weighted ARC modeled speeds by time period and area type for these facilities were also tabulated. We conducted an emissions analysis for each of these facilities using the observed and modeled speeds as was done previously for freeways. Table 4 contains the results of this emissions analysis. Despite some inconsistencies between observed and modeled speeds on these facilities, the impact on emissions is slight given the nature of the NOx emission curve. The NOx curve is relatively flat between 20 and 40 MPH, so speed variations in this speed range do not produce drastic changes in total emissions.

Table 4: NOx Emissions Analysis for Class I,II, III Arterials and Class I Collectors

Facility Type	Daily NOx Emissions Using Observed Weighted Average Speeds (tons/day)	Daily NOx Emissions Using Weighted ARC Modeled Speeds (tons/day)	Difference [Observed—Modeled] (tons/day)
Class I Arterials	21.32	21.82	–0.51
Class II Arterials	20.44	20.51	–0.07
Class III Arterials	29.45	29.43	0.02
Class I Collectors	26.92	27.74	–0.83

Impact on Conformity Determintation

The ARC does not satisfy the 2003 SIP NOx budget when the correct freeway speeds are used in the emissions analysis. The year 2003 SIP budget without off-model adjustments is 245.88 tons/day. In the CDR, the ARC estimated 2003 NOx emissions are reported as 241.60 tons/day. However, we have shown that emissions are underestimated by 11.8 tons/day because incorrect ARC model freeway speeds were used in the emissions analysis. The 2003 SIP budget is exceeded when this underestimation is considered. The conformity data is presented in Table 5 below.

Table 5: ARC 2003 NOx Emissions

Year	SIP Budget (tons/day)	ARC Projection (tons/day)	New Projection [ARC + 11.80] (tons/day)	New Projection < Budget
2003	245.88	241.60	253.40	No

The 2003 NOx emissions projection increases to 253.40 tons/day when the correct observed freeway speeds are used in the emissions analysis. This emission rate exceeds the 2003 NOx emissions budget established in the SIP by 7.52 tons/day.

Conclusion

In February 2000, we were retained by the Southern Environmental Law Center (SELC) to review the 2001–2003 Transportation Improvement Program (TIP), the 2025 Regional Transportation Plan (RTP), and the Conformity Determination Report (CDR) prepared by the Atlanta Regional Commission (ARC). In our initial critique, we demonstrated that observed freeway speeds were much higher than the speeds in the ARC travel demand model using data from the Georgia Navigator Intelligent Transportation System (ITS). Furthermore, we demonstrated that the major discrepancy between observed and modeled freeway speeds resulted in a significant underestimation of mobile source nitrogen oxide emissions.

In October 2000, the Georgia Regional Transportation Authority (GRTA) commissioned a speed study to examine and update the parameters used in developing peak and off-peak speeds in the ARC regional travel demand model. The final draft of the study conducted by Wilbur Smith Associates (WSA) was released in January 2001. The findings of the Atlanta Non-Attainment Area Speed Study substantiate and validate our earlier findings and conclusions. Specifically, that observed freeway speeds in the Atlanta non-attainment area are higher than the freeway speeds modeled in the ARC travel demand model.

When the correct observed freeway speeds are used in the emissions analysis, 2003 NOx freeway emissions increase by 11.8 tons/day. This increase is significant because the 2003 SIP budget is exceeded when the additional freeway emissions are included in the emission projections. 2003 NOx emission projections increase to 253.40 tons/day, which exceeds the 245.88 tons/day budget established in the SIP. Accounting for the underestimation resulting from the use of incorrect freeway speeds, the ARC conformity determination is invalid.

Attachment 3: Relative Access to Jobs Declines Under Atlanta Transportation Improvement Program (TIP) Especially for People Without Cars

Percent walkable employment within 40 minutes—walk to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	22.6	20.66	22.07	22.55	23.07	22.37	
l1120.97							
$20–40,000	15.03	13.54	13.15	14.08	14.71	15.86	15.9
$40–60,000	11.1	10.48	10.31	10.63	11.61	12.53	12.46
Over $60,000	10.04	9.87	9.79	9.76	11.27	11.79	11.17
All Incomes	15.28	14.18	13.93	14.46	15.37	16.2	15.88

Percent walkable employment within 40 minutes—drive to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	11.85	11.59	11.44	12.83	12.63	12.26	12.13
$20–40,000	10.26	9.84	9.59	10.53	10.61	10.43	10.42
$40–60,000	7.96	7.57	7.39	8.04	7.98	7.88	7.75
Over $60,000	9.54	9.42	9.26	10.83	10.55	10.79	10.55
All Incomes	9.87	9.57	9.37	10.5	10.4	10.28	10.17

Percent walkable employment within 50 minutes—walk to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	33.78	31.72	31.17	32.88	34.39	35.11	34.82
$20–40,000	24.2	21.64	20.96	22.3	23.53	25.39	25.92
$40–60,000	18.6	17.09	16.74	16.97	18.65	20.29	20.4
Over $60,000	16.75	16.34	16.19	15.84	18.19	19.19	18.99
All Incomes	24.3	22.35	21.91	22.47	24.4	25.57	25.71

Percent walkable employment within 50 minutes—drive to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	19.53	19.07	18.58	22.04	22.08	21.9	21.73
$20–40,000	17.98	17.39	16.78	19.49	19.89	19.91	19.86
$40–60,000	14.65	13.97	13.53	15.62	15.83	15.83	15.52
Over $60,000	16.98	16.75	16.46	19.35	19.67	20.39	20.07
All Incomes	17.27	16.78	18.24	19.08	19.33	19.45	19.24

Percent walkable employment within 60 minutes—walk to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	45.88	41.56	42.08	43.89	46.12	48.11	47.57
$20–40,000	35.09	30.35	30.48	31.97	33.74	37.04	37.61
$40–60,000	27.98	24.61	24.87	24.9	27.42	30.44	31.07
Over $60,000	24.97	23.57	24.02	23.21	26.79	29.02	29.11
All Incomes	34.66	30.8	31.16	31.59	34.15	36.86	37.05

Percent walkable employment within 60 minutes—drive to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	27.15	26.83	26.69	31.62	31.82	31.84	31.99
$20–40,000	25.84	25.34	25.02	29.57	30	30.35	30.55
$40–60,000	21.86	21.23	21.08	25.3	25.38	25.5	25.28
Over $60,000	25.15	24.99	25.05	30.04	31.02	32	31.9
All Incomes	24.99	24.58	24.42	29.09	29.5	29.86	29.88

Percent walkable employment within 75 minutes—walk to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	62.17	57.86	57.72	59.17	62.22	65.12	64.93
$20–40,000	51.38	46.48	46.21	47.39	50.35	54.97	55.75
$40–60,000	43.08	39.33	39.45	38.77	43.03	47.88	48.6
Over $60,000	38.85	37.97	38.35	36.29	42.12	46.48	46.99
All Incomes	50.18	46.31	46.32	46.1	50.12	54.34	54.81

Percent walkable employment within 75 minutes—drive to transit

Year	2000	2003	2005	2010	2015	2020	2025
Household Income							
Under $20,000	38.46	39.86	40.21	46.34	46.74	47.92	48.87
$20–40,000	37.58	39.22	39.32	45.83	46.2	47.53	48.46
$40–60,000	32.88	35	35.44	42.34	42	42.94	43.24
Over $60,000	36.72	39.61	40.48	47.59	48.75	51.04	51.77
All Incomes	36.42	38.42	38.83	45.48	45.87	47.29	48.02

ATTACHMENT 4: INDUCED DEMAND AND REGIONAL TRANSPORTATION MODELS:

SUMMARY OF RECENT STUDIES AND APPLICATION TO EVALUATE A REGIONAL TRANSPORTATION PLANNING MODEL

(By Norm Marshall, Smart Mobility, Inc.)

PREPARED FOR ENVIRONMENTAL DEFENSE

JULY 2002

Transportation investments and policies have many impacts and these are often examined using regional transportation planning models. Among the key impacts is induced traffic, which can have a profound impact on air pollution, congestion, and transportation system performance. This paper summarizes recent studies of induced traffic and shows how induced traffic can be measured in a regional travel models to evaluate their adequacy to evaluate the likely future performance of regional transportation systems under different investment and policy scenarios.

DeCorla-Souza and Cohen define "induced demand" as an: "increase in daily vehicle miles of travel (VMT), with reference to a specific geographic context, resulting from expansion of highway capacity." This definition includes both short-term effects and long-term effects. The short-term effects include more trips, longer trips, more auto trips, and auto trips with lower occupancies. The long-term effects follow land use changes caused by expanded roadway capacity.

Over the past several years, a series of national studies have been published quantifying the induced travel effect. The measure used in most studies is elasticity, a basic concept of economics. When the supply of a good or service increases, its price drops. When the price drops, consumption of the product increases. For the majority of Americans, the incremental cost of operating cars is low enough that the

perceived cost is primarily travel time. An increase in lane miles of road capacity (supply) causes a near-term decrease in travel time (price), which in turn leads to an increase in vehicle miles traveled (consumption).

Elasticity is calculated as the ratio of the change in consumption divided by the change in supply. For example, if a 10 percent increase in vehicle miles traveled is caused by a 10 percent increase in lane miles, the elasticity is:

10 percent / 10 percent = 1.0.

Alternatively, if a 5 percent increase in vehicle miles traveled is caused by a 10 percent increase in lane miles, the elasticity is:

5 percent / 10 percent = 0.5.

Research findings from five studies presented at recent Transportation Research Board Annual Meetings are directly comparable and are summarized in Table 7.

Table 7: Long-Term Regional Elasticity of Vehicle Miles Traveled to Lane Miles

Study	Long-term regional elasticity
Hansen [1] [2]	0.9
Noland [3]	0.7—1.0
Fulton et. al.[4]	0.5—0.8
Noland and Cowart[5]	0.904
Marshall[6]	0.76 arterials, 0.85 highways
Average of five studies (highways)	0.83

[1] Hansen, M. The Traffic Inducement Effect: Its Meaning and Measurement. In Transportation Research Circular Number 481 (Summary of Panel Session at 1997 Annual Meeting of the Transportation Research Board: Highway Capacity Expansion and Induced Travel—Evidence and Implications. TRB, National Research Council, Washington D.C., February 1998, pp. 7–15.

[2] Hansen, M. and Y. Huang. Road Supply in California. Transportation Research A, Vol. 31, No. 3, 1997, pp. 205–218.

[3] Noland, R. Relationships Between Highway Capacity and Induced Vehicle Travel. TRB 78th Annual Meeting Preprint CD-ROM, TRB, National Research Council, Washington D.C., January 1999.

[4] Fulton, Lewis M., Daniel J. Meszler, Robert B. Noland, and John V. Thomas. Statistical Analysis of Induced Travel Effects in the U.S. Mid-Atlantic Region. TRB 79th Annual Meeting Preprint CD-ROM, TRB, National Research Council, Washington D.C., January 2000.

[5] Noland, Robert B. William A. Cowart. Analysis of Metropolitan Highway Capacity and the Growth in Vehicle Miles of Travel. RB 79th Annual Meeting Preprint CD-ROM, TRB, National Research Council, Washington D.C., January 2000.

[6] Marshall, Norman L. Evidence of Induced Demand in the Texas Transportation Institute's Urban Roadway Congestion Study Data Set. TRB 79th Annual Meeting Preprint CD-ROM, TRB, National Research Council, Washington D.C., January 2000.

Analysis of Regional Travel Model Sensitivity to Induced Traffic

To illustrate how regional travel model performance in measuring induced traffic can be evaluated, we examine the model used in 2001 by the Baltimore Metropolitan Council and compare it to a similar regional sketch model developed in early 2002 for the Vision 2030 initiative in Baltimore.

To determine the sensitivity of the BMC model to induced travel demand effects, two separate model runs were performed using the BMC regional travel demand model. First, the model was run using the BMC 2025 land use scenario and the 1996 highway network. The model was then run again using the BMC 2025 land use scenario with the 2025 highway network. By using the same land use inputs, we can determine the effect of the transportation capacity improvements in the 2025 highway network. Table 8 contains the results of the two BMC model runs.

To determine the sensitivity of the sketch model to induced demand effects, two separate model runs were again performed this time using the sketch travel demand model. First, the model was run using the 2030 land use inputs developed for the Vision 2030 Highway scenario and the 1996 highway network. The model was then run again using the 2030 Highway land use scenario with the 2025 highway network. Table 9 contains the results of the two sketch model runs.

Table 8: Induced Demand Sensitivity of the BMC Model

	Vehicle Miles of Travel (VMT)	Lane Miles (LM)
2025 BMC land use with 1996 network	19,323,453	8,514
2025 BMC land use with 2025 network	19,469,459	9,283
percent Change	0.76 percent	9.03 percent
percent Change VMT / percent Change LM	0.08	

Table 9: Induced Demand Sensitivity of the Sketch Model

	Vehicle Miles of Travel (VMT)	Lane Miles (LM)
2030 Highway Scenario land use with 1996 network	18,757,041	8,514
2030 Highway Scenario land use with 2025 network	19,306,043	9,283
percent Change	2.93 percent	9.03 percent
percent Change VMT / percent Change LM	0.32	

The elasticity of vehicle miles of travel with respect to lane miles for the BMC model is only 0.08. The elasticity of vehicle miles of travel with respect to lane miles for the improved sketch model is 0.32. Although the sketch model does not capture induced demand to the same degree as the published research, the sketch model gives a much more realistic induced travel demand response than does the BMC travel demand model.

This is important that induced demand is properly accounted within the Vision 2030 process, so that the benefits of new roadways are not overestimated. This is also critical in roadway planning, and in estimating air emissions.

For further information, see, Smart Mobility, Inc., Baltimore Vision 2030: Sketch Travel Demand Model Adapted from the Baltimore Metropolitan Council Regional Travel Model, Baltimore Regional Partnership, Baltimore, Maryland, April 2002.

ATTACHMENT 5: PRELIMINARY TOXICOLOGICAL REVIEW OF ROADWAY TRAFFIC POLLUTION

PREPARED FOR: JOANNE SPALDING, STAFF ATTORNEY, SIERRA CLUB

(Prepared By: Environmental Health & Engineering, Inc.)

May 11, 2001

1.0 EXECUTIVE SUMMARY

Roadway traffic generates a complex mixture of particles and gases. In particular, diesel exhaust continues to be a major focus of research and public health concern, both in the United States and internationally, due to the large amounts of ultrafine particulate matter and known carcinogens such as benzene, formaldehyde, 1,3 butadiene and polycyclic aromatic hydrocarbons including benzo(a)pyrene that are released. The constituents of roadway traffic emissions, either singularly or in combination, have demonstrated toxicological properties that are either known to cause or are suspected of causing a variety of health effects in individuals that are exposed to them.

From an acute exposure standpoint, diesel exhaust is a strong irritant and may cause a variety of inflammation related symptoms including respiratory irritation, asthma-like reactions, eye irritation, headaches and nausea. The primary chronic health concerns include nonmalignant respiratory and cardiovascular disease, exacerbation or initiation of allergic hypersensitivity and lung cancer.

An ever-growing body of research reported in the literature demonstrates excessive morbidity and mortality in populations that are in close proximity to heavily trafficked roadways. Our understanding of the magnitude of these adverse health impacts has increased as improved scientific methods for spatial and temporal resolution have refined the exposure estimates for roadway traffic emissions for nearby residents.

Analysis of published data for traffic emission factors and the resulting exposure estimates demonstrates that uncontrolled expansion of roadways will significantly increase exposures to both fine particulate matter and air toxins by the population in the contiguous residential corridor. This is significant because several epidemiological studies have shown that levels of fine particulate matter typically found adjacent to heavily trafficked roadways are comparable to levels that can exacerbate both acute and chronic respiratory disease symptoms and cause premature death among sensitive populations. This finding applies to short-term exposures of a few hours to one or several days. With regard to air toxins, exposures experienced by roadway corridor residents are likely to equal and probably exceed the air toxins levels measured at monitoring sites located near heavily traveled highways and reported in the Multiple Air Toxics Emissions Study II Study. Risk estimates based on the levels reported in the Multiple Air Toxics Emissions Study II resulted in an unacceptably high cancer risk of approximately 1 in 1,000 to 1 in 650 that was attributed to diesel exhaust and other motor vehicle emissions. The relative impact

on other roadway corridor populations could be commensurate with the increased exposures to motor vehicle pollution that would result from their proximity to the large numbers of additional vehicles traveling the expanded highway.

Many current environmental assessments have not properly accounted for the differential impact that could be imposed on the nearby the population adjacent to expanded highways. This analysis of available data demonstrates that a detailed program of pollutant monitoring and modeling that are specific for the planned expansion should be undertaken to properly quantify the potential adverse health impacts associated with projects of this type.

2.0 INTRODUCTION

Roadway traffic generates a complex mixture of particles and gases. The constituents, either singly or in combination, have demonstrated toxicological properties. Some compounds are known to cause a variety of health effects and others are suspected of causing a variety of health effects in individuals exposed to them. Table 2.1 presents a list of compounds commonly released from motor vehicles and their primary expected adverse health effects. Many of these compounds are related to diesel exhaust while others are also associated with gasoline powered vehicles.

Table 2.1 Selected Components of Diesel Exhaust and Potential Health Impacts

Compound	CAS Number	Carcinogen	Cancer Unit Risk Factor (per 1 μg/m³)	Respiratory Effects	Neurological Effects	Sensitizing Agent
Acetaldehyde	75–07–0	Yes	2.2E–06	Yes	No	No
Acrolein	107–02–8	No	NA	Yes	No	No
Anthracene	120–12–7	No	NA	Yes	Yes	Yes
Benzaldehyde	100–52–7	No	NA	Yes	Yes	Yes
Benzene	71–43–2	Yes	2.2 to 7.8 E–06	Yes	Yes	No
Benzo(a)anthracene	56–55–3	No	NA	NA	NA	NA
Benzo(a)pyrene	50–32–8	Yes	2.9E–5 (A)	No	No	No
Benzo(b)fluoranthene	205–99–2	Yes	1.1E–4 (A)	NA	NA	NA
Benzo(g,h,i)perylene	191–24–2	NA	NA	NA	NA.	
Benzo(j)fluoranthene	205–82–3	Yes	1.1E–4 (A)	NA	NA	NA
Benzo(k)fluoranthene	207–08–9	Yes	1.1E–4 (A)	NA	NA	NA
1,3-Butadiene	106–99–0	Yes	2.8E–04	Yes	Yes	No
Cadmium	7440–43–9	Yes	1.8E–03	Yes	No	No
Chrysene	218–01–9	Yes	1.1E–5 (A)	Yes	No	No
Crotonaldehyde	123–73–9	No	NA	Yes	No	No
Diesel Particulate Matter	NA	Yes	3.0E–4 (A,B)	Yes	No	No
Ethyl benzene	100–41–4	No	NA	NA	NA	NA
Fluoranthene	206–44–0	No	NA	NA	NA	NA
Formaldehyde	50–00–0	Yes	1.3E–05	Yes	No	Yes
Indeno(1,2,3-cd)pyrene	193–39–5	Yes	1.1E–4 (A)	NA	NA	NA
Lead compounds	7439–92–1	Yes	1.2E–5 (A)	No	Yes	No
Manganese compounds	7439–96–5	No	NA	Yes	Yes	No
Methyl tert-butyl ether	1634–04–4	No	NA	No	No	No
Naphthalene	91–20–3	No	NA	Yes	Yes	No
Nickel compounds	7440–02–0	Yes	2.6E–4 (A)	Yes	Yes	Yes
1-Nitropyrene	5522–43–0	Yes	1.1E–4 (A)	NA	NA	NA
Nitrogen oxides (NOx)	10102–44–0	No	NA	Yes	No	No
Phenanthrene	85–01–8	No	NA	NA	NA	NA
Phenol	108–95–2	No	NA	Yes	Yes	No
Pyrene	129–00–0	No	NA	Yes	No	No
Toluene	108–88–3	No	NA	No	Yes	No
Xylenes (mixed)	1330–20–7	No	NA	No	Yes	No

Note: All information, unless otherwise noted, is from U.S. Environmental Protection Agency. IRIS. Integrated Risk Information System. [Data base, online.] Cincinnati, OH: EPA. Available from: http://www.epa.gov/iris.

NA: Not available

A: From toxic air contaminant document, Office of Environmental Health Hazard Assessment, California, as cited in Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors. April 1999.

B: Listed as ''Reasonable Estimate'' by California Air Resources Board (Range = 1.3E–4 to 1.5E–3 [(mg/m3])

Evidence from Pearson and colleagues (2000) shows an association between an elevated incidence of childhood leukemia and children's exposure to higher than regional urban background concentrations of motor vehicle emissions. Brunekreef and colleagues (1997) show that adverse health outcomes, including premature mortality and increased morbidity from increased respiratory and cardiovascular effects, are associated with the increase in ambient fine particulate matter, e.g., particles less

than 2.5 microns in diameter ($PM_{2.5}$) from roadway sources. The recent Multiple Air Toxics Emissions Study II (MATES II) performed by the South Coast Air Quality Management District for the Los Angeles air basin (SCAQMD 1999) also shows increases in cancer risk due to the presence of known carcinogens such as benzene, formaldehyde, 1,3 butadiene, benzo(a)pyrene and other chemical species found in diesel particulate matter. Furthermore, there is increasingly strong evidence that diesel exhaust may be a significant factor in initiating or exacerbating allergic hypersensitivity. Diesel exhaust is also a likely factor for increasing airway reactivity in those with asthma.

A number of uncertainties are involved in determining the magnitude of health hazards associated with pollutants generated by motor vehicles. However, sufficient information is available from both human studies and animal studies showing adverse health effects, including cancer, respiratory disease, and premature death among populations exposed to motor vehicle emissions at levels found in the urban atmosphere. The magnitude of these effects will be determined by several factors, including the frequency and duration of exposure, health status, interactions with other pollutants, and the differential impact on those individuals that have "hot spot" exposures or those found in heavily traveled freeway corridors. This evidence demonstrates that populations exposed to air pollutants from motor vehicles in excess of average regional urban concentrations are likely to experience a significantly elevated risk of adverse health effects, and that such risks are well above the levels of public health concern.

These factors argue for conduct of detailed, carefully considered analyses to ensure that an excessive exposure burden is not placed unjustly on a subset of the population.

3.0 CARCINOGENIC RISK

Roadway traffic generates many pollutants categorized as known or suspected human carcinogens or considered as potential carcinogens. Table 3.1 summarizes the current categorization of diesel exhaust as a carcinogen of by a variety of State, Federal, and international organizations. These organizations are consistent in finding that experimental studies demonstrate that diesel exhaust is carcinogenic in rats and that the epidemiological data demonstrate that diesel exhaust, which is a mixture of many organic and inorganic compounds, is a potential or a probable human carcinogen. Table 3.2, developed from the MATES II Study (SCAQMD 1999), shows that diesel particulate is the overwhelming contributor to cancer risk in diesel exhaust.

Table 3.1 Regulatory Positions on Cancer and Diesel Exhaust

Agency	Animal Evidence	Human Evidence	Classification
NIOSH (1988)	Confirmatory	Limited	Potential carcinogen
IARC (1989) ..	Sufficient	Limited	Probable human carcinogen
WHO (1996) ..	Adequate	Inadequate	N/A
California EPA (1998).	Demonstrated carcinogenicity	Causal association reasonable and likely.	Diesel PM designated toxic air contaminant
USEPA draft (1999).	Highly likely or likely	Highly likely or likely	Under review
NIEHS (2000)	Consistent tumor development	Reasonable	Reasonably anticipated to be a human carcinogen

Table 3.2 Unit Risk Factor (URF) Weighted Emissions from MATES II Draft Report

Species	Emissions (lbs/day)	URF (x10–6)	URF Weighted Emissions
Diesel emissions other than ''diesel particulate''			
Benzene	834	29	24,186
1,3-Butadiene	79	170	13,430
Formaldehyde	6,136	6	36,816
Acetaldehyde	3,066	2.7	8,278
Cadmium	1.54	4,200	6,468
Lead	0.68	12	8
Nickel	0.36	260	94
Total	89,280		

Table 3.2 Unit Risk Factor (URF) Weighted Emissions from MATES II Draft Report—Continued

Species	Emissions (lbs/day)	URF (x10–6)	URF Weighted Emissions
"Diesel particulate" emissions			
Diesel Particulate	22,890	300	6,867,000

The Diesel Exhaust Report by the Health Effects Institute (1995) reported that a 20 percent to 40 percent greater incidence in lung cancer was found in certain occupations, such as railroad workers and truck drivers, that involved repeated exposures to diesel exhaust. Of particular relevance is the study of exposure to diesel particulate in long haul and city truckers reported by Steenland et al. (1998) where an exposure-response relationship was found. The personal, 8-hour exposures of these truck drivers were found to be similar to the ambient exposures of the general population and the "highway background" exposure (Zaebst et al. 1991). The health implications of such exposures for the general population remain to be determined.

4.0 NON-CANCER HEALTH EFFECTS OF DIESEL EXHAUST

4.1 Respiratory Effects

Several epidemiological studies published in peer reviewed journals by researchers both in the U.S. and Europe point to significant respiratory and cardiovascular health effects with short-term exposure to airborne particulate air pollution.

Brunekreef and colleagues (1997, 1999) found reduced lung function and increased respiratory symptoms in children living near roadways and linked it to air pollutants from motor vehicle emissions, particularly diesel exhaust. The six communities they analyzed were near roadways that carried between 80,000 and 152,000 vehicles per day. The truck traffic density over a 24-hour period ranged from 8,000 to approximately 17,000. Their findings showed a greater association between decrements in lung function and truck traffic density than that with automobile traffic density. Furthermore, they found a strong association with exposure and symptoms in children who lived less than 300 meters from the roadways.

Measured concentrations of black smoke, which is used as an indicator of diesel exhaust particles, and nitrogen dioxide were strongly correlated with distance of the monitoring station from the roadway. They found that impaired lung function was closely associated with the concentration of black smoke and proximity to the highway.

Several epidemiological studies (Dockery et al. 1993; Pope et al. 1995; Zmirou et al. 1998; Pope and Dockery 1999) have shown that short-term exposures to urban air pollution can play a significant role in both acute and chronic respiratory and cardiovascular disease. These studies show that episodes of particulate air pollution are associated with increased hospital admissions for patients with underlying heart disease. These effects have been shown to be significant at concentrations of $PM_{2.5}$ that are likely to be routinely exceeded by emissions from motor vehicles within 300 meters of heavily trafficked roadways.

Mar et al. (2000) found that elemental carbon was significantly associated with cardiovascular mortality in Phoenix, Arizona. They attributed the elemental carbon fraction primarily to diesel exhaust.

4.2 Allergenic Responses

Components of diesel exhaust can act synergistically with bioaerosols, such as pollen, to initiate and increase the incidence of allergic airway disease in individuals (Diaz-Sanches et al. 1997). Diesel exhaust components at levels typically found in urban background hotspots can also exacerbate the onset of symptoms in an allergic individual (Ishizaki et al. 1987; Miyamoto 1997; Braun-Fahrlander et al. 1999).

4.3 Ambient Exposures

Various studies have attempted to provide estimates for the contribution to fine particle mass concentrations made by diesel exhaust. Although direct comparison is hampered due to differences in analytical techniques and averaging times used, there is an overwhelming consistency in the trends observed, which adds further impetus for including a more careful evaluation of environmental impacts on populations located in close proximity to heavily trafficked roadways.

Of particular concern is the impact so-called "hot spots" can have on exposure. Although ambient diesel concentrations in urban and suburban areas are generally reported to range from approximately 1 to 5 ?g/m3, "hotspots," such as heavily traveled roadways and bus stops with a high density of diesel vehicles, can have concentrations ranging from 11 to 46?g/m3. Table 4.1 is adapted from EPA's Draft Report (1999).

Table 4.1 Ambient Diesel PM Concentrations Reported from Chemical Mass Balance Modeling (Adapted from EPA 1999)

Author	Location	Location/Exposure Type	Total $PM_{2.5}$ (std dev), μg/m^3	Diesel $PM_{2.5}$ (std dev), μg/m^3
Schauer et al. 1996, Southern California.	West LA	Urban/Traffic	24.5 (2.0)	4.4 (0.6)
	Pasadena	Urban/Traffic	28.2 (1.9)	5.3 (0.7)
	Rubidoux	Suburban/Traffic	42.1 (3.3)	5.4 (0.5)
	Downtown LA	Urban/Traffic	32.5 (2.8)	11.6 (1.2)
Chow et al. 1991.	Phoenix, AZ area	Urban/Traffic	NA	4–22a
California EPA 1998a.	15 Air basins	Rural-urban/Traffic	NA	0.2–3.6[1]
Federal Highway Administration 1997.	Manhattan, NY	Urban/Bus Stop	35.8–83.0	13.2–46.7[1]
NFRAQS 1998	Welby, CO	Urban/Traffic	16.7	1.7
	Brighton, CO	Suburban/Traffic	12.4	1.2

[1] PM_{10}
NA Not available

Other studies have shown that diesel PM in enclosed vehicles driving on Los Angeles roadways range from nearly 3 μg/m^3 to 36 μg/m^3 (California EPA 1998b). Samples collected near the Long Beach Freeway (California EPA 1998a) indicate that diesel contributions range from daily averages of nearly 1 μg/m^3 to 7.5 μg/m^3.

Brunekreef and colleagues (1997) found that adverse health effects were associated with diesel particulate levels near roadways in the Netherlands between 7 μg/m^3 and 21 μg/m^3 of diesel particulate matter (measured with black smoke). Such concentrations were measured at monitoring stations within 300 meters of roadways.

5.0 CONCLUSION

The wide range of particulate matter concentrations, a large fraction of which can attributed to diesel exhaust, obtained in the studies referred above indicate adverse health effects can reasonably be anticipated among populations exposed to motor vehicle emissions. However, site specific analysis would be required to appropriately assess and quantify the expected health impacts for any specific exposed population. "Hotspots" such as heavily traveled roadways, bus stops and train stations, have an extraordinary impact on localized exposures. Utilizing data from studies such as Brunekreef and colleagues (1997) and modeling studies evaluated as part of this review, it is likely that a significantly increased risk of experiencing the adverse impacts associated with motor vehicle emissions would extend 300 to 400 meters from the roadway for populations exposed in that area for a significant period of time. These populations would include persons residing, attending school and working in such areas, and persons traveling for extended periods in highway corridors.

In summary, both the epidemiological data and toxicological evidence reviewed indicate there would be a significantly increased risk of adverse health outcomes through increased carcinogenic risk and effects on the respiratory and cardiovascular systems among populations exposed to concentrations of motor vehicle emissions expected to be found in the vicinity of heavily traveled highways. The data support that under conditions typically reported in monitoring and modeling studies of motor vehicle emissions in the vicinity of heavily traveled highways, concentrations of diesel-related air pollutants alone are high enough to trigger unacceptable health risks. The risk of adverse health effects is further increased when concentrations of gasoline-related air pollutants are added.

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ATTACHMENT 6: REVIEW OF EXPOSURE TO TOXIC AIR POLLUTANTS FROM MOBILE SOURCES AND THE IMPACT OF EXPANSION OF US 95 IN LAS VEGAS, NEVADA

Introduction

An Environmental Impact Statement (EIS) has been prepared by the Nevada Department of Transportation for improvement and expansion of US–95 in Las Vegas. These improvements will include the widening of US 95 to 10 lanes from Rainbow to I–15 (5 miles) and widening to 6 lanes from Craig to Rainbow (5 miles) plus other traffic expansion measures. The result will be to increase average annual vehicle trips in the widened area and facilitate additional traffic flows on adjoining highways and arterials. As a result vehicle travel in the US 95 corridor near the I–15 interchange would be expected to increase from 200,000 average annual daily vehicle trips (AADT) in 2000 to 230,300 by 2020, and north of Summerlin the increase will be from 122,000 in 2000 to 212,500 in 20209. The EIS provides a brief evaluation of the impact of additional traffic-generated carbon monoxide, but it does not deal with a wide range of other air pollutants emitted from motor vehicles. This omission includes the 21 air contaminants from motor vehicles that are classified by EPA as toxic or hazardous air pollutants10. These pollutants are listed in Table 1 below.

The importance of these hazardous pollutants to public health has increasingly been recognized in recent literature as the result of comprehensive emission and exposure studies11, as well as by additional public health evidence reviewed by EPA as summarized in the Technical Support Document issued in support of the MSAT list published pursuant to 201(l) of the Clean Air Act, and in a report prepared on the US 95 project by Dr. Jack McCarthy of Environmental Health and Engineering. Based on results in studies from major US cities, there is ample basis to conclude that the levels of exposure to air toxics from motor vehicles present a significant risk of adverse health effects in human populations. These adverse health risks should be thoroughly reviewed in a Supplemental EIS for the US 95 project. This conclusion is derived from the application of studies of other cities to the specific situation along US 95 in Las Vegas. An evaluation of the applicability of studies from Los Angeles and elsewhere follows.

Table 1: List of toxic air emissions from motor vehicles

Acetaldehyde
Acrolein
Arsenic compounds
Benzene
1,3-Butadiene
Chromium
Dioxins/ Furans
Diesel Particulate Matter and Diesel Exhaust Organic Gases
Ethyl benzene
Formaldehyde
n-Hexane
Lead compounds
Manganese compounds
Mercury compounds
Methyl tert-butyl ether MTBE
Naphthalene
Nickel compounds
Polycyclic Organic Matter
Styrene
Toluene
Xylenes

Estimation of Present and Future Motor Vehicle Air Toxic Levels

The present exposure to air toxics from motor vehicles can be estimated for the Las Vegas area and for areas adjacent to major highways by extrapolation from the results of the Multiple Air Toxics Exposure Study (South Coast Air Quality Management District, 2000)("MATES II") 12. The MATES II study showed that regional exposures to toxic air pollutants are high enough to cause a significant risk of cancer to exposed populations, that the risk is higher for populations exposed within 2 kilometers of major freeway corridors, and that mobile source emissions account for 90 percent of the cancer risk attributable to all sources of toxic air pollutants.

The MATES II study did not estimate other adverse health outcomes in addition to cancer risk. The toxic air pollutants emitted by mobile sources are also associated with other adverse health effects in addition to cancer, including respiratory, cardiovascular and allergenic effects. These effects should also be characterized in a Supplementary EIS for the project.

The MATES II study carried out by California's South Coast Air Quality Management District used an air dispersion model to estimate the regional concentration of air toxics emissions from motor vehicles and other sources in the Greater Los Angeles Basin. As part of the MATES II study, these air contaminants also were measured in the ambient air at 10 regional sites and 14 microscale sites in the Los Angeles Basin. Thirty one air toxics were considered, including the mobile source derived emissions considered most significant to human health, such as benzene, 1,3, butadiene, formaldehyde, acetaldehyde, polycyclic organic matter and diesel particulate matter (DPM). Most of these air toxics are carcinogens. The results of the MATES II study showed that the air quality model underestimated actual measured concentrations at most of the 10 regional monitoring sites, but showed consistently close correlations among predicted and measured values to validate the modeling results.

The emission rates for the regional fleet of vehicles in the MATES II study was derived from the State of California EMFAC model and from air toxics speciation provided by the California Air Resources Board (CARB). The air dispersion model used the inventory of mobile source and industrial air toxics emissions for the Los Angeles area. The model was regional in scale and it produced estimates of the average concentrations in two kilometer square areas throughout the region. The model was able to distinguish between ambient concentrations derived from mobile sources and other sources.

The conclusion of the study was that the aggregate cancer risk for all air toxics in the Los Angeles basin was 1,400 in a million (1 in 710). The range of risk is between 1,120 in a million (1 in 890) and 1,740 in a million (1 in 570). Of the total cancer risk 90 percent was contributed by emissions from all mobile sources and 50 percent by on-road vehicles13. Therefore the cancer risk attributable to on-road vehicles is approximately 700 in a million (1 in 1400). The MATES II study also concludes that the differences in risk levels between sites within the Los Angeles Basin is primarily related to mobile sources and concentrations are especially high in proximity to major highway corridors.

When the concentrations of the toxic air pollutants measured at the various monitoring sites are plotted on maps as given in the California MATES II study it becomes apparent that the highest concentrations of motor vehicle derived air toxics are concentrated along the major high traffic freeway corridors, such as US 101, I–10, I–405, I–110 and I–710 These highways AADT levels are between approximately 100,000 and 330,000 with AADT levels in the 200,000 range being most common in the central urban areas14. The AADT on impacted sections of US 95 in Las Vegas in 2000 was between 122,000 and 200.000 vehicles15. After widening, plus estimated growth in the corridor, the Regional Transportation Commission (RTC) projects that the AADT will range from 212,500 to 230,30016 an average increase of approximately 38 percent. AADT levels in Las Vegas at present and after the expansion will fall within the range of AADTs found in the Los Angeles Basin that was the subject of the MATES II study.

The percentage of diesel truck traffic of the total AADT on Las Vegas freeways, based on Nevada urban freeways data, is 7 percent and on urban interstate highways is 9 percent.17 This is close but slightly higher than the percentage of trucks on the major freeways and interstates of Los Angeles, which is 6 percent18.

Based on comparable AADTs, diesel truck percentages and toxics air emission rates from the highway vehicle fleet in the Las Vegas area, comparable ambient air concentrations for toxic air pollutants in the US 95 corridor are to be expected after discounting the contribution of non-road mobile source emissions. Estimates of regional motor vehicle related air toxics concentrations for the Las Vegas area are given in Table 2.

Table 2: Estimated Air Toxics Exposure Concentrations from On-Road Motor Vehicle Derived Sources for the expanded section of US 95 in Las Vegas. Based on High Impact Highway Corridors in the MATES II Study

Pollutant	Ambient Concentration micrograms per cubic meter
Benzene	4.4
1,3 Butadiene	1.7
Diesel Particulate	3.1

Assumptions and Reliability of the Exposure Estimates

The exposure estimates discussed here are derived from the MATES II study in California. For a number of reasons, exposure estimates derived from the MATES II study will most likely underestimate maximum exposures in other locations. These include:

1) The MATES II study uses regional computer models and estimates exposures to air toxics at average levels within two kilometer squares, not at hot spot locations. Therefore, the estimates are not worst case nor do they represent the exposure levels for residences close to major highways. Exposure levels close to major highways will be higher, and depending on distance, wind direction and other factors, may be considerably higher. Modeling conducted by Resource Systems Group for several highway projects shows that exposures to both gaseous and particulate pollution emitted from highways is much greater close to the highway. The results of the modeling showed that air toxics concentrations derived from motor vehicles on the highway were approximately ten times higher at 40 meters from the highway than at 300 meters from the highway.

2) These estimates represent only a limited number of motor vehicle air toxics. The total exposure for all motor vehicle air toxics, and the total cancer risk, is greater.

3) The MATES II study is supported by monitoring data that shows the model tends to underestimate ambient exposure levels for air toxics by about 16 percent20.

4) The MATES II study uses California motor vehicle air emission rates that in general, are lower for all vehicle types than the national emission rates that apply to the Las Vegas metropolitan area.

5) Diesel particulate, which is the largest single risk factor from motor vehicles, is measured and defined in slightly different ways in modeling and monitoring studies cited, and in the epidemiological literature used to assess the impact on public health. Although there are differences of opinion among experts in the field as to the most appropriate measure of diesel PM, it seems most probable that because of the way diesel particulate is defined in the MATES II study, the result is that total air toxics exposure is, if anything, underestimated rather than overestimated.

Overall the exposure estimates used in this report to estimate current cancer risk in the US 95 corridor are conservative, and likely underestimate actual exposures and the magnitude of the health hazard to nearby populations.

In the future there may be reductions in air toxics emissions rates as increasingly more stringent air emissions standards are applied to motor vehicles. However, the emissions reduction strategies for heavy-duty vehicles do not apply until 2007, are under judicial challenge, and are under review by the current Administration. If retained, they will not be implemented until late this decade and will not significantly reduce emissions from vehicles now on the road until those vehicles are replaced. Heavy-duty diesel trucks and buses may remain in use for 15 to 25 years with engine rebuilds.

In the short to intermediate term there will also be improved traffic flows on US 95 during peak hours that will increase average speeds and reduce the level of some non toxic air emissions. However, there is not any clear evidence that increased vehicle speeds during peak hours will significantly reduce overall emissions of air toxics.

Conclusions

Based on the data provided by the RTC and discussed above the proposed expansion of US 95 is projected to increase to AADT levels 38 percent above 2000 levels. Because toxic air pollution is proportional to traffic levels we may expect a corresponding increase in air toxics levels in the areas close to the US 95 highway corridor. The US 95 expansion would increase traffic levels to volumes comparable to those in the Los Angeles Basin that were the subject of the MATES II study.

This brief evaluation demonstrates that the proposed expansion of the highway will significantly increase the exposure of the public to air toxics in the neighbor-

hoods along the US 95 corridor. The present and future levels of air toxics are probably at least comparable to levels in parts of Los Angeles adjacent to major freeways. These levels are associated with elevated cancer risk and other health problems as described in the separate report of Dr. Jack McCarthy. The present EIS ignores these significant public health risks. Because these emissions have a significant impact on the human environment, a Supplemental EIS is required to evaluate the health risks in the corridor and identify alternatives that can mitigate the health risk attributable to vehicle travel in the corridor.

A Critique of Transportation Planning Board Travel Demand and Air Emissions Models

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Executive Summary

Metropolitan areas where air pollution levels seriously threaten public health are required by federal law to establish pollution control plans to limit emissions and then make sure that both short- and long-range transportation plans and decisions conform to those emission limits. If transportation plans are anticipated to exceed adopted pollution limits, state and local officials must adopt additional pollution controls or redirect their transportation spending away from projects that will increase pollution, traffic and sprawl. Computer models are a key foundation for this traffic and pollution analysis. They determine whether billions of dollars in transportation investments will lead to healthful air quality that protects public health, or whether these plans will degrade air quality and force higher pollution clean-up costs onto business and the public. These models also underlie critical state and local decisions about whether it makes sense to build new roads and bridges, to expand highways, and support new sprawl development, or to invest in better transit, sidewalks, and transit-oriented development.

The key body of state and local officials that carries out such activities in the national capital region is the Metropolitan Washington Council of Governments and its National Capital Region Transportation Planning Board ("TPB"), which serves as the region's Metropolitan Planning Organization ("MPO"). Under Federal laws and regulations, MPOs are responsible for a set of regional planning activities including developing long-range transportation plans and demonstrating air quality conformity. Until recently, by margins that at times have been less than one percent, the TPB has claimed that its transportation plans and programs conform to adopted air quality plans. In mid-2001, TPB staff adjusted its emission estimates to recognize the much higher than previously assumed use of sport utility vehicles and light trucks in the region, revealing that the adopted transportation plan exceeds the adopted and legally binding regional motor vehicle air pollution limits. As a result the region cannot add new regionally significant highway projects to its transportation plan without offsetting the excess air pollution.

Our new, detailed review of the TPB traffic and emissions model has revealed additional deficiencies in assumptions and methods which have serious implications for air quality planning, the traffic projections for an additional Potomac River bridge, and other transportation project evaluations. Most notably:

- The computer model, and the way that its data have been manipulated, significantly overestimates future traffic growth and congestion, especially on major roads and bridges. This overestimation of future traffic demand can be falsely used to support the need for additional highway capacity, overestimating future congestion in no-build scenarios and overstating the benefits of constructing new roadway capacity.

- The model significantly underestimates expected air pollution from the region's cars and trucks especially for scenarios with increased roadway capacity. Correcting one key identified deficiency in the TPB model, for example, would result in an increase in the estimate of motor vehicle emissions of smog-producing volatile organic compounds by 12% compared with TPB's estimate for 2005.

- The model fails to account properly for induced traffic that will be attracted to new roads and fails to reflect how people will shift travel in response to congestion. This biases the model against investment strategies favoring transit, walking, bicycling, and transit-oriented development.

- The model fails to account for the quality of conditions in neighborhoods for walking and bicycling, ignoring how these travel options affect transit use, car use, and trip-

making and ignoring how support for these travel modes could help curb congestion and air pollution.

The TPB has been working on an improved model version for several years, but the version reviewed here is the one that has been used in developing the current long-range transportation plan and air quality conformity analysis, as well as in the preparation of many recent highway planning studies.

Model Fails to Reflect Congested Travel Speeds

MPOs rely on computer models in these planning efforts. The models include separate but linked travel demand models and air quality models. Modeling activities are regulated by federal guidelines. TPB documentation states: "The feed back of congestion speeds resulting from the traffic assignment step is a federally mandated requirement for acceptable modeling practice."

This requirement is not being adequately met by the TPB model. The documentation describes a congestion speed feedback step, but this step is too weak, and has little effect on the results. For non-work trips, there is no feedback at all. Without strong enough feedback, forecast traffic volumes in the model grow in an unrealistic unconstrained manner. This overestimation of future traffic demand can be falsely used to support the need for additional highway capacity.

Irregularities in Calculations Lead to Underestimated Emissions

Air pollution is a function of vehicle miles of travel (VMT) and speed. The most serious air pollutant for transportation emissions in the Washington region is nitrogen oxide (NOx), a precursor of smog, which is harmful to public health. Vehicular emissions are high at low travel speeds, but it is less well known that NOx emissions increase at speeds greater than 40 m.p.h. Increasing speeds beyond this point increases NOx emissions. NOx emissions per mile at 65 m.p.h. are greater than at 2.5 m.p.h. The region cannot solve its NOx problem by building roads to increase travel speeds.

Several improper techniques are used to make the model results appear to maintain air quality conformity by lowering calculated NOx emissions. The TPB model invalidly shifts traffic from congested links to less congested travel periods on a link by link basis. This shift does not represent "peak spreading" because the shifts are done at a relatively high level of service, 30-35 m.p.h. for a large share of freeways, and because in some cases the afternoon peak hour is spread beyond midnight. This speed range of 30-35 m.p.h. is associated with minimum emissions per VMT for NOx, the region's most critical pollutant. Calculated emissions for the most congested periods are reduced by shifting the traffic from one period to another while simultaneously lowering the travel speed to 30-35 m.p.h. for adjacent time periods.

Without these invalid assumptions about the speed characteristics of traffic on road links congested above a 1.6 V/C ratio for emissions analysis, calculated NOx emissions in 2005 would be 1.4 percent greater. This increase of 2.2 tons per day would cause the region to exceed the maximum allowed under the adopted state air quality control plans by 1.7 tons per day. In addition, calculated VOC emissions in 2005 would be 12.4 percent greater. This increase of 12.6 tons per day would also cause the region to exceed significantly the maximum allowed in the air quality control plans. Other deficiencies in the MWCOG modeling methods, such as the use of a sharply dampened travel time feedback for

congested road links in the travel demand analysis process, contribute to additional underestimation of emissions. This makes it likely that unless steps are taken to correct the MWCOG models and their emission estimates, the Washington metropolitan area will find itself continuing to violate existing Clean Air Act air quality standards even after 2005, threatening public health.

Conclusions

The weakness of the TPB model's treatment of congestion speed feedback on travel demand makes it one of the poorest of large metropolitan travel demand models in capturing the effects of induced travel demand resulting from new highway construction. With these problems, the TPB travel demand model overestimates travel demand in the future, and overestimates the benefits of proposed highway improvements.

These problems are especially acute in past studies of potential new Potomac River bridge crossings, all of which were based on this model or previous versions of the model. The American Legion Bridge on I-495 highlights these problems. This bridge is the closest existing Potomac River crossing to any of the proposed "Techway" routes. In 2025, the forecast traffic volume on the bridge is 77,000 vehicles per day higher (30 percent) assuming the same capacity as in 2001. The speed being fed back to the trip distribution model declines by 15 percent. If parameters recommended in the research literature were applied, the reduction in speed would be either by 60 percent (Speiss function) or 90 percent (BPR function). However, this great an increase would not occur. A proper model would produce an intermediate result – an increase in peak hour/peak direction travel due to growth in population and employment, but much less of an increase than assumed in the TPB model. The TPB model includes only very weak feedback for work trips and no feedback at all for no-work trips. Therefore, it does not accurately model shifts in destination, mode, and travel time in response to increased congestion.

As the TPB model can not properly forecast reductions in VMT as a result of congestion, it can not properly forecast increases in VMT that will result from increases in roadway capacity. In the context of Potomac River crossings, future traffic volumes on the existing bridges, including the American Legion Bridge, are surely overestimated in scenarios with no new bridges.

Any forecast travel time savings with a new bridge would be at least partially offset by increased congestion caused by induced travel, including congestion at roadways leading to and from any new bridges. The TPB model overstates the benefits of new roadway capacity, and underestimates the costs, including the effects of increased traffic in other areas.

The TPB and the Metropolitan Washington Air Quality Committee (MWAQC) have recently appointed a task force to recommend strategies to reduce air pollution to compensate for the excess emissions from increased use of sport utility vehicles and light trucks in the region. There are a number of strategies that could be used to solve this emission budget shortfall within the transportation planning process, for example by delaying some traffic-inducing road projects to accelerate funding of new bus and railcar purchases, promoting employer-paid commuter transit benefits, and investing in bicycle and pedestrian access to schools and transit stops.

The TPB has recommended that about half of this emission budget shortfall be eliminated – on paper - simply by adjusting what it believes to be faulty model assumptions about the composition of traffic on local roads and accessing park-and-ride lots in the region. Any modification of the TPB models to refine the analysis of traffic and its emissions should also correct the deficiencies noted in this report. Failure to do so would raise

serious questions about compliance of the region's planning process with the Clean Air Act regulations guiding modeling and use of the latest and best planning assumptions.

Deficiencies in TPB Model and Application

Overview

The Metropolitan Washington Council of Governments National Capital Region Transportation Planning Board ("TPB") is the region's Metropolitan Planning Organization ("MPO"). Under Federal laws and regulations, MPOs are responsible for a set of regional planning activities including developing long-range transportation plans and demonstrating air quality conformity.

MPOs rely on computer models in these planning efforts. The models include separate but linked travel demand models and air quality models.

Travel Demand Modeling

The TPB travel demand model is a "four-step" model similar to those in use in other regions in the United States. The four steps are:

1) Trip Generation – Origins and destinations are calculated for each transportation analysis zone (TAZ), for each trip type, for each time period. A single origin or destination is called a "trip end."
2) Trip Distribution – The trip ends calculated in step 1 are connected to form complete trips. These are "person trips" and include both auto and transit trips.
3) Mode Choice – The person trips are divided among transit trips, auto drive alone trips, and auto shared ride trips. (The TPB model does not model nonmotorized trips.)
4) Assignment – The auto trips are assigned to each link of the highway network.

The purpose of the travel demand model is to approximate human behavior. While the four steps are presented individually and usually are calculated sequentially, they must always be thought of as parts of a complex process. People make their decisions simultaneously, i.e. they decide where they are going, and how they are going to get there at the same time.

Consider a potential traveler who anticipates severe congestion in traveling to a specific destination at a particular time. This information is only available to the travel demand model after assignment (the fourth step). However, this expectation of congestion certainly affects where the trip is destined (trip distribution), how the trip will be made (mode choice), and possibly whether the trip will be made at all (trip generation).

The TPB travel demand model attempts to address this problem by introducing feedback between the four steps. The model documentation shows that congested model output from the assignment step feeds back to influence trip distribution and mode choice decisions.

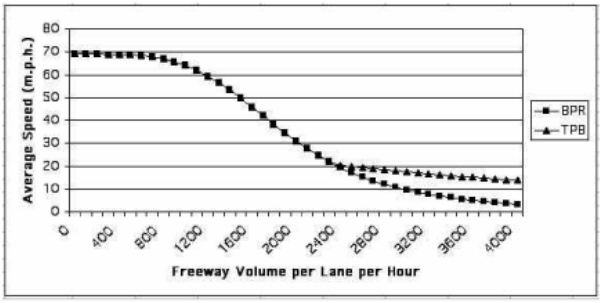
This is acceptable in principle, but there are two major problems with the implementation. First, only work trips are affected at all. This represents a fairly small and decreasing share of all trips. Second, the feedback process for work trips is weakened to the point that it has little effect.

The assignment step of the travel demand model calculates a travel speed for each one-way link in the network. This speed is calculated as a function of the model volume, the link capacity, and the link free-flow speed.

For example, most freeway links are coded in the TPB model with capacities of 1182 vehicles per lane per hour and 60 m.p.h. speed. More information must be given for these values to be fully understood. The capacity number is for "level of service C", where level of service (LOS) is a scale running from "A" to "F", with A indicating free flow traffic, and F representing severe congestion. Therefore, 1182 does not represent the ultimate capacity, but rather a volume at a fairly good level of service. Similarly, the speed represents conditions at level-of-service C. At free-flow conditions, the speed is assumed to be 15 percent higher or 69 m.p.h. (This typical example is for Ring 8 freeways).

The model speed is calculated using a relationship published by the Bureau of Public Roads many years ago (before there was a Federal Highway Administration), and is generally known as the "BPR curve." Figure 1 below illustrates the forecast model speed as a function of vehicles per lane per hour, using the freeway case as described above.

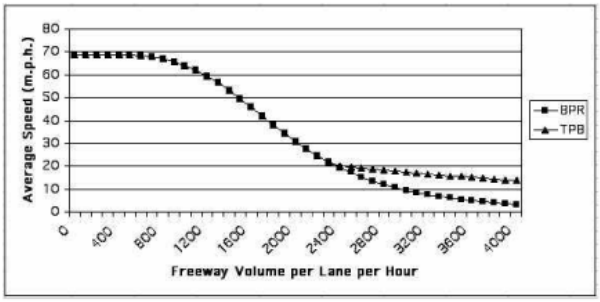
Figure 1: BPR Volume-to-Delay Function for Freeways Using TPB Assumptions



As shown in Figure 1, the BPR function calculates high average speeds at small volumes, up to 69 m.p.h., and decreasing speeds at lower volumes, 22 m.p.h. at 2400 vehicles per lane per hour. The value of 2400 vehicles represents the upper end of accepted values for ultimate capacity.

As shown in Figure 2, the TPB model modifies the BPR function for volumes exceeding two times level-of-service C. The result is higher calculated speeds for volumes far in excess of ultimate capacity than if the standard BPR curve were applied.

Figure 2: Comparison of BPR and TPB Volume-to-Delay Functions



There is a corresponding assumption made in the air emissions analysis process. In this case, the delay curve is not damped but actually clipped at 1.6 times LOS C capacity.

There are two major impacts of these assumptions, which are discussed in more detail in later sections:

1) The feedback from travel delay is weakened significantly.
2) Calculated air emissions are minimized.

There are five other related problems in the TPB modeling process.

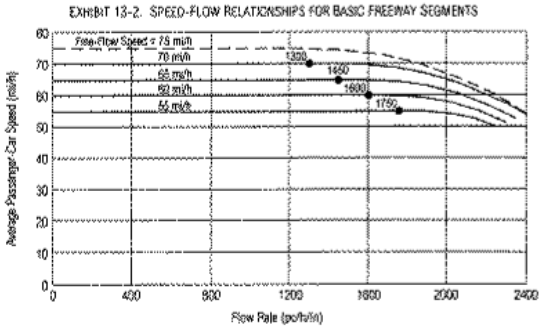
First, use of LOS C capacity, also called design capacity, is no longer considered to be the best practice. In work done for the U.S. Department of Transportation and published in 1991, Alan J. Horowitz outlines the reasons for using LOS E/F capacity, or "ultimate capacity."

- Ultimate capacity has a consistent meaning across all facility types, while design capacity does not. For example, it is a relatively simple matter to relate the capacity of an intersection to the capacity of the street approaching that intersection.
- Ultimate capacity is always easier to compute than design capacity. Finding the design capacity of a signalized intersection is especially difficult.
- Ultimate capacity can be more easily related to traffic counts than design capacity, which would also require estimates of density, percent time delay, reserve capacity or stopped delay .
- Ultimate capacity is the maximum volume that should be assigned to a link by the forecasting model. Design capacity does not give such firm guidance during calibration and forecasting. (Horowitz, Alan J. Delay-Volume Relations for Travel Forecasting: Based on the 1985 Highway Capacity Manual, 1991, http://tmip.fhwa.dot.gov/clearinghouse/dos/general/dvrt/ch4.stm)

Second, the implicit assumption in the TPB model concerning the ultimate capacity for freeways is wrong. By limiting traffic volume to 1.6 times the LOS C capacity in the air emissions estimation process (or 1981 vehicles per lane per hour), the TPB model, in effect, sets this as the ultimate capacity. As shown in Figure 3 below taken from the

Highway Capacity Manual (Transportation Research Board, 2000), level of service for freeway links is defined for volumes as high as 2,400 vehicles per hour per lane.

Figure 3: Speed-Flow Relationships for Freeways



Source: *Highway Capacity Manual*. Washington DC: Transportation Research Board, 2000.

The *Highway Capacity Model* also identifies freeway segments in the Washington DC area among their lists of the highest observed traffic volumes. These include I-66 in Fairfax carrying 2,650 vehicles per lane per hour for a 4-lane freeway, and I-495 in Montgomery County carrying 2,498 vehicles per lane per hour on a 6-lane section (Exhibit 8-19, p. 8-19).[1]

Third, the TPB model operates as a daily model. Most other larger U.S. regions now have travel demand models that divide the day into several time periods. This provides the basis for more accurate travel forecasts and air emissions estimates. As will be discussed below, the time-of-day post processing done in the air emissions calculations cannot overcome the weaknesses inherent in a daily travel model.

Fourth, the TPB model uses a discredited incremental assignment technique instead of the almost universally applied equilibrium method. Again, we will describe the correct practice first, and then discuss why the TPB practice is unacceptable.

Travel times over the roads of the network increase in relation to traffic flows. Therefore, trips shift from more congested routes to less congested routes until all routes are equally congested, as measured by a weighted sum of travel time and vehicle operating cost from

[1] Conditions at these high volumes represent unstable flow. If traffic flow breaks down for any reason, and traffic is slowed, it is impossible to sustain these high traffic volumes at lower speeds, and it can take significant time for the higher speeds to be regained.

origin to destination. A good assignment model seeks to assign each vehicle to the "shortest route", the route with the least generalized travel cost. In a complex urban system, more than one route may offer the least generalized cost. The assignment has achieved equilibrium conditions when no vehicle can reduce its cost by switching routes. This is defined as a "user optimal" condition.

Equilibrium assignment algorithms in use at most large MPOs reassign traffic in a series of iterations until this equilibrium condition is approached. After each iteration, the travel times between transportation analysis zones are recalculated and refined.

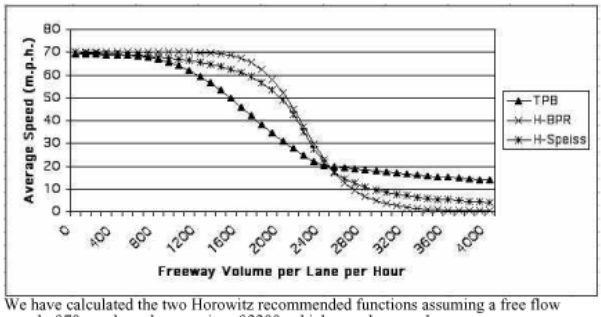
In contrast, the TPB model uses an incremental assignment process that very poorly matches the desired equilibrium condition. Four increments of traffic are assigned, each representing 25 percent of the total traffic volume. At the beginning of each increment, travel times are recalculated. Therefore, the travel times for the first increment are based on 0 percent of the traffic, the times for the second increment are based on 25 percent of the traffic, and the times for the third increment are based on 50 percent of the traffic. The travel times calculated for the fourth and final increment of traffic loading are based on the results of the previous increment, and therefore include only 75 percent of the traffic.

This is critical because traffic will generally operate very smoothly at 75 percent of the peak period traffic volumes, yet break down completely at 100 percent. This is another way in which the TPB model short circuits an important feedback between congestion and traffic volume.

The MINUTP travel demand modeling software used by TPB includes an equilibrium assignment option. However, if incremental assignment techniques are unavoidable, the standard BPR coefficients should be replaced with coefficients that cause reductions in modeled speed equivalent to 100 percent of traffic when only 75 percent of the model traffic is loaded. In this way, at least the fourth and final increment will reflect appropriate levels of congestion, even if the first three do not. In the current TPB implementation, none of the assignment increments reflect proper levels of congestion.

Fifth, the old BPR coefficients do not calculate speeds that are consistent with more modern research. The primary focus of the 1991 Horowitz report quoted earlier was to develop improved coefficients. Figure 4 below shows the TPB function (in this example, for Ring 8 freeways) as compared with two alternatives that better fit observed speeds.

Figure 4: Comparison of TPB Volume-to-Delay Function to Best Practice (Horowitz Prepared for U.S. D.O.T. 1991)



We have calculated the two Horowitz recommended functions assuming a free flow speed of 70 m.p.h. and a capacity of 2200 vehicles per lane per hour.

The curve labeled "H-BPR" is of the BPR functional form, but with more updated coefficients. The curve labeled "H-Speiss" fits observed data even better. It is notable how very different these volume-delay relationships are as compared to the one built into the TPB model. The TPB model underestimates speeds in the very prevalent range of 1400 – 2200 vehicles per lane per hour, and then overestimates speeds at the highest volumes. At the point where ultimate capacity is approached and exceeded, and the congestion feedback should be strongest, the TPB model provides only very weak feedback.

This discussion has focused on freeways because of their importance in travel demand modeling and emissions modeling. However, the problems described are not limited to freeways, but are present for all types of roadway links.

Air Emissions Modeling

This section of the report critiques the Air Quality Conformity Determination of the 2000 Constrained Long Range Plan and the FY2001-2006 Transportation Improvement Plan for the Washington Metropolitan Region, dated October 18, 2000, conducted by the Metropolitan Washington Council of Governments (MWCOG), the Metropolitan Planning Organization (MPO) for the Washington, D.C. urban area.

Serious technical deficiencies are present in the Conformity Analysis documentation. The MWCOG has failed to use commonly accepted practices, and instead has used practices that are not consistent with EPA requirements. These technical deficiencies seriously undermine the credibility of the emissions estimates reported in the conformity determination report.

Four major errors and inconsistencies in the MWCOG conformity analysis have been identified.

1. The vehicle miles of travel (VMT) mix used in the MOBILE5b emissions modeling conducted by the MWCOG is inconsistent with EPA default values (values used unless there is more accurate local information), as well as national

trends being observed in cities around the country. While TPB is now addressing this problem in its proposed conformity analysis released on December 19, 2001 for public comment, it is not a new problem. There has been a major problem even without the increase in SUV purchases.

2. MWCOG only generated emission factors for 13 different speeds despite the fact that link speeds in the model vary from less than 2.5 mph to more than 65 mph. This is not only unnecessary because MOBILE5b can calculate emission factors for all speeds between 2.5 and 65 mph, but is also inaccurate.
3. MWCOG also uses a clipped BPR equation to calculate congested speeds for use in the emissions analysis. In the clipped BPR equation, the Volume to Capacity (V/C) ratio is restricted to values less than or equal to 1.6 which maintains unrealistically high speeds during congested time periods and reduces speeds during uncongested time periods. Use of a restricted BPR equation and subsequent MWCOG implementation results in a relatively large number of links having speeds in the middle range of the pollutant emissions curves, where emission factors are minimized.
4. Excess traffic volume is shifted between time periods to accommodate the V/C ratio restriction. Excess volume remaining after the tenth and final time period represents 1,370,000 vehicle miles of travel in the 2025 emissions analyses. Since this volume cannot be moved into another time period, more than 1,500 links in the 2025 network are still over capacity at midnight. This result is totally unreasonable. In addition, the V/C ratio used to calculate congested speeds on these links is inconsistent with the actual volume in the tenth time period.

MOBILE5b Emissions Modeling Assumptions

VMT Distribution by Vehicle Type - VMT Mix

The vehicle miles of travel (VMT) distribution by vehicle type, also known as the VMT mix, is a very important user input into the Environmental Protection Agency's MOBILE5b vehicle emissions model. The VMT mix specifies the fraction of total highway VMT that is accumulated by each of the eight vehicle types. The eight vehicle types in the MOBILE are listed below:

LDGV = light-duty gasoline vehicles

LDGT1 = light-duty gasoline trucks, I

LDGT2 = light-duty gasoline trucks, II

HDGV = heavy-duty gasoline trucks

LDDV = light-duty diesel vehicles

LDDT = light-duty diesel trucks

HDDV = heavy-duty diesel vehicles

MC = motorcycles

The VMT mix used in the MOBILE5b emissions modeling conducted by MWCOG for the adopted conformity analysis of the 2000 Constrained Long Range Transportation Plan is inconsistent with EPA default values as well as national trends being observed in cities around the country. The default VMT mix in MOBILE5b is based on national averages and changes over time (calendar years). There are three main trends driving the shifts in VMT. The first is a shift in sales from light duty passenger cars to light duty trucks. The next two have to do with the dieselization of trucks in general. Light duty

diesel trucks are increasing in sales over time as compared to light duty gasoline trucks. The same trend can be seen even more noticeably, with heavy duty diesel trucks replacing heavy duty gasoline trucks. The VMT mix used by MWCOG did not reflect these documented national trends. MWCOG has redefined the VMT mix using new local data for the 2001 Constrained Long Range Plan (CLRP) update for the 2002-07 Transportation Improvement Program. It would be of value to compare this new data with the EPA default values and national trends.

Table 1 shows the urban and rural VMT mix used by MWCOG for the 2000 CLRP update and the 2005 MOBILE5b national default values.

Table 1: MWCOG and MOBILE5b Default VMT Mix

MOBILE5b	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
MWCOG Urban	0.820	0.091	0.014	0.016	0.014	0.000	0.029	0.016
MWCOG Rural	0.750	0.150	0.013	0.021	0.012	0.000	0.038	0.016
2005 EPA Default	0.600	0.197	0.087	0.031	0.002	0.002	0.075	0.006

MWCOG VMT from light-duty gasoline vehicles (LDGVs) is 37 percent and 25 percent higher than the EPA default for urban and rural areas respectively. In addition, the VMT from light duty gasoline trucks (LDGTs) I and II is 63 percent and 43 percent lower than the EPA default for urban and rural areas respectively. Only 10.5 percent of the urban MWCOG VMT is from LDGTs, while the national default is 28.4 percent. Finally, the VMT fraction for light-duty diesel trucks is zero in both urban and rural areas. These are very peculiar assumptions for VMT mix. No documentation about the MWCOG VMT mix assumptions for the 2000 CLRP have been provided beyond the fractions themselves, so it is difficult to comment further about the basis for these assumptions.

Not only were the fractions used by MWCOG for the 2000 CLRP inconsistent with the EPA defaults, but they are likewise inconsistent with the emission modeling being conducted by other urban areas around the county. Table 2 shows VMT mix assumptions being employed in other cities in the United States.

Table 2: VMT Mix Assumptions from Other U.S. Cities

MOBILE5b	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
MWCOG Urban	0.820	0.091	0.014	0.016	0.014	0.000	0.029	0.016
Atlanta, GA	0.655	0.160	0.082	0.028	0.009	0.002	0.062	0.002
Houston, TX	0.699	0.171	0.076	0.018	0.002	0.001	0.031	0.002
Las Vegas, NV	0.545	0.387	0.025	0.002	0.003	0.003	0.006	0.029
New Haven, CT	0.624	0.193	0.089	0.033	0.002	0.001	0.057	0.001
Tempe, AZ (EPA default)	0.600	0.197	0.087	0.031	0.002	0.002	0.075	0.006
Salt Lake City, UT (EPA default)	0.600	0.197	0.087	0.031	0.002	0.002	0.075	0.006

In comparing the MWCOG 2000 CLRP VMT fractions against the data from other urban areas, two things are immediately evident. The MWCOG fraction of VMT from light-duty gasoline vehicles is much higher, while the fraction of VMT from light-duty gasoline trucks is much lower. Not only is this modeling assumption inconsistent with national trends, it is completely contrary to what is actually happening in the Washington metropolitan area.

A July 8, 2001 article in *The Washington Post* entitled "SUVs Drive Area to Pollution Violations" reported on the growing number of sport utility vehicles (SUVs) on the city's highways:

> "Ronald Kirby, a transportation specialist for the Metropolitan Washington Council of Governments, said his staff concluded what it first suspected last month: The number of SUVs had risen far more rapidly than predicted, increasing the amount of pollution sent into the air.
>
> "Five years ago, SUVs were thought to represent about 15 percent of personal vehicles on area roads, Kirby said. Now the figure is pegged at 25 percent. With SUVs accounting for half of new purchases, he said, the larger vehicles are bound to become an even greater percentage of the mix."

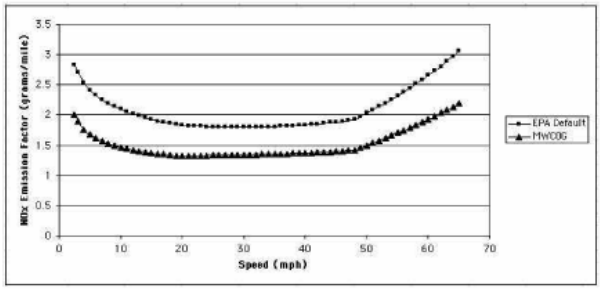
If one in four vehicles on the road in metropolitan Washington is indeed a SUV, and 50 percent of new purchases are SUVs, the VMT mix used by the MWCOG in their MOBILE emissions modeling is completely wrong. Light-duty gasoline trucks I, (LDGT1) are trucks less than 6,000 pounds. LGDT2 are trucks between 6,000 and 8,500 pounds. Therefore, VMT from SUVs should be accounted for in one of these two vehicle types. Despite the report that 25 percent of all personal vehicles in the metropolitan

Washington area are SUVs, the MWCOG had assumed that only 10.5 percent of the total VMT was from light-duty gasoline trucks in their MOBILE emissions modeling.

The VMT mix input has a dramatic effect on the nitrogen oxide (NOx) emission factors produced by MOBILE5b. Increasing the fraction of VMT from trucks significantly increases the total regional NOx emissions.

To demonstrate the impact of different VMT mix assumptions, we ran MOBILE5b using the EPA 2005 defaults and the urban VMT mix used by MWCOG for the 2000 CLRP. All other MOBILE5b inputs were held constant. Figure 5 is an emissions profile for 2005 nitrogen oxide emission factors using the EPA default and MWCOG VMT mix.

Figure 5: NOx Emission Profile using Default and MWCOG VMT Mix



The NOx emission factors based on the default VMT mix are significantly higher than the 2000 CLRP MWCOG emission factors. On average, the percent difference between the default and MWCOG emission factors is 27 percent. Therefore, using the default VMT mix would produce total emissions 27 percent higher than those calculated originally by MWCOG. MWCOG has acknowledged that NOx emissions were significantly underestimated in the 2000 CLRP by using an invalid VMT mix, with too much VMT from light-duty gasoline vehicles and not enough VMT from light-duty gasoline trucks.

If the emissions had been estimated using EPA defaults, the motor vehicle emission budget (MVEB) for the MWCOG metropolitan statistical area (MSA) would be exceeded by almost 43 tons per day. In the 2005 horizon year, the margin between calculated emissions and the MVEB is only 0.8 tons per day. MWCOG has developed new VMT mix fractions that it says reflect actual conditions in the Washington area and this resulted in significantly higher emissions estimates for the 2001 CLRP update conformity analysis. A closer examination of how these new VMT mix fraction assumptions vary from the EPA defaults is warranted.

Modeled Average Speeds

Emission factors vary considerably with the average speed assumed. The values input for average speed in MOBILE5 have a significant impact on the resulting emission factors for exhaust and running loss emissions. MOBILE5 will calculate emission factors for average speeds of 2.5 to 65.0 mph, in increments of 0.1 mph. It is important to note here

that the emission factors produced by the MOBILE5 model are not a linear function of average speed. See Figure 5 for a NOx emission profile.

MWCOG ran the MOBILE5 model for 13 different speeds at 5 mph increments (5, 10, 15, and so on up to 65). MWCOG performs a link-based emissions calculation. Specifically, an emission factor corresponding to the speed on a link in the network is multiplied by the VMT on that particular link. The emissions on all links in the network are then summed to produce the total regional emissions. MWCOG only generated emission factors for 13 different speeds despite the fact that link speeds in the model vary from less than 2.5 mph to more than 65 mph. In performing the emissions calculation, the 5 mph emission factor generated by the MOBILE model was used for all links with congested speeds between 2.5 and 7.5 mph. The 10 mph emission factor was used for speeds between 7.5 and 12.5 mph and so on. This is not only unnecessary because MOBILE5b can calculate emission factors for all speeds between 2.5 and 65 mph, but is also inaccurate. The following sample calculations will illustrate how emissions are underestimated by the MWCOG methodology.

The sample network below consists of 5 links with congested speeds of 53, 54, 55, 56, and 57 mph. The MWCOG methodology would use the 55 mph emission factor for each link despite the variance in link speed and the fact that each speed has a distinct emission factor. The results of the sample calculation following the MWCOG methodology are presented in Table 3.

Table 3: Sample Emissions Calculation Using MWCOG Methodology

Link	Speed	55 mph NOX Emission Factor (grams/mile)	VMT	Total Emissions
1	53	2.321	50	116.05
2	54	2.321	75	174.08
3	55	2.321	150	348.15
4	56	2.321	175	406.18
5	57	2.321	325	754.33
		TOTAL	775	1798.78

Now we will repeat the analysis by correctly applying unique MOBILE5b emission factors for each distinct link speed. The results of the sample calculation following the correct methodology are presented in Table 4.

Table 4: Sample Emissions Calculation Using Correct Methodology

Link	Speed	NOX Emission Factor (grams/mile)	VMT	Total Emissions
1	53	2.201	50	110.05
2	54	2.260	75	169.50
3	55	2.321	150	348.15
4	56	2.384	175	417.20
5	57	2.448	325	795.60
		TOTAL	775	1840.50

The MWCOG methodology produces total NOx emissions of 1798.78 grams. However, correctly applying unique emission factors for each link yields total emissions equal to 1840.50 grams. Therefore, the MWCOG methodology has underestimated total emissions in this sample calculation by 2.3 percent. Given the narrow margin by which MWCOG reportedly meets the 2005 MVEB for NOx (by less than 1 ton per day) this potential underestimation is very significant. The emissions reported in the MWCOG Air Quality Conformity Determination dated October 18, 2000 are at the very least incorrect and may have been underestimated by their calculation methodology. MWCOG should repeat their emissions analysis by generating unique emission factors for speeds between 2.5 and 65 mph instead of only running the MOBILE model for 13 different speeds at 5 mph increments. This same methodological problem leads to some underestimation of emissions in the revised MWCOG conformity analysis for the 2001 CLRP.

Restrained Speed Equation

MWCOG post-processes model free-flow speed in order to calculate congested (restrained) speeds for use in the emissions analysis. MWCOG uses the following adapted Bureau of Public Roads (BPR) equation to calculate congested speeds by time period:

$$\mathbf{Sr = (Sc * 1.15) / (1 + 0.15 * (V/C)^4)}$$

Where:

Sr = Restrained speed

Sc = LOS "C" Speed

V/C = Volume to capacity ratio

In post-processing, this equation is subjected to an additional constraint. The V/C ratio is not allowed to exceed 1.6. If the V/C ratio exceeds 1.6, the excess volume is displaced into the following time period. There are ten time periods in total.

Under heavily congested conditions, the BPR equation is reduced to the following by restricting the V/C ratio to a maximum of 1.6:

$$\mathbf{Sr = 0.58 * Sc}$$

Therefore, regardless of link volume, the free-flow speed can only be reduced by 42 percent during congested conditions. In the MWCOG travel demand model, typical freeway speeds at LOS C are 60 mph (these speeds vary somewhat depending on the road's location, which is coded by 'ring codes' which radiate out from the Central Business District of the District of Columbia). Due to the V/C constraint implemented by MWCOG, the lowest possible congested freeway speed for Ring 8 is 35 mph (60 * 0.58 = 35). Figure 6 shows the full set of restrained freeway speed equations used by MWCOG for all rings. The conformity report indicates, "The results of this process were validated with observed speed data conducted in the District of Columbia and Beltway data." However, no other documentation has been provided which validates the use of this V/C restrained BPR equation. This aspect of the MWCOG post-processing has implications in the emissions analysis because the NOx emission curve is relatively flat between 30 and 40 mph (See Figure 5). However, the emissions curve increases as speeds fall below 30 mph. If congested speeds were allowed to continue falling below the levels at which the MWCOG model freezes them (e.g., 35 mph in ring 8, 33 mph in ring 7, 30 mph in ring 5, etc.), which they likely do in reality during peak hours, the NOx emissions from freeways would increase. This is particularly significant in this area where about 40 percent of total 2005 VMT is from freeways.

Figure 6: Restrained Freeway Speed Equation Used by MWCOG

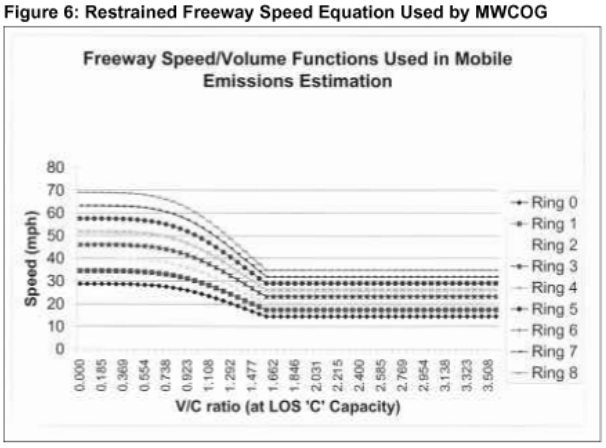
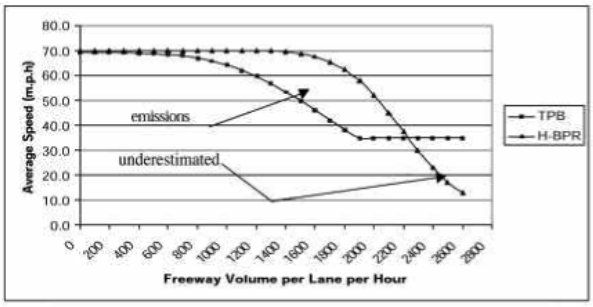


Figure 7 shows a typical volume-delay function used by TPB to translate hourly traffic volumes into traffic speeds to estimate emissions (in this case for Ring 8) as well as the Horowitz BPR volume-delay function presented earlier in this report. During the most prevalent highway conditions (1000 to 2000 vehicles per lane per hour), the TPB curve yields freeway speeds slower than the Horowitz BPR curve. Due to the nature of the NOx emissions curve, the total NOx emissions resulting from the TPB volume delay function will be less than the emissions calculated from speeds based on the Horowitz formulation. During congested conditions (greater than 2200 vehicles per lane per hour) the TPB curve yields speeds greater than the Horowitz BPR curve. Congested speeds are limited to a minimum of 35 mph because of the V/C constraint. NOx emissions are also underestimated in this region because NOx emission factors increase below 30 mph. The TPB volume-delay curve implemented with a V/C constraint minimizes NOx emissions both by relying on low speeds during uncongested periods and then by assuming a minimum speed of 35 mph during times of heavy congestion.

Figure 7: NOx Emissions Underestimated



Hourly Traffic Shifting

Excess traffic volumes during congested time periods are moved into less congested time periods in order to restrict the V/C ratio to values less than 1.6. Therefore, less congested periods such as 9:00 to 10:00 AM become more congested as excess volume from the morning peak hours are moved into this shoulder period. Speeds which would have been relatively high are reduced by the additional excess volume from the previous time periods. This strategy maintains speed in times of heavy congestion (AM and PM peak hours) while reducing speed in times of little congestion (midday and evening hours). The restricted BPR equation and MWCOG implementation push speeds to the middle of the emissions curve by moving volume out of congested periods into uncongested periods. Due to the parabolic shape of the emissions curves (Figure 5), this effectively minimizes total regional emissions.

We reproduced the emissions analysis conducted by MWCOG in a series of spreadsheets to quantify the impact of the V/C ratio constraint. First, we implemented the MWCOG methodology which restricts the V/C ratio to 1.6. Then, total emissions were recalculated

without the V/C restriction. Use of the V/C constraint underestimates 2005 total regional NOx emissions by 1.4 percent, and total regional VOC emissions by 12.4 percent. The V/C constraint effectively minimizes emissions by pushing speeds towards the middle of the pollutant curves, allowing the 2005 motor vehicle emissions budget to be met by a very narrow margin. Therefore, it is not surprising that total emissions for 2005 exceed the MVEB when the V/C constraint is removed from the MWCOG emissions analysis.

Effect of V/C Constraint on Hourly Traffic Distributions

Traffic distributions for ten discrete time periods of the day were used to process the 24-hour model link volumes and speeds from the MWCOG travel demand model. Hourly capacities and converted hourly volumes were then used in the restrained BPR formula to calculate speeds for use in the emissions analysis. However, if the V/C ratio exceeded 1.6, the excess volume was displaced into the following time period. For example, if there was too much volume on a particular link in the 3:00 to 4:00 PM time period to satisfy the V/C restriction, the excess volume was moved into the next time period, 4:00 to 5:00 PM. This shift does not represent "peak spreading" because the shifts are done at a relatively high level of service (e.g., 35 mph for ring 8 freeways) and because in some cases the afternoon peak hour is spread beyond midnight. Moving excess volume into the following time period can continue in this fashion until the last time period is reached (7:00 PM to 12:00 AM). What happens to excess volume that remains after the tenth and final time period?

This was obviously a concern for the programmer of the SAS code in the file "HRLKc101.sas" provided to us by MWCOG. After the section of code that performs the V/C check and moves excess volume when necessary, the following comment was included in the SAS file.

```
*   NOTE: FOR NOW, EVEN IF PERIOD 10 VOLUME EXCEEDS MAX VOLUME ;
*   PERIOD 10 VOLUME WILL NOT BE RESET AS IN PREVIOUS TIME PRDS;
*   (WHERE THE HELL IS IT SUPPOSED TO GO, ANYWAY?)
*   BUT VC IS SET TO 1.6
*   PER10VOL=MAX10VOL;
```

We performed the same V/C constraint and time period analysis in Excel, and found that the excess volume remaining after the tenth time period for 2005 represents 448,765 vehicle miles of travel. Some of the links with excess volume remaining after the tenth time period in 2005 have been identified in the network. The model link, roadway description, and VMT are presented in Table 5.

without the V/C restriction. Use of the V/C constraint underestimates 2005 total regional NOx emissions by 1.4 percent, and total regional VOC emissions by 12.4 percent. The V/C constraint effectively minimizes emissions by pushing speeds towards the middle of the pollutant curves, allowing the 2005 motor vehicle emissions budget to be met by a very narrow margin. Therefore, it is not surprising that total emissions for 2005 exceed the MVEB when the V/C constraint is removed from the MWCOG emissions analysis.

Effect of V/C Constraint on Hourly Traffic Distributions

Traffic distributions for ten discrete time periods of the day were used to process the 24-hour model link volumes and speeds from the MWCOG travel demand model. Hourly capacities and converted hourly volumes were then used in the restrained BPR formula to calculate speeds for use in the emissions analysis. However, if the V/C ratio exceeded 1.6, the excess volume was displaced into the following time period. For example, if there was too much volume on a particular link in the 3:00 to 4:00 PM time period to satisfy the V/C restriction, the excess volume was moved into the next time period, 4:00 to 5:00 PM. This shift does not represent "peak spreading" because the shifts are done at a relatively high level of service (e.g., 35 mph for ring 8 freeways) and because in some cases the afternoon peak hour is spread beyond midnight. Moving excess volume into the following time period can continue in this fashion until the last time period is reached (7:00 PM to 12:00 AM). What happens to excess volume that remains after the tenth and final time period?

This was obviously a concern for the programmer of the SAS code in the file "HRLKc101.sas" provided to us by MWCOG. After the section of code that performs the V/C check and moves excess volume when necessary, the following comment was included in the SAS file.

```
*   NOTE: FOR NOW, EVEN IF PERIOD 10 VOLUME EXCEEDS MAX VOLUME ;
*   PERIOD 10 VOLUME WILL NOT BE RESET AS IN PREVIOUS TIME PRDS;
*   (WHERE THE HELL IS IT SUPPOSED TO GO, ANYWAY?)
*   BUT VC IS SET TO 1.6
*   PER10VOL=MAX10VOL;
```

We performed the same V/C constraint and time period analysis in Excel, and found that the excess volume remaining after the tenth time period for 2005 represents 448,765 vehicle miles of travel. Some of the links with excess volume remaining after the tenth time period in 2005 have been identified in the network. The model link, roadway description, and VMT are presented in Table 5.

Congestion is more severe in future analysis years 2015, 2020, and 2025. As congestion increases and the V/C restriction is maintained, more and more excess volume will remain after the tenth time period. We once again performed the same V/C constraint and time period analysis in Excel, and found that the excess volume remaining after the tenth time period for 2025 increases to 1,372,311 vehicle miles of travel. This volume cannot be moved into another time period since the tenth and final time period represents 7:00PM to 12:00AM. Therefore, the volume is maintained within the tenth time period and as a result, there are more than 1,500 links in the 2025 network that are considered over capacity at midnight. This result is completely unreasonable. In essence, the amount of daily traffic assigned to certain links in the model does not fit within a 24-hour period.

In the nine periods prior to the 7:00PM to 12:00AM time period, the time period volume is tested against the V/C constraint. If the time period volume is less than the maximum allowable volume, the V/C ratio is calculated according to the link volume. If the time period volume exceeds the maximum allowable volume, the excess volume is displaced into the next time period and the V/C ratio is set equal to 1.6. However, if the tenth time period volume exceeds the maximum allowable volume it cannot be displaced into another time period. Despite this limitation, the V/C ratio is still set to 1.6 when the tenth time period volume exceeds the allowed maximum. This V/C ratio is then used to calculate congested speed for input into the MOBILE emissions model. Therefore, in 2025 there are more than 1,500 links that have calculated congested speeds based on a V/C ratio equal to 1.6, which is inconsistent with the actual tenth time period volume that exceeds the allowed maximum. The net result is that the MWCOG model produces forecasts of hourly volumes that underestimate traffic volumes especially on high-traffic flow congested links during peak hours while overestimating traffic volumes on those same links during non-peak hours. In both cases this likely leads to underestimation of motor vehicle NOx and VOC emissions.

Implications of Model Deficiencies on Travel Forecasts

It is clear that land development and traffic growth follows highway construction. The Interstate highway system was originally conceived and funded as a civil defense measure, as a means to evacuate cities in case of nuclear war. Instead, Interstate and other highway interchanges have become the centers of development in cities throughout the United States. When highway capacity is increased, generally it has quickly filled with increased traffic flow.

DeCorla-Souza and Cohen define this "induced demand" as an: "increase in daily vehicle miles of travel (VMT), with reference to a specific geographic context, resulting from expansion of highway capacity."[i] This definition includes both short-term effects and long-term effects. The short-term effects include more trips, longer trips, more auto trips, and auto trips with lower occupancies. The long-term effects follow land used changes caused by expanded roadway capacity.

Induced demand effects are well known both to planners and lay people, but until recently they were not quantified. Now there is a rapidly-growing research literature quantifying the effects of induced demand. The Annual Meeting of the Transportation Research Board, held in January in Washington D.C., is the premiere transportation conference in the United States, and papers presented at these meetings are approved through a peer review process. In the 1997, 1999, and 2000 meetings, seven papers have been presented that quantify induced demand.

The measure used in most studies is *elasticity*, a basic concept of economics. When the supply of a good or service increases, its price drops. When the price drops, consumption of the product increases. For the majority of Americans, the incremental cost of operating cars is low enough that the perceived cost is primarily travel time. An increase in lane

miles of road capacity (supply) causes a near-term decrease in travel time (price), which in turn leads to an increase in vehicle miles traveled (consumption).

Elasticity is calculated as the ratio of the change in consumption divided by the change in supply. For example, if a 10 percent increase in vehicle miles traveled is caused by a 10 percent increase in lane miles, the elasticity is:

10 percent / 10 percent = 1.0.

Alternatively, if a 5 percent increase in vehicle miles traveled is caused by a 10 percent increase in lane miles, the elasticity is:

5 percent / 10 percent = 0.5.

Research findings from five of the studies presented at the Transportation Research Board Annual Meetings are directly comparable and are summarized in Table 6.

Table 6: Long-Term Regional Elasticity of Vehicle Miles Traveled to Lane Miles

Study	Long-term regional elasticity
Hansen [ii iii]	0.9
Noland [iv]	0.7 - 1.0
Fulton et. al.[v]	0.5 – 0.8
Noland and Cowart[vi]	0.904
Marshall[vii]	0.76 arterials, 0.85 highways
Average of five studies (highways)	0.83

The other two studies use different measures but results are consistent with the five studies summarized in Table 6. One of the studies (Chu) focuses on the response of VMT to congestion. It states: "... an expansion of 1 percent to an existing capacity of 1,000 lane miles, for example, congestion would reduce by one-eleventh of a percent on freeways."[viii] Chu defines "congestion" as vehicle miles traveled divided by lane miles. Therefore, vehicle miles traveled must increase by 10/11 percent in Chu's example. This implies an elasticity of vehicle miles traveled to freeway capacity of 0.91.

In the final study, Barr found elasticities of vehicle miles traveled to travel time of -0.3 to -0.5.[ix] The negative sign means that the change in travel is in the opposite direction from the change in travel time. For example, if travel time decreased by 10 percent, VMT would increase by 3-5 percent. Although the absolute values of 0.3 – 0.5 are lower than the 0.5 – 1.0 values presented in the other studies, they are not inconsistent. In most cases, added capacity is on highways and relatively high-speed arterials. The new capacity has higher average speeds than the old capacity, and the percentage change in travel time generally is greater than the percentage change in lane miles. Therefore, the calculated elasticity values will have the reverse relationship: elasticity to travel time will appear smaller than the elasticity to lane miles.

For highways, the average from the five most comparable studies is an elasticity of 0.83. This implies that adding a new lane of capacity adds, on average, traffic equal to 83 percent of what is currently on the adjacent lane of traffic. Some of this traffic will be on the widened, and less congested, road and some will be on extensions of the widened link or intersecting roads that have not been widened and are now more congested roads.

The Induced Travel Demand Debate

The statistical case presented above is rather abstract, and it is easy to get confused by how these numbers are the same as or different that other numbers that have been published. For example, Kevin Heanue made a presentation at the 1997 TRB Annual Meeting where he concluded that only 6.0 - 22.1 percent of the VMT growth in the Milwaukee metropolitan area between 1960 and 1990 was attributable to induced demand.[x] Heanue attributed the rest of VMT growth to increased population, households, labor force participation, income, auto availability, and licensed drivers, as well as increases in single home ownership, lower development densities, and low real costs of gasoline.

While Heanue's conclusions may appear to contradict the induced demand literature, there is really no conflict at all. Heanue does not calculate an elasticity of induced travel demand himself. Rather, he simply assumes a range of 0.3 – 1.0 taken from studies available at that time. The 22 percent number is not a much smaller number than an elasticity of 1.0; it is another way of expressing an elasticity of 1.0 in the context of Milwaukee between 1960 and 1990.

Heanue did not claim that induced travel growth was insignificant in this 1997 report, only that it was less important in Milwaukee than the great socioeconomic changes during that period. Nevertheless, Milwaukee was a poor choice for the case study, as it constructed much less road capacity per capita during this period than most American urban areas. While Milwaukee demonstrates that VMT increased during that historic period without much roadway construction, it can not really address the question of what happened with significant roadway construction.

The rapid socioeconomic changes between 1960 and 2000 have resulted in a great increase in labor force participation among women, almost universal auto availability, and much smaller households. While these have been important engines for VMT growth during this historical period, they have run their course and will be much less important over the coming decades.

The study recently done for TPB on induced travel demand[xi] concludes that it is unimportant, without contradicting any of the evidence of induced travel demand. This study focuses on the I-270 corridor, where the study acknowledges that traffic growth has been much more rapid following construction than anticipated. The study shows that population and employment growth has also been much more rapid than anticipated, and attributes the traffic growth to this rather than the capacity expansion.

But, this is a pure case of induced traffic. The study states: "Other induced travel may result from longer-term location decisions by households, employers and other facilities." The study shows that the earlier forecasts greatly underestimated population and employment in the suburban areas in the I-270 corridor, and greatly overestimated population and employment in the more urbanized areas in and around Washington D.C. In effect, jobs and housing shifted to the I-270 corridor and away from Washington D.C. and the inner suburbs including Prince George's County. As VMT per capita is much higher in the I-270 corridor than in the central Washington D.C. area, this land use shift has resulted in a large increase in regional VMT.

Furthermore, in the data presented in the study for TPB, the land use effects do not account for all of the growth in VMT. While 2000 population for the corridor area was 23 percent greater than assumed in studies, the daily traffic volumes in 1999 in the three most traveled sections of I-270 were 40-51 percent higher than the 2000 forecasts. This is also strong evidence of the non-land-use induced travel effects at work.

Incorporating Induced Demand for More Realistic Modeling

In order to develop realistic future transportation scenario results, the metropolitan transportation planning process must incorporate induced demand into modeling activities. This is critical in: 1) the development of long-range transportation plans, 2) analyzing motor vehicle emissions, 3) project planning, and 4) providing a reliable assessment of the costs and benefits of alternative regional and corridor-level investment strategies.

All of these processes are predicated on a region having and applying a sophisticated and valid regional travel demand model. However, induced demand generally is not fully treated in regional models. In a review of how well regional models capture induced demand, DeCorla-Souza and Cohen conclude that elements of induced demand that can be modeled within the four-step process include:

- increased trip distance (distribution),
- increased LOV share (mode choice), and
- shift to improved facilities (assignment).[1]

The extent to which these aspects are modeled in practice depends on the model implementation.

They suggest induced demand elements generally not modeled in four-step process include:

- land use effects, and
- trips per unit of development (trip generation).

Land use effects are of two types. Micro-scale land use effects related to pedestrian and other non-auto accessibility are closely related to trip generation effects. These effects include the number of trips made by type and time of day, and the mode used. Macro-scale land use effects are the allocation of new residences and employment throughout the region, based in part on the relative accessibility of different land.

Micro-scale land use effects have been neglected in travel demand models because computing and data requirements required large transportation analysis zones (TAZs) which were poorly suited for microscale analysis. Advanced modeling procedures that include smaller transportation analysis zones (TAZs) or do away with TAZs altogether make capturing these effects in travel demand models feasible. In addition, advances in Geographical Information Systems (GIS) and the synthetic population methods developed as part of TRANSIMS are making socioeconomic data available at the point or small grid cell level. These trends are paralleled by much research focused on understanding and quantifying these microscale effects. Therefore, we anticipate that micro-scale land use effects (which are already captured partially in some MPO models) will become a standard feature of travel demand modeling.

Macro-scale effects of different land use allocations with different transportation scenarios can be captured with land use allocation models. A number of regions have used land use allocation models in special studies in order to evaluate alternative futures. For example, the Chicago region has evaluated alternative highway/transit and airport land use scenarios as part of its long-range planning process. The

Burlington Vermont and New Hampshire Seacoast regions routinely run land use allocation models as in both long-term planning and major project planning. However, many regions with land use allocation models develop only a single land use scenario, and therefore ignore these effects.

The Second Oregon Symposium on Integrating Land Use and Transport Models held this July disseminated information on the latest research and application to a large number of enthusiastic attendees. Oregon is out ahead of the pack as usual, with a statewide model under development and planned for completion in 2001. However, we expect others to catch up. The important observation is that tools to account for land use allocation are now available to planners and should become a standard feature of travel demand modeling for application to both long-term planning and analyzing major projects.

Another important area (not mentioned by DeCorla-Souza and Cohen) which is generally not modeled is travel by time of day. An important behavioral response to congestion is to shift travel into less congested times. These shifts have public benefits because they allow the transportation system to be more fully utilized.

In general, regional travel demand models treat the proportion of travel within different periods as fixed. As regions have become more congested, the peak periods modeled have grown from a single hour to two-hour or three-hour periods, based on historical observations. However, future peak proportions are considered to be the same as the past, regardless as to whether the future will be more or less capacity constrained than the past. This overestimates the benefits of adding roadway capacity on peak hour delay. Advanced models are addressing this deficiency by assigning trips dynamically by time of day. This capability is present especially in the new generation of activity-based models.

In reviewing recent long-range transportation plans and conformity analyses for Chicago, Atlanta, Houston, and Phoenix, along with this current review of the TPB model, we conclude that none of the long-range plans considers induced demand completely. Nevertheless, the TPB model performs the worst. The table below summarizes which components of induced demand are included in these four regional travel demand models. While many of the elements needed to evaluate induced demand are found in the models, more analysis is needed to determine how well the models analyze induced demand effects.

Table 7: Elements of Induced Demand Included in Travel Demand Models for Selected Large U.S. Metropolitan Areas

	Chicago	Atlanta	Houston	Phoenix	Portland	Washington D.C.
Macro-scale land use	Partially, base and build scenarios	No, only one scenario	No, only one scenario	Conflicting documentation as to how land use allocation model was applied	No, only one scenario	No, only one scenario
Micro-scale land use and trip	Partially	Partially	Partially	Partially	Yes	No

generation						
Trip distribution	No, intervening opportunities model insensitive to capacity	Yes	Yes	Yes	Yes	Insensitive
Mode choice	Yes	Yes	Yes	Yes	Yes	Insensitive
Time of Day	No	No	No	No	Yes	No
Assignment	Yes	Yes	Yes	Yes	Yes	Insensitive

The flip side of induced travel demand is reduced travel demand. If planned roadway capacity increases are insufficient to maintain congestion at current levels, travel demand should decrease. Components of the reduction would include changes in destination, mode, time of travel. Over the longer term, residential and business location choices would be affected by accessibility including the effects of congestion. As demonstrated in the table above, the TPB model is least able to account for this reduced travel demand of any of the models reviewed.

With these problems, the current TPB travel demand model will overestimate travel demand in the future, overestimate the benefits of proposed highway improvements, and will miscalculate both current and future air emissions.

Effects of These Deficiencies on Past Analyses of Potential Potomac Bridge Crossings

As shown in Table 7 above, the TPB model includes almost none of the travel demand features that would support modeling induced travel demand. Therefore, it is not surprising that the model does not realistically represent induced travel demand.

There is one area that TPB identifies as critical and then fails to follow through on its promise. TPB documentation describes the importance of model feedback:

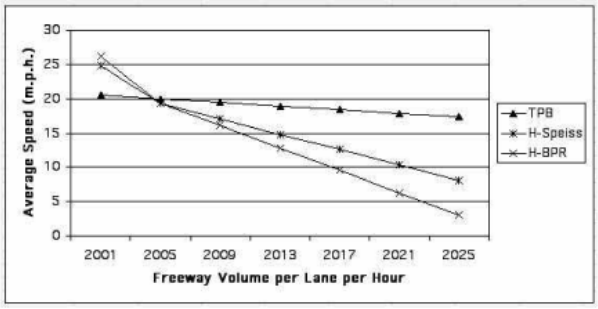
> Another key distinguishing feature of the Version 1 model linkage of traffic assignment-based speeds to the HBW trip distribution model. The feeding back of congestion speeds resulting from the traffic assignment step is a federally mandated requirement for acceptable modeling practice, and allows for greater consistency of congested highway speed assumptions used throughout the modeling process. (Transportation Planning Board: *FY-98 Models Development Program for COG/TPB Travel Models*, June 30, 1998)

The TPB model has such weak feedback that it does not meet the intent of the requirement. Consider the case of the American Legion Bridge on I-495. This bridge is the closest existing Potomac River crossing to any of the proposed "Techway" routes. Figure 8 illustrates the bridge speeds calculated by the TPB model for the period 2001-2025. In 2025, the forecast traffic volume on the bridge is 77,000 vehicles per day higher (30 percent) assuming the same capacity as in 2001. The speed being fed back to the trip distribution model declines by 15 percent. If the Horowitz recommended parameters described above were applied, the reduction in speed would be either 60 percent (Speiss function) or 90 percent (BPR function). These more realistic feedback functions would better reflect the real world response of travelers to changing traffic conditions. Motorists would find that work travel across the bridge would be increasingly less attractive as traffic volumes increase, and would reduce such trip making as people chose instead to use transit or carpool, to travel at different times of day, chose different destinations, or decided to telecommute.

An increase of 30 percent in traffic volume would be accompanied by a reduction in speed of 70 - 90 percent. However, this great an increase in traffic would not occur. A proper model would produce an intermediate result – an increase in peak hour/peak direction travel due to growth in population and employment, but much less of an increase than assumed in the TPB model. The TPB model lacks adequate feedback which causes shifts in destination, mode, and travel time in response to increased congestion.

This problem is not limited to the American Legion Bridge. It affects almost half of total regional VMT in 2001 and 2005 (46.7 percent and 49.5 percent, respectively) increasing to 63.9 percent of regional VMT in 2025. The impact of not including realistic feedback from congested travel speeds is substantial.

Figure 8: American Legion Bridge – TPB Assumed Speed vs. Properly Modeled Speed



Note: H-Speiss and H-BPR are two formulations recommended by Horowitz in 1991 in work done for the U.S. Department of Transportation. This work is described in greater detail in an earlier section of this report.

Most trips are non-work trips, and the TPB model does not even attempt feedback for non-work trips. The rationale appears to be that these are made during off-peak times, when there is little if any congestion. This rationale is contradictory to the other assumptions of TPB – that excess traffic from the peak traffic periods will spill over to the following periods, creating long periods of what they call "forced flow." As the majority of trips even in the peak hours are non work, this lack of considering feedback for these trips as well is unacceptable.

As the TPB model can not properly forecast reductions in VMT as a result of congestion, it can not properly forecast increases in VMT that will result from increases in roadway capacity. In the context of Potomac River crossings, future traffic volumes on the existing bridges, including the American Legion Bridge, are surely overestimated in scenarios with no new bridges.

Time savings with a new bridge would be at least partially offset by increased congestion caused by induced travel, including congestion at roadways leading to and from any new bridges. The TPB model overstates the benefits of new roadway capacity, and underestimates the costs, including the effects of increased traffic in other areas.

Methods That Address These Deficiencies

Short-Term

In the short term, the TPB model should be upgraded to the state of the practice. While the Version 2 model that TPB is developing will address some of these, other areas for action are likely to remain outstanding. Critically needed improvements include:

1) using equilibrium assignment.

2) substituting ultimate capacity values for the current LOS C capacity values.

3) substituting realistic speed-delay functions for the outmoded BPR function. TPB's preliminary Version 2 model does not currently address this issue.

4) modeling multiple times of day, with time-of-day of travel sensitive to changes in travel times and costs between origins and destinations and changes in the heterogenity and mix of local land uses. TPB's preliminary Version 2 model does not currently address these factors.

5) making the model sensitive to changes in pedestrian/bicycle friendliness that are independent of job or household density and the location of an area in the region. TPB's preliminary Version 2 model does not currently address these factors, which include the average size of street blocks, availability and continuity of sidewalks, difficulty of crossing streets, implementation of traffic calming measures and pedestrian- and bicycle-friendly intersection and street designs, urban design standards such as maximum building setback requirements, restriction of 'blank wall' developments, and provision of bus shelters and bicycle parking facilities.

Intermediate Term

Implementation of these short-term improvements would completely change the model results. Therefore, it is difficult to anticipate what further improvements may be warranted. Over the intermediate term, a thorough investigation should be made as to how well the upgraded model accounts for land use/transportation interactions and the other components of induced travel demand. These types of improvements could be advanced as needed to address any deficiencies found.

Conclusions

The Metropolitan Washington Council of Governments National Capital Region Transportation Planning Board ("TPB") is the region's Metropolitan Planning Organization ("MPO"). Under Federal laws and regulations, MPOs are responsible for a set of regional planning activities including developing long-range transportation plans and demonstrating air quality conformity.

MPOs rely on computer models in these planning efforts. The models include separate but linked travel demand models and air quality models. Modeling activities are regulated by federally guidelines. TPB documentation states: "The feed back of congestion speeds resulting from the traffic assignment step is a federally mandated requirement for acceptable modeling practice."

This requirement is not being adequately met by the TPB model. While going through the motions of a feedback step, this step is extremely weak for work trips. For non-work trips, there is no feedback at all. Forecast traffic volumes in the model grow in an unrealistic unconstrained manner. This overestimation of future traffic demand can be falsely used to support the need for additional highway capacity.

In general, modeling such high traffic volumes with such high levels of congestion would present problems to TPB in demonstrating air quality conformity in future years. Air pollution is a function of vehicle miles of travel (VMT) and speed. Emission rates for all pollutants governed by federal standards are higher for low travel speeds associated with congestion.

However, TPB avoids the air conformity problem by invalidly shifting the traffic into less congested travel periods on a link by link basis, and maintaining unrealistic assumptions about travel speeds during congested periods. For freeways in the middle and outer part of the region, for example, TPB assumes that the minimum congested speed is 30-35

m.p.h., which is a range of speed with the minimum emissions for NOx, the region's most critical pollutant. By shifting the traffic from one period to another, calculated emissions for the most congested periods are reduced while simultaneously reducing travel speeds, and therefore calculated emissions, for adjacent time periods to 30-35 m.p.h. in the middle and outer rings of the region.

Without these invalid assumptions, calculated NOx emissions in 2005 would be 1.4 percent greater. This increase of 2.2 tons per day would cause the region to exceed the maximum allowed by 1.7 tons per day. In addition, calculated VOC emissions in 2005 would be 12.4 percent greater. This increase of 12.6 tons per day would cause the region to exceed the maximum allowed by 11.9 tons per day.

The TPB model is one of the poorest of large metropolitan travel demand models in capturing the effects of induced travel demand. With these problems, the TPB travel demand model overestimates travel demand in the future, overestimates the benefits of proposed highway improvements, and miscalculates air emissions.

These problems are especially acute in past studies of potential new Potomac River bridge crossings, all of which were based on this model or previous versions of the model. The American Legion Bridge on I-495 highlights these problems. This bridge is the closest existing Potomac River crossing to any of the proposed "Techway" routes. Despite a modeled increase in traffic volume of 30 percent or 77,000 vehicles per day, the TPB modeled speed declines by only 15 percent. This small decrease in speed effects only work trips. There is no effect on non-work trips at all.

Recommended speed delay functions indicate that this increase of 30 percent in traffic volume would be accompanied by a reduction in speed of 70 - 90 percent. However, this great an increase would not occur. A proper model would produce an intermediate result – an increase in peak hour/peak direction travel due to growth in population and employment, but much less of an increase than assumed in the TPB model. The TPB model lacks the realistic feedback which causes shifts in destination, mode, and travel time in response to increased congestion.

As the TPB model can not properly forecast reductions in VMT as a result of congestion, it can not properly forecast increases in VMT that will result from increases in roadway capacity. In the context of Potomac River crossings, future traffic volumes on the existing bridges, including the American Legion Bridge, are surely overestimated in scenarios with no new bridges.

Any forecast travel time savings with a new bridge would be at least partially offset by increased congestion caused by induced travel, including congestion at roadways leading to and from any new bridges. The TPB model overstates the benefits of new roadway capacity, and underestimates the costs, including the effects of increased traffic in other areas.

The TPB and the Metropolitan Washington Air Quality Committee (MWAQC) have recently appointed a task force to recommend strategies to reduce air pollution to compensate for the excess emissions from increased use of sport utility vehicles and light trucks in the region. There are a number of strategies that could be used to solve this emission budget shortfall within the transportation planning process, for example by delaying some traffic-inducing road projects to accelerate funding of new bus and railcar purchases, promoting employer-paid commuter transit benefits, and investing in bicycle and pedestrian access to schools and transit stops.

The TPB has recommended that about half of this emission budget shortfall be eliminated – on paper - simply by adjusting what it believes to be faulty model assumptions about the composition of traffic on local roads and accessing park-and-ride lots in the region. Any modification of the TPB models to refine the analysis of traffic and its emissions

should also correct the deficiencies noted in this report. Failure to do so would raise serious questions about compliance of the region's planning process with the Clean Air Act regulations guiding modeling and use of the latest and best planning assumptions.

* * *

This report is a revision of an earlier edition released on December 10, 2001. It refines and clarifies several figures presented in the earlier report on the basis of information obtained in a meeting between Transportation Planning Board staff, consultants, and report sponsors on January 10, 2002. The report's findings and conclusions remain unaltered by these refinements. Opinions expressed in this report do not reflect the position of the Metropolitan Washington TPB or its staff.

ATTACHMENT 8: AMERICAN PUBLIC HEALTH ASSOCIATION * ASTHMA AND ALLERGY FOUNDATION OF AMERICA * CHILDREN'S ENVIRONMENTAL HEALTH NETWORK * CHILDREN'S NATIONAL MEDICAL CENTER * ENVIRONMENTAL DEFENSE * GRACE PUBLIC FUND * PHYSICIANS FOR SOCIAL RESPONSIBILITY

July 26, 2002.

The Honorable NORMAN Y. MINETA
Secretary, U.S. Department of Transportation
400 7th Street SW
Room 10200
Washington, DC 20590

DEAR SECRETARY MINETA: We represent a diverse array of groups dedicated to supporting and improving public health. We are writing to request that the Administra-

tion's proposal for reauthorization of the Transportation Equity Act for the 21st Century (TEA–21) contain measures that protect that public's health from unintended consequences of transportation initiatives.

A transportation system that encourages or supports increased use of personal automobiles can impair human health by a variety of means, including:

- Increased injuries and deaths from motor vehicle crashes (including pedestrians and bicyclists);
- Increased respiratory illness, infant mortality and other health damage connected with exposure to air pollutants;
- Impaired water quality related to runoff from paved land; and
- Decreased physical activity, contributing to the nation's epidemic of obesity and diabetes

We therefore call on the Administration to take the following steps in their reauthorization proposal:

- Require new road projects to meet the same criteria and local funding match as required for new transit projects.
- Require health impact statements for all new transportation plans and major projects. These statements must address the potential impact of the proposed plan on public health, including fitness, community cancer risk, health effects related to air quality, and transportation-related injuries and fatalities, as well as consideration of disparate impacts on minorities.
- Oppose environmental streamlining, which threatens to promote failed policies of trying to build our way out of congestion. Instead, we should require integrated State, regional, and local transportation, natural resource, and growth plans.
- Defend requirements that all updates to 20-year transportation plans and short-term programs conform with Clean Air Act State Implementation Plans.
- Expand and strengthen the Congestion Mitigation Air Quality Program (CMAQ), which provides $1.3 billion a year for non-highway widening projects that reduce pollution in non-attainment areas. Seek funding growth proportionate to the population of all newly designated non-attainment areas.
- Boost tax incentives for employers to offer employees tax-free transit benefits.

Changes in how we manage and operate transportation can save money and lives, cut congestion, and improve environmental quality. But to achieve this we need better planning, better accountability for the effects of decisions, and fuller consideration of alternatives to building more and bigger highways. We strongly urge you to move this country in the direction of transportation systems that benefit, rather than harm, the health and well-being of our residents and communities. We look forward to working closely with you in this effort.

Sincerely,

DONALD HOPPERT,
American Public Health Association.

JAQUI VOK,
Asthma and Allergy Foundation of America.

DANIEL SWARTZ,
Children's Environmental Health Network.

BENJAMIN GITTERMAN, MD,
Children's National Medical Center.

JOHN BALBUS, MD, M.P.H.
Environmental Defense

ALICE SLATER,
GRACE Public Fund.

ROBERT K. MUSIL, PH.D, M.P.H.
Physicians for Social Responsibility.

ATTACHMENT 9: AMERICAN RIVERS * ENVIRONMENTAL DEFENSE * FRIENDS OF THE EARTH * IZAAK WALTON LEAGUE * NATIONAL ENVIRONMENTAL TRUST * NATURAL RESOURCES DEFENSE COUNCIL * PHYSICIANS FOR SOCIAL RESPONSIBILITY * RAILS TO TRAILS * SCENIC AMERICA * TRUST FOR PUBLIC LANDS * UNION OF CONCERNED SCIENTISTS

July 26, 2002

The Honorable JAMES M. JEFFORDS,
Chairman, Senate Environment and Public Works Committee,
Dirksen Senate Office Building,
Washington, DC 20510.

RE: STREAMLINING AND TEA–21 REAUTHORIZATION

DEAR SENATOR JEFFORDS: Reauthorization of the Transportation Equity Act for the 21st Century (TEA–21) is a key opportunity to promote transportation environmental stewardship, renewing the promise of the ISTEA reforms. We urge the Administration to pursue such opportunities and resist "environmental streamlining" proposals for highways, aviation, pipelines, and energy which threaten to impair core environmental laws such as the National Environmental Policy Act (NEPA) and clean air, clean water, parks, and historic resources protection statutes.

Some States have begun to embrace environmental stewardship, forge partnerships with resource agencies and stakeholders, and use TEA–21's flexibility to support smart growth, resource protection, system management and incentives, and expanded travel choices as a core part of transportation plans and programs. Other States continue to pursue a failed strategy of trying to build their way out of congestion. Some scapegoat environmental laws for their own administrative failures, manifested in a lack of consensus on proposed projects; insufficient local matching funds; and projects delayed by inadequate consideration of alternatives, inadequate mitigation, avoidance of adverse impacts, and efforts to end-run Federal requirements.

This has led to 'environmental streamlining' proposals with arbitrary review deadlines, time limits on judicial review of transportation decisions, limitations on the determination of purpose and need for transportation projects and lead agency designations, circumscribed public involvement, mandatory concurrent processing of reviews and permits, and the elimination rather than integration of the Major Investment Study requirements of ISTEA into NEPA and the planning process. We urge you to oppose such anti-environmental measures threatening core environmental laws that assure the public's right-to-know about the effects of decisions before actions are taken.

We urge your support for efforts to expedite transportation project delivery by improving integration of project reviews with a planning process designed to minimize adverse impacts; strengthen accountability; and consider opportunities for improved transportation system management and stewardship. Such approaches can produce timely consensus to build good projects that protect public health, curbing delays and conflict that arise when agencies advance harmful projects without broad public support.

Transportation planning which considers communities and protected resources such as public parks, wildlife habitat and historic sites will produce better projects less likely to incur opposition and delay. Taking protected resources into account at the beginning, and planning accordingly will both protect resources and facilitate project approvals.

TEA–3 should require coordination of transportation, environmental, resource and land use plans with effective public involvement and more funding for resource agencies for their early and continuous engagement. Transportation data and analysis must be improved for sound evaluation of secondary, induced and cumulative impacts and the effects of smart growth and transportation management alternatives on air quality, equity, and other goals. Many delays arise when agencies have failed to effectively consider impacts on specific populations or neighborhoods, or the effects of transportation infrastructure projects on land use, travel behavior and public health.

Better classification of transportation projects for environmental review could cut delays. Some major highway widening projects evade environmental analysis while small, no-impact projects sometimes endure needless processing delays. The more rigorous New Starts review procedures applied to new transit projects should be equally applied to new highways. All federally funded projects should be planned and designed under the principles of context-sensitive highway design. Improved inter-city rail service and congestion pricing strategies should be considered as alternatives to new airport capacity.

Health impact assessments should be made part of all transportation plans. We urge you to oppose weakening of transportation conformity, which assures transportation plans do not cause a failure of State air pollution control strategies. Public health would be threatened if plans and programs could be amended without considering air quality implications or if conformity applied only to short-term programs, rather than to both 20-year transportation plans and short-term programs. Conformity is spurring investments in transportation strategies and technologies that reduce air pollution and better interagency cooperation. A few areas like Atlanta have faced short-term limits on their flexibility to build new roads because their transportation plans conflicted with their air quality plans, motivating timely action for interagency cooperation. The $1.3 billion a year CMAQ program, which funds clean air programs, should be expanded by at least 50 percent, proportionate to the number of people living in new non-attainment areas.

Finally, TEA–3 should also require regional transportation plans and programs to contribute to timely attainment of clean water goals, and require stormwater management strategies for all new transportation facilities in watersheds not meeting standards, and application of best retrofit technologies for any highway undergoing significant reconstruction.

We would welcome the opportunity to meet with you during September to discuss these critical environmental issues with you. Felicia Lopez, Green Group Coordinator, will be in touch with your office in the near future to identify a convenient meeting time for you.

Sincerely,

KEITH LAUGHLIN,
President, Rails to Trails.

WILL ROGERS,
President, The Trust for Public Lands

HOWARD RIS,
President, Union of Concerned Scientists.

MEG MAGUIRE,
President, Scenic America.

FRED KRUPP,
Executive Director, Environmental Defense.

REBECCA R. WODDER,
President, American Rivers.

PHILIP E. CLAPP,
President, National Environmental Trust.

JOHN H. ADAMS,
President, Natural Resources Defense Council.

BRENT BLACKWELDER,
President, Friends of the Earth.

ROBER K, MUSIL,
Executive Director, Physicians for Social Responsibility.

PAUL HANSEN
Executive Director, Izaak Walton League.

ASTHMA AND ALLERGY FOUNDATION OF AMERICA * CHILDREN'S ENVIRONMENTAL HEALTH NETWORK * CHILDREN'S NATIONAL MEDICAL CENTER * ENVIRONMENTAL DEFENSE * GRACE PUBLIC FUND * PHYSICIANS FOR SOCIAL RESPONSIBILITY

July 24, 2002.

The Honorable NORMAN Y. MINETA,
Secretary, U.S. Department of Transportation
400 7th Street SW
Room 10200
Washington, DC 20590

DEAR SECRETARY MINETA: We represent a diverse array of groups dedicated to supporting and improving public health. We are writing to request that the Administration's proposal for reauthorization of the Transportation Equity Act for the 2155 Century (TEA–21) contain measures that protect that public's health from unintended consequences of transportation initiatives.

A transportation system that encourages or supports increased use of personal automobiles can impair hi man health by a variety of means, including:

- Increased injuries and deaths from motor vehicle crashes (including pedestrians and bicycle sts);
- Increased respiratory illness, infant mortality and other health damage connected with exposure to air pollutants;
- Impaired water quality related to runoff from paved land; and
- Decreased physical activity, contributing to the nation's epidemic of obesity and diabetes.

We there ore call on the Administration to take the following steps in their reauthorization proposal:

- Require new road projects to meet the same criteria and local funding match as required for new transit projects.
- Require health impact statements for all new transportation plans and major projects. These statements must address the potential impact of the proposed plan on public health, including fitness, community cancer risk, health effects related to air quality, and transportation-related injuries and fatalities, as well as consideration of disparate impacts on minorities.
- Oppose environmental streamlining, which threatens to promote failed policies of trying to build our way out of congestion. Instead, we should require integrated State, regional, and local transportation, natural resource, and growth plans.
- Defend requirements that all updates to 20-year transportation plans and short-term programs conform with Clean Air Act State Implementation Plans.
- Expand and strengthen the Congestion Mitigation Air Quality Program (CMAQ), which provides $1.3 billion a year for non-highway widening projects that reduce pollution in nonattainment areas. Seek funding growth proportionate to the population of all newly designated non-attainment areas.
- Boost tax incentives for employers to offer employees tax-free transit benefits.

Changes in how we manage and operate transportation can save money and lives, cut congestion, and improve environmental quality. But to achieve this we need better planning, better accountability for the effects of decisions, and fuller consideration of alternatives to building more and bigger highways. We strongly urge you to move this country in the direction of transportation systems that benefit, rather than harm, the health and well-being of our residents and communities. We look forward to working closely with you in this effort.

Sincerely,

JAQUI VOK,
Asthma and Allergy Foundation of America.4

DANIEL SWARTZ,
Children's Environmental Health Network.

BENJAMIN GITTERMAN, MD,
Children's National Medical Center.

JOHN BALBUS, MD, M.P.H.,
Environmental Defense.

ALICE SLATER,
GRACE Public Fund.

ROBERT K. MUSIL, PH.D, M.P.H.,
Physicians for Social Responsibility.

United States General Accounting Office

GAO

Testimony

Before the Committee on Environment and Public Works, U.S. Senate

For Release on Delivery
Expected at 9:30 a.m., EDT
Tuesday, July 30, 2002

ENVIRONMENTAL PROTECTION

The Federal Government Could Help Communities Better Plan for Transportation That Protects Air Quality

Statement for the Record by John B. Stephenson
Director, Natural Resources and Environment



GAO-02-988T

Mr. Chairman and Members of the Committee:

We are pleased to have the opportunity to comment on how transportation can affect a community's air quality. My statement is based primarily on our October 2001 report on these issues.[1] As you know, since World War II, cities and suburbs grew, more roads were built, and more people had to rely on cars and buses for work, shopping, and business. In fact, in the last 30 years, the total number of vehicle miles driven grew 4 times faster than the rate of population growth, increasing to 2.6 trillion miles per year. The fuel these cars, buses, and other vehicles burn emits substances into the air that harm human health and the environment. Despite regulations limiting these emissions and improved vehicle and fuel technologies, the air in numerous cities and towns still does not meet air quality standards. Therefore, communities may look to change their future transportation and land use plans as a means to curb emissions.

Recognizing that transportation can affect the nation's efforts to improve air quality, the Congress has provided funds for projects that protect air quality. Now, as the Congress begins the work of reauthorizing the surface transportation programs,[2] it will have to consider whether to continue or revise these initiatives. To help inform this work, we are commenting on (1) the impacts of surface transportation on air quality; (2) the benefits and limits of key federal surface transportation and clean air requirements and programs designed to mitigate these impacts; and (3) ways the federal government can use these requirements and programs to further reduce these impacts. Our findings and recommendations are based to a large extent on the results of a survey we conducted in 2001 of all of the 341 metropolitan planning organizations in existence at that time (295, or 87 percent, responded). These organizations are responsible for developing transportation plans and ensuring that they do not worsen air quality. We surveyed these planners on their views about the types of transportation projects undertaken in their areas, how concerns about air quality impact their plans, and how the federal

[1] U.S. General Accounting Office, *Environmental Protection: Federal Incentives Could Help Promote Land Use that Protects Air and Water Quality*, GAO/02-12 (Washington, D.C.: October 31, 2001).

[2] The Transportation Equity Act for the 21st Century (TEA-21), the successor to the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), is due to be reauthorized in 2003.

government could help them further assess alternative land use strategies when developing their transportation plans, among other things.

In summary, we found the following:

- Vehicle emissions contain substances, including carbon monoxide, nitrogen oxides, and volatile organic compounds, that degrade air quality, thereby threatening public health and the environment. Vehicles currently account for about one-third to one-half of these pollutants, and the risk they pose to public health is substantial. Epidemiological and other studies have consistently found that breathing emissions containing these compounds contributes to respiratory and other health problems, including the possibility of cancer and increased incidence of childhood asthma. Vehicle emissions can also pose risks to the environment by, for example, harming vegetation and causing crop damage. Regulatory limits on emissions, as well as cleaner fuels and engines, have significantly decreased these harmful substances since 1970, despite the increase in the number of vehicles and in the time they spend on the roads. But EPA estimates that better technology alone will not fully compensate for the increasing vehicle travel and emissions expected in the future.

- Provisions in the clean air and surface transportation laws have helped encourage transportation planners to look for ways to curb harmful emissions, but predominantly in areas that already suffer pollution problems. The provisions have not encouraged those areas with little pollution that still expect significant growth—and that may have the greatest potential to influence it—to grow in ways that preserve clean air. For instance, the Clean Air Act requires transportation planners to demonstrate that their plans and programs will not worsen air quality, but only in areas with current or prior air quality problems. Few planners in areas with clean air try to assess how changing land use or transportation plans can help them maintain the healthy air quality in their communities, according to our survey. Many of those planners that have to demonstrate to the Department of Transportation (DOT) that their plans will protect air quality have had difficulty

doing so, potentially limiting conformity's effectiveness. Provisions of the surface transportation laws, in particular the Congestion Mitigation and Air Quality Improvement Program, also primarily help areas with air quality problems to avoid further degradation, but do less to help areas with clean air to prevent the pollution in the first place. In addition to these statutory provisions, DOT and the Environmental Protection Agency (EPA) have implemented a number of funding, technical assistance, and public education programs aimed at minimizing transportation's effects on air quality. But some initiatives have had limited funding, or were only implemented in a few communities.

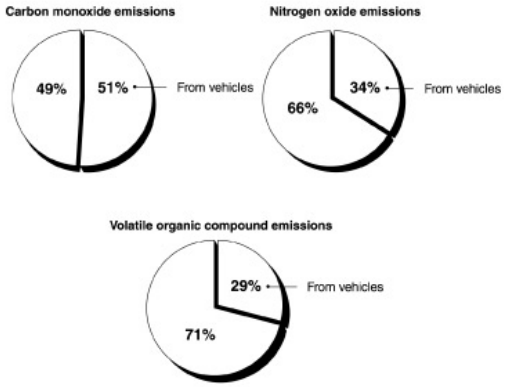
- The Congress and federal agencies have opportunities to provide transportation planners and communities more help in considering the environmental impacts of their transportation and land use decisions. For example, the transportation planners responding to our survey identified several areas in which financial and technical assistance would help them assess these impacts. In addition, in our 2001 report, we made a number of recommendations on ways to leverage the benefits of current laws and programs designed to help limit or prevent the impacts of land use and transportation on air quality or to consider new programs to achieve this outcome. We have summarized some of these recommendations in our statement today.

Air Pollution from Vehicle Emissions Will Continue to Pose Health and Environmental Risks to Some Communities, Despite New Technology and Emissions Limits

Vehicles emissions contribute to air quality degradation and, as a result, threaten public health and the environment. For example, in 1999, emissions from vehicles contributed about 51 percent of the carbon monoxide, 34 percent of the nitrogen oxides, and 29 percent of the volatile organic compounds in the nation's air, according to EPA (see fig. 1).[3]

[3] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *National Air Quality Emissions Trends Report, 1999* (Washington, D.C.: March 2001).

Figure 1: Proportion of 1999 Motor Vehicle Emissions for Carbon Monoxide, Nitrogen Oxides, and Volatile Organic Compounds



Source: EPA.

Note: The most current data available are for 1999.

In addition, the Department of Energy estimates that in 1999 alone, vehicle emissions, primarily from automobiles and light trucks, contributed about 60 percent of the total carbon emitted by the transportation sector.

Over the past 50 years, epidemiological and other studies have consistently found that these types of pollutants from vehicle emissions pose health risks. Carbon monoxide can damage cardiovascular and nervous systems. Nitrogen oxides and volatile organic compounds react with sunlight to form ozone, which, along with particulate matter, can damage lung tissue, aggravate respiratory disease, and lead to premature deaths. These pollutants also increase susceptibility to respiratory infection, compromise immune systems, and in some cases, increase the risks of cancer, according to EPA.

In addition to health problems, vehicle emissions adversely affect the environment by harming vegetation, damaging water resources, and contributing to global climate

change. Emissions increase plant vulnerability to disease, potentially causing long-term damage to forests. According to EPA, air pollution from motor vehicle emissions annually causes about $2.5 billion to about $4.5 billion in crop damage. Air pollutants also damage sensitive waters, such as bays and estuaries. For example, nitrogen oxides from vehicle emissions deposited into the Chesapeake Bay have caused algae blooms that threaten the fish hatchery and degrade spawning habitat. Furthermore, motor vehicles emit carbon dioxide, a greenhouse gas and a factor in global climate change, according to the National Research Council.[4] Although the effect of this change on human health and the environment is uncertain, it is believed to be significant.

The good news is that harmful vehicle emissions have declined significantly since 1970 and are expected to continue downwards because of cleaner fuels and better regulatory and technological controls. For example, stricter emissions limits for sport utility vehicles and light-duty trucks are scheduled to go into effect in 2004. EPA estimates that over the next 30 years these new standards will significantly reduce emissions of nitrogen oxides from vehicles by about 74 percent. Nevertheless, EPA also estimates that by 2005, the benefits gained from technological advances may not be enough to compensate for the increases in vehicle use. A study of emissions in Tennessee also predicts that stricter emissions limits would not be sufficient to offset the increased vehicle use and resulting nitrogen oxide and volatile organic compound emissions in its major cities of Memphis, Nashville, and Knoxville.[5]

It is not only communities with current pollution problems that need to be concerned. A significant number of new communities will soon face pollution problems when EPA implements stricter limits on ozone and particulate matter around the end of 2004, as

[4] National Research Council, Transportation Research Board, *Surface Transportation Environmental Research: A Long-Term Strategy* (Washington, D.C.: 2002).

[5] See Wayne T. Davis, Terry L. Miller, Gregory D. Reed, Prakash Doraiswamy, Anna Tang, and Pedro Sanhueza, "VMT Growth Rates in the U.S. and Their Effects on NOx and VOC Emissions" (Proceedings of the 94th Annual Conference of the Air and Waste Management Association (Orlando, Florida: June 25-27, 2001).

planned, in order to better protect public health from these harmful substances.[6] EPA estimates that approximately 334 of the 3,141 counties nationwide will not meet the new ozone limit, as figure 2 shows.[7]

Figure 2: Areas with Current and Potential Ozone Problems



Source: GAO analysis of EPA data.

While the number of counties not meeting the standard may be relatively small, the number of people that will be living with these air quality problems is significant. For example, in 1999, EPA estimated that twice as many people live in areas that are expected to violate the new standard as compared to the number that live in areas violating the current standard—123 million people, or 44 percent of the nation's

[6] The limits have been upheld by the courts, but the United States Supreme Court has found EPA's ozone National Ambient Air Quality Standard implementation policy to be unlawful and has instructed EPA to develop a plan consistent with the Court's opinion. Whitman v. American Trucking Ass'ns, Inc., 531 U.S. 457 (2001); on remand sub nom. American Trucking Ass'ns, Inc. v. EPA, 283 F.3d 355 (D.C. Cir. 2002).

[7] EPA's estimate is based on 8-hour monitoring during 1997 through 1999; these data will change from year to year, and the most current data will be used to make final designations of ozone nonattainment areas when the standard is implemented. The data on the 1-hour ozone areas are as of January 29, 2001.

population, compared with 54 million. This development, coupled with the fact that the technological solutions needed to achieve relatively smaller emissions reductions may become too costly, will require communities to look for other ways to reduce emissions. These alternatives could include altering their future transportation and land use plans.

Federal Laws and Programs Linking Transportation to Improved Air Quality Have Helped Targeted Communities Control Pollution but Could Be More Comprehensive

Both the clean air and surface transportation laws established requirements and programs that have helped to reduce harmful vehicle emissions, but these have focused on managing existing pollution and do not provide areas with clean air an incentive to preserve it. DOT and EPA also have initiatives underway, including joint projects, that encourage transportation planners and communities to consider how their anticipated transportation systems and projects will affect air quality. However, DOT has limited discretion over one of its grant programs, thereby raising questions about whether funds are used most effectively, and EPA has limited funding for its initiatives and therefore has supported only a small number of communities.

The Clean Air Act Requires Planners to Ensure Transportation Designs Will Not Worsen Air Quality, but Only in Areas that Already Have Pollution Problems

A provision in the Clean Air Act addresses the link between transportation and air quality—the conformity demonstration requirement. Generally speaking, under this requirement, transportation planners in an area with air quality problems must estimate the emissions resulting from their transportation plans and programs and demonstrate that they do not exceed the vehicle emissions ceiling, or budget, approved for that area in the state implementation plan for achieving air quality standards.[5] If they cannot do so, they must adjust their transportation plans or their area cannot, with limited

[5] Areas that exceed the standards— "nonattainment" areas—or are maintaining the standards after prior violations— "maintenance" areas—for ozone, carbon monoxide, particulate matter, and nitrogen dioxide are subject to the conformity requirement.

exceptions, spend federal funds on highway or transit projects that will exacerbate or create air quality problems.[9]

In our 2001 survey, 56 percent of the 134 transportation planners in areas of poor air quality, and thereby required to demonstrate conformity, said that they made at least moderate changes to their transportation plans and programs to reduce emissions. These changes could include, for example, adding more transit projects, bike and pedestrian facilities, or intelligent transportation systems like electronic toll collection systems on highways. Furthermore, the conformity requirement provided an incentive for planners in areas with air quality problems to go beyond just looking for ways to make changes in their transportation plan to reduce emissions. Some of these planners also assessed whether changing local land use plans could have an even more dramatic effect on transportation plans and prevent pollution by reducing reliance on cars. In fact, 46 percent of the 134 planners said that they evaluated the emissions from the mix of transportation projects generated from alternative land uses, as shown in figure 3.

[9] Projects related to highway safety, transportation control measures included in an approved state implementation plan, or transportation projects approved or funded by the federal government can move forward.

Figure 3: MPOs in Areas with Air Quality Problems That Have Modeled Emissions from Different Land Uses



Note: The boundaries covered by the planning organizations are based on survey data and may not reflect exact borders. We designated an organization's entire boundary as being an area with air quality problems if any one county within the borders has problems. The results from Alaska are not included.

Source: GAO analysis of survey data.

In contrast, transportation planners in areas with good air quality that did not have to meet the conformity requirement seemed to have little incentive to assess emissions from alternative land uses as a means to preserve their air quality. In fact, only 8 percent of these 155 planners reported assessing emissions from the mix of transportation projects generated from alternative land uses, as shown in figure 4, compared with the 46 percent of planners in areas with air quality problems. By not conducting these assessments, the localities—many of which could be facing rapid growth in the future—may have missed an opportunity to plan their growth—and the transportation systems to support it—in ways that preserve clean air.

Figure 4: MPOs in Areas Without Air Quality Problems that Have Modeled Emissions from Different Land Uses



Note: The boundaries covered by the planning organizations are based on survey data and may not reflect exact borders. We designated an organization's entire boundary as being an area with air quality problems if any one county within the borders has problems. The results from Alaska are not included.

Source: GAO analysis of survey data.

While recognizing that the conformity requirement has encouraged certain communities to look for ways to reduce emissions, only 31 percent of the planners responding to our survey found the process of demonstrating conformity to be effective in helping their areas achieve air quality goals (40 percent found it to be ineffective). Managers of state air quality programs, who we surveyed separately, expressed similar views about the effectiveness of the process. Planners, managers, and DOT officials identified several difficulties in executing the various steps needed to demonstrate conformity. These include the following:

- The required time frames for updating transportation plans and testing conformity do not match those for updating an area's vehicle emissions budget in the air quality plan, and this difference can further complicate efforts to meet the conformity requirement, according to DOT officials. For example, when planners

in the Washington, D.C., metropolitan area had to update their transportation plans and test for conformity, they had to use the most current data on the types of vehicles driven in the area. That data showed an unexpected increase in the number of sport-utility vehicles on the roads and, consequently, projected emissions were higher. To ensure conformity did not lapse, the planners had to try to find additional ways to alter their transportation plans to achieve the necessary emissions offsets. Because the area's air quality plan was not updated at the same time, it was not possible to assess whether the emission budgets needed to be revised to reflect the increased vehicle emissions.

- Planners responded in the survey that they could use additional technical assistance and training to help them better understand the models used to compute emissions expected from their transportation plans, thereby helping them better demonstrate conformity.
- Planners furthermore reported that the public lacks knowledge about the air quality impacts of their transportation choices. This may make it less likely that they will support transportation changes that better protect air quality.
- Planners responded that land use decisionmakers are not systematically involved in the conformity process, despite the belief that certain land uses can impact regional air quality. Therefore, land use decisionmakers may be less likely to support changes that better protect air quality, such as denser housing and development in older, urban areas rather than scattered development on undeveloped land.
- According to DOT program managers, some planners have found the requirement to update their transportation plans and meet the conformity test at least every 3 years to be too burdensome. Because of the complexity and time involved in preparing the plan and demonstrating conformity, it can take some areas more time than 3 years to complete their plan updates, after which time they need to begin the update process all over again. The tight time frame inhibits them from devoting their attention or resources to developing more strategic transportation solutions or adopting new and better models for assessing emissions and analyzing transportation plans, among other things.

Resolving these issues and improving the effectiveness of the conformity process could be even more important because of the new counties that are expected not to meet the new ozone and particulate matter standards. Having to demonstrate conformity will be among the challenges these counties will have to face. At the chairman's request, we are initiating a more comprehensive review of the conformity requirement's effectiveness, impact on transportation planning, and possible improvements.

Federal Surface Transportation Laws Created Programs to Protect Air Quality but Some Are Not Comprehensive Enough to Prevent Pollution

ISTEA, and its successor, TEA-21, included provisions to promote transportation plans and programs that better protect air quality. The largest of these is the Congestion Mitigation and Air Quality Improvement program (CMAQ), receiving $8.1 billion through 2003. This program provides federal funds for transportation projects to reduce emissions and congestion in areas with poor air quality. For example, Boulder, Colorado, used CMAQ to partially fund a transit service that helps connect residents to employment centers and retail districts. Because this service transports nearly 10,000 riders per day, it has helped the city meet its clean air and congestion relief goals.

Although CMAQ encourages projects that reduce emissions, it targets areas with existing air quality problems, and provides less of an incentive to areas with clean air that may have emerging air quality problems.[10] This is important because implementation of EPA's new limits on ozone and fine particulate matter will increase the number of communities with air quality problems and may increase demand for the program's limited funding (see fig. 2). Furthermore, DOT program managers observed that communities tend to use their funds on "tried and true" projects, such as carpool lanes, and overlook other, more innovative projects, such as cleaner diesel engines, that could potentially achieve greater emissions reductions per dollar. In addition, the formula used to distribute CMAQ funds takes into account whether an area has an ozone or

[10] Funds are distributed to states according to a formula based on attainment status for ozone and carbon monoxide and the population living in the affected area. States without air quality problems receive a minimum amount of funds and can spend some of them on projects not prescribed under the program.

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carbon monoxide problem, but not a particulate matter problem, even though this pollutant can pose similar health risks.

TEA-21 also created the Transportation and Community and System Preservation Pilot program to help planners and localities improve the efficiency of the transportation system and reduce the environmental impacts of transportation, among other objectives. However, program managers may not be able to ensure funds are used most effectively on projects that could best demonstrate the linkages between transportation, air quality, and land use because most of the funds were already designated, or "earmarked," to projects before they were reviewed using the competitive selection factors.

Other DOT and EPA Initiatives Show Promise, but Scope and Funding Are Limited

In addition to the programs authorized under TEA-21, a number of funding, technical assistance, and outreach initiatives have helped localities minimize the impacts of transportation on air quality. For example:

- **Funding.** EPA has programs to encourage transportation projects that are more protective of air quality. The agency's Clean Air Transportation Communities grants program, implemented in 2001, provided $1.27 million in seed money, technical assistance, and recognition for transportation projects that reduce emissions. For example, one project will encourage a car-sharing program to introduce new low-emissions vehicles. EPA also created the Mobile Source Outreach Assistance program, funded at $770,000 in fiscal year 2001, to help educate communities about transportation choices that reduce vehicle miles and emissions.
- **Technical assistance**. DOT and EPA have a number of joint technical assistance efforts underway to help transportation planners consider air quality impacts. For example, the agencies (1) are issuing guidance to better clarify the modeling needed to comply with the conformity requirement and (2) initiated the Travel Model Improvement Program to update transportation models so that they help planners better perform travel-related technical analyses.

- **Outreach.** EPA has several initiatives aimed at encouraging planners and communities to think about alternative land uses as a way to better protect the environment, initiatives sometimes referred to as "smart growth." In particular, EPA has (1) information networks, Web sites, guidance on best practices, and training programs for local officials, among other things and (2) is issuing guidance on ways to calculate the potential emissions reductions from alternative land uses, such as redeveloping old industrial sites in an urban area rather than building on a new site in the suburbs, in order to discourage and reduce sprawl and reduce vehicle miles.

While these efforts have met with success, the available resources and scope of impact has been limited. For example, EPA has been able to award Clean Air Transportation Communities grants to only 10 state, local, or tribal governments, for a total of about $1.27 million to date, but has discontinued funding for fiscal year 2002 because of budget constraints. In addition, efforts to improve travel models are not focused on creating models that fully integrate transportation, the environment, and land use, which would help planners consider the effects that their transportation decision will have on land use, future growth, and air quality. Furthermore, at the time of our survey, few planners were aware of EPA's guidance on how to obtain credit in their emissions budgets for reductions from alternative land uses, and EPA had conducted only a limited number of workshops and did not plan to offer additional training. We also found that the level of support across EPA's regions for these types of initiatives varied and that unless EPA better coordinated its efforts through a more comprehensive strategic plan, it would not be able to effectively leverage its resources and achieve more widespread results. We recommended that EPA devise such a strategy, and the agency expects to have this completed by the fall of this year.

Planners Identified Additional Ways the Federal Government Could Help Them Further Limit Transportation's Impacts on Air Quality

The planners responding to our survey identified the following actions the Congress and the federal government could take to remove some of the barriers to assessing and limiting the adverse impacts of land use on air quality.

- **Financial incentives**. Federal funding could be allocated to help promote a more collaborative working relationship among transportation, environmental, and land use planners so that they can develop ways to improve air quality. For example, federal funding could be targeted more to those transportation projects that were designed through a collaborative effort.
- **Technical assistance**. Federal agencies could provide additional tools to promote greater consideration of how transportation, air quality, and land use interact, including (1) access to technical staff, (2) examples of communities or regions that successfully demonstrated how changes in land use have affected vehicle miles traveled, and (3) improved models, such as those that can measure the emissions of small projects, like bicycle and pedestrian facilities.
- **Public outreach**. Federal agencies could undertake additional efforts to educate the public and local officials on how their land use and transportation decisions affect air quality, which could help to promote collaboration among all of these partied on ways to limit these effects.

Conclusions

Using the federal clean air and transportation laws, the nation has significantly reduced harmful vehicle emissions, thereby helping to protect public health and the environment. Technological advances will also continue to produce cleaner vehicles and fuels, further reducing harmful emissions. But for some communities, these advances may not be enough to compensate for rapid growth and the associated growth in miles driven. These communities may still need help to guide their growth and design their future transportation systems to limit pollution. However, the current clean air and surface transportation requirements and programs do not directly encourage communities to

consider more innovative transportation projects or alternative land development strategies as a means to reduce emissions. Nor do they encourage communities to take action that will preserve the clean air that they still enjoy.

With the upcoming reauthorization of surface transportation programs, the Congress has an opportunity to strengthen its past efforts and create new initiatives to promote transportation and growth that protects public health and the environment. We would like to bring to your attention to, as well as reaffirm, a number of recommendations we made in our 2001 report to help transportation planners and communities in assessing, preventing, or limiting harmful vehicle emissions. These recommendations included the following:

- The Secretary of Transportation should request all transportation planners to assess the emissions impacts of their proposals and use the results of these assessments to help educate local decisionmakers about the consequences of their transportation and land use decisions. This would encourage all parties to collaborate and take a broader, more regional approach to solving air quality concerns.
- The Administrator, EPA, should target available financial incentives in ways that encourage transportation planners, environmental officials, and local decisionmakers to collaboratively consider the impacts of transportation and land use on air quality.
- Both the Secretary and Administrator should provide more access to technical tools, such as staff and user-friendly models that integrate transportation, environmental protection, and land use, and better market these tools to transportation and local decisionmakers.
- The Administrator, EPA, should take more action to educate the public and local decisionmakers about the air quality impacts of their transportation and land use choices.

Our report also suggested ways that the Congress, as it reauthorizes the surface transportation laws, could help assist those states and localities that want to limit the air quality impacts of their land use and transportation decisions by

- adding the requirement that planners consider the environmental impacts of different land use strategies as a step in the transportation planning process;
- continuing but modifying funding programs designed to link transportation and air quality so that they also take into consideration alternative land uses, where appropriate, or create new programs to make this link;
- providing funding to states and localities, when possible, to help them obtain technical expertise, data, and analyses to assess land use impacts and mitigate adverse effects; and
- providing federal agencies with greater discretion over a portion of their transportation or environmental funds to encourage assessment and mitigation of land use impacts on the environment.

Contacts and Acknowledgments

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RESPONSES OF MICHAEL REPLOGLE TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. In general would you agree that conformity is spurring investments in transportation strategies and technologies that reduce air pollution and create better interagency cooperation?

Response. Yes. Since the 1990 Clean Air Act Amendments, conformity has been a significant factor fostering local, regional, and national political support for cleaner fuels and vehicles and inspection and maintenance programs that have helped produce more timely progress toward attainment of healthful air quality. In that period, conformity has been the single greatest factor promoting interagency cooperation between transportation and air quality agencies at the State, local, and Federal levels. Prior to 1990, transportation agencies paid no attention to the air quality consequences of transportation investments and plans. But in recent years, many

metropolitan areas have adopted changes to their transportation plans and programs to help reduce traffic growth and emissions. Consideration of air quality impacts of investments has become a routine matter in many metropolitan areas where pollution problems are more severe. In most regions with serious air quality problems, officials and staff of air agencies and transportation agencies routinely meet and work together to help foster effective program administration that delivers progress on both mobility and air quality goals.

Atlanta's conformity problems led the Governor to create a new regional authority responsible for better planning and funding transportation, air quality, and growth management in Georgia's non-attainment areas in an effort to fix a broken interagency cooperation process. While road builders have often raised the spectre of transportation conformity causing major disruptions to transportation programs, there have been no such disruptions. Even in Atlanta, where the longest conformity lapse of consequence to date took place, the region lost no transportation funding but instead redirected several hundred million dollars of funds from sprawl-inducing, pollution-generating roads into projects that would reduce pollution and into safety and system improvements that would not increase emissions.

After conformity analysis led Charlotte, North Carolina, to see that its transportation plan would lead to emission problems 20 years in the future, local officials developed, considered, and adopted a new 2025 Transit Land/Use plan for Charlotte-Mecklenburg with a new rapid transit system to support the five major transportation and development corridors identified in the 1994 Centers and Corridors Plan as well as connections to key development hubs between these corridors. The plan seeks to concentrate jobs around stations, provide residential multi-family housing at stations, and develop rail and bus rapid transit. Capital costs, plus operation, maintenance and other expenditures will cost $1.085 billion over 25 years and quantifiable benefits such as travel time savings and vehicle operating cost savings total $72 million a year, generating a benefit cost ratio of 1.6. There are also numerous benefits of the plan that are not quantifiable such as improved access to jobs and revitalization of the core center. Funding for the plan will come from a combination of local, State, and Federal funding. Mecklenburg County Voters approved a half-cent local sales tax in 1998 to fund expansion of bus service and rapid transit improvements in major corridors. The requirement that the RTP conform 20 years into the future was a vital element in motivating this regional progress and action. Limiting conformity determinations to a 10-year time horizon—as some propose—might reduce the incentive for other regions to take the kind of leadership initiatives seen in Charlotte.

Conformity helped Denver develop cost-effective strategies to reduce particulate matter (PM) problems. Agencies began taking action against wood burning in the 1980's, but PM was still measuring 185 $\mu g/m^3$ compared to the NAAQS of 150 $\mu g/m^3$. Conformity made transportation planning and air quality agencies look at other sources of PM. They found that street sanding and sweeping strategies was a very effective measure and implemented controls beyond what was federally mandated, reducing PM levels to 80 $\mu g/m^3$. Conformity also provided an incentive for developing light rail in Denver and the Metro Vision 2020 Plan, which seeks to limit growth to a 700 square mile area with supportive transportation strategies. Denver also has a number of travel demand management (TDM) strategies in their long-range plan such as a Ride Arrangers program and a telework program. While Denver does not take credit for TDM system management in the 2025 conformity finding, the region recognizes TDM emission benefits as a safety margin in meeting their emissions budget.

To deal with emissions problems recognized through the conformity process, many other regions have adopted transportation control measures (TCMs). These represent nearly 5 percent of total emission reductions, for example, in the San Joaquin region of California. The San Joaquin Council of Governments projects that TCMs, including rideshare, vanpool, and commuter rail, will deliver as much as a 10 percent reduction in emissions by 2020.

Conformity has also been valuable in helping to win adoption of new short-term emission reduction strategies in the metropolitan Washington, DC region. In July 2001, the DC metropolitan planning organization updated its modeling assumptions to reflect the growing use of sport utility vehicles (SUVs) and light trucks, which produce more pollution per mile driven than standard cars. As a result, they observed that that they could no longer add new road projects to their transportation improvement program (TIP) and regional transportation plan (RTP) and still conform with the NOx motor vehicle emission budget in their adopted SIP. Officials formed a task force to consider reopening the SIP to allow for more motor vehicle pollution by finding offsets from other emission sources or fixing the conformity problem by adopting added emission reduction measures. With adjustments for

some refinements to their model estimates and for emission reducing measures already being implemented but not previously credited, the MPO found that the 8 tpd NOx excess emissions over budget was reduced to about 3 tpd.

Following further meetings and analysis, Maryland proposed a $42 million package of transportation emission reduction strategies, including buying clean buses, improving pedestrian and bicycle access to transit, and supporting transit oriented development. Along with measures advanced by other jurisdictions, this package provides sufficient reductions to offset this emission budget shortfall and the region in July 2002 adopted them as part of a new TIP and RTP. If proposals made by some parties to lengthen the life of TIP conformity findings to 3 or 5 years had been in effect, this $42 million package of emission reduction measures would almost certainly not have been funded.

Question 2. If Congress does make any changes in the conformity process as part of the next transportation bill, what would be your No. 1 suggestion and please be specific?

Response. Congress should make one change to the conformity process as part of the next transportation bill. It should adopt the bill introduced in the 106th Congress, 2d Session as H.R. 3686, the "Road Back to Clean Air Act," by Rep. John Lewis and as S. 2088 by Senator Max Cleland. This bill would put into law the EPA and DOT guidance that helped get Atlanta more focused on solving the city's transportation and air quality problems. It would increase flexibility so other areas of the country could continue to receive Federal funds for transit, safety improvements, road rehabilitation, and other projects even during a lapse in the conformity of their transportation plans. Without this legislative change, because of the way that DOT has at times in the past administered conformity and planning requirements, regions in a conformity lapse can face difficulty adding air quality improving projects to their transportation spending plans unless those projects had been part of a previously conforming fiscally constrained TIP and regional transportation plan.

The text of this bill follows:

A BILL

To amend the Clean Air Act and titles 23 and 49, United States Code, to provide for continued authorization of funding of transportation projects after a lapse in transportation conformity.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Section 1. Continued Authorization of Funding of Transportation Projects After Lapse in Transportation Conformity

Section 176(c)(2) of the Clean Air Act (42 U.S.C 7506(c)(2)) is amended by adding at the end the following:

"(E) Notwithstanding subparagraphs (C) and (D), any transportation project identified for funding in a transportation plan and transportation improvement program adopted under section 134 of title 23 or sections 5303 through 5306 of title 49, United States Code, shall remain eligible for funding under title 23 or chapter 53 of title 49, Unites States Code, as applicable, after the long-range transportation plan or transportation improvement program no longer conforms as required by subparagraphs (2)(C)(i) or (2)(D), if——

"(i) the long-range transportation plan and transportation program met the requirements of subsection (c) at the time at which a project agreement for the transportation project was approved under section 106 (a)(2) of title 23 United Sates Code, or the project was otherwise approved for assistance under chapter 53 of title 49, United States Code, as applicable; "(ii) the transportation project is a transportation control measure (as defined in section 93.101 of title 40 of the Code of Federal Regulation s (as in effect on March 1, 1999); "(iii) the transportation project qualifies for an exemption from the requirement that the transportation project come from a conforming metropolitan long range transportation plan and transportation improvement program under section 93.126 or 93.127 of title 40, Code of Federal Regulations (as in effect on March 1, 1999); or "(iv) the transportation project is exempt from a prohibition on approval under section 179(b)(1), except that this paragraph shall not apply to a transportation project described in section 179(b)(1)(B)(iv)."

Section 2. Amendment of Long-Range Transportation Plans and Transportation Improvement Programs Not Conforming to Applicable Implementation Plans.

(a)Transportation Plans—Section 134 of title 23, United States Code, is amended by adding at the end of the following: "(p) Amendments to Plans and Programs Not Conforming to Applicable Implementation Plans-Notwithstanding any other provi-

sions of law, a long-range transportation plan or transportation improvement program under this section that no longer conforms to the applicable implementation plan under section 176(c) of the Clean Air Act (42 U.S.C. 7506(c)) and part 93 of title 40, Code of Federal Regulations (or a successor regulation), may be amended without a demonstration of conformity if the amendment is solely fort he purpose of adding transportation project—"(1) for which that State submits a revision of the applicable implementation plan to the Administrator of the Environmental Protection Agency requesting approval of the project as a transportation control measure (as defined in section 93.101 of title 40, Code of Federal Regulations (as in effect on March 1, 1999); or "(2) that qualifies for an exemption from the requirement that the transportation project come from a conforming metropolitan long-range transportation improvement program under section 93.126 or 93.127 of title 40, Code of Federal Regulations (as in effect on March 1, 1999)"

(b) Mass Transportation Plans—Section 5303 of title 49, United States Code, is amended by adding at the end the following:

"(i) Amendments of Plans and Programs not Conforming to Applicable Implementation Plans—Notwithstanding any other provision of law, a long-range transportation plan under this section or a transportation improvement program under section 5304 that no longer conforms to the applicable implementation plan under section 176(c) of the Clean Air Act (42 U.S.C. 7506(c)) and part 93 of title 40, Code of Federal Regulations (or a successor regulation), may be amended without a demonstration of conformity if the amendment is solely for the purpose of adding a transportation project—"(1) for which the State submits to the Administrator of the Environmental Protection Agency a request for approval as a transportation control measure (as defined in section 93.101 of title 40, Code of Federal Regulation s (as in effect on March 1, 1999)) under section 110 of the Clean Air Act (42 U.S.C. 7410); or "(2) that qualifies for an exemption from the requirement that the transportation project come from a conforming metropolitan long-range transportation plan under and transportation improvement program under section 93.126 and 93.127 of title 40, Code of Federal Regulations (as in effect on March 1, 1999)."

RESPONSES OF MICHAEL REPLOGLE TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. During the hearing, several witnesses talked about how the coordination of the frequency of submittals for the State Implementation Plan (SIP), the Transportation Plan, and the Transportation Improvement Program (TIP) is an important and necessary reform. Among other things, such a reform would lessen the confusion of those involved, reduce costs, and help States meet air quality goals. In your testimony, you reject any proposal to reduce the frequency of conformity analyses. Do you see value in better coordinating the transportation and air quality planning processes?

Response. Environmental Defense and other environmental groups strongly support better coordination of transportation and air quality planning processes. However, we strongly object to proposals currently being put forward under the misleading name of "streamlining." By extending deadlines and creating overly long gaps between conformity analyses, these proposals will threaten air quality, threaten public health and reduce information available to the public about the air they breathe.

Equally important, these proposals won't make the system work better—they'll make the system more inefficient. They reduce incentives for agency coordination. Conformity works well when transportation and air quality experts work closely together on a routine basis, to plan and implement highway and transit investments. Conformity, and the current schedule of deadlines, gives these agencies a powerful incentive to work together. The deadlines are also spaced just far enough apart to allow problems to be identified early—before they become crises that threaten air quality targets.

But reducing the frequency of required conformity analysis—currently 2 years for TIPs and 3 years for regional transportation plans (RTPs)—is likely to reduce rather than enhance such coordination. Conformity analysis is rather like balancing one's checkbook. If done routinely and frequently, problems will be detected when they are small and correctable. If done infrequently, the costs of errors is likely to soar, as unrecorded transactions or errors go undetected, with their impacts compounded over time.

If the minimum frequency of conformity determinations is set at 3 or 5 years, this will likely be too far apart to detect and correct the rapid growth in VMT in fast-

growing metropolitan areas. Across the country, this rapid growth is causing those areas to fail to attain on time. At a time when ou transportation investments are proving to threaten air quality and health, it makes no sense to relax deadlines.

Instead of statutory changes, schedule coordination (if any is needed) should come from better interagency coordination, not through relaxing the frequency of accounting system checks and balances. With wider gaps between reporting deadlines, opportunities for abuses and poor accounting grow larger. Uncertainty about true air quality impacts and benefits would increase.

Today, most metropolitan areas update their TIPs annually and redo their conformity analysis as they do so. Analysis of conformity as TIPs undergo changes to regionally significant projects provides opportunities for timely improvement of what have often proven to be out-of-date or previously incorrect model assumptions.

Many regions, such as Washington, DC, have recently updated motor vehicle fleet data assumptions to reflect the growing use of SUVs and light trucks, which produce more pollution per mile traveled than light duty cars, with a resulting increase in the estimates of motor vehicle emissions in the attainment year. In the case of Washington, DC, this conformity re-analysis led to increased attention by transportation and air officials and staff to the need for improved interstate and interagency coordination and collaborative data collection to upgrade the regional inventories of motor vehicle pollution factors. It also led local and State officials to add $42 million in new emission-reducing transportation projects to the region's TIP in July 2002 to offset the increased pollution observed through the conformity reanalysis. This investment would not likely have occurred had the 2-year life of the TIP conformity finding been relaxed to 3 or 5 years. These investments will benefit not just air quality, but they will increase mobility in the region, increase access to jobs, foster better quality of life, and promote economic growth.

Conformity helped catch this problem sooner rather than later, when it was still a manageable problem that could be addressed through transportation measures, without needing to reopen the SIP. Had the problem been left to fester, it is more likely that the region's officials would simply have said the problem was too big to manage, and sought to make it someone else's problem. In fact, fear of this kind of crisis is what may motivate concerns about conformity. But by having tight deadlines and careful coordination among agencies, the challenges can be addressed with incremental measures before they escalate to crisis. The beneficiaries of tight deadlines are the millions of children, elderly people, and other individuals who suffer respiratory distress, premature death, injury, and other impairments every year when Federal air quality health standards continue to be unmet. The beneficiaries of relaxed conformity deadlines are primarily polluting industries and other special interests that profit at our society's expense.

In fact, States already have flexibility and discretion in the current system. The current tiered schedule for reappraising TIP and RTP conformity provides appropriate advance notice of conformity problems in a way to encourage timely solutions. For example, many regions first uncover conformity challenges when updating their TIPs to incorporate new projects. Updating these planning factors uncovers previous underestimates in regional vehicle emissions and allows timely corrective measures to be adopted—as they have been in Washington, DC, in the example described above.

At times, this may create what some call a "conformity lockdown," during which the current 2-year TIP conformity finding remains valid, but no new regionally significant transportation projects can be added to the TIP until the region adopts new emissions-reducing measures to offset the incremental increase. At this point, the increment of emissions imbalance is usually still relatively small and manageable, and measures can be taken reasonably easily to offset the impacts of the new projects. In essence, the system provides "early warning" that provides the time to adopt new emission reduction measures to ensure that the TIP stays in conformity.

If the region fails to offset motor vehicle emissions that exceed the adopted SIP motor vehicle emission budget before the expiration of the 2-year TIP conformity finding, the region would likely enter a conformity lapse. In a lapse, there is yet another safety valve: the region can adopt an Interim TIP composed of projects with funding agreements, exempt projects, and transportation control measures drawn from the conforming long-range RTP, relying on its 3-year conformity finding. At any time, a State can choose to reopen its SIP to identify additional emission reduction measures from mobile or non-mobile sources to offset excess emissions from mobile sources that are in violation of the motor vehicle emission budget.

In short, States have discretion at every stage to align the schedule for updating their transportation and air quality plans and where they choose to seek emission reductions. The system works and should be sustained. If any change is warranted, it would be toward more frequent reviews of SIPs—but not less.

Better coordination of air quality and transportation planning should take several forms:

- Interim Milestone Reports. First, Congress should enhance this interagency coordination by ensuring that EPA adopts regulations to govern State submissions of SIP milestone compliance reports. These reports would track and report regional emissions every 3 years in nonattainment areas and ensure that remedial measures are implemented immediately when emission reduction targets are not met, as required by Clean Air Act Sections 182(c)(5) and (g). EPA has failed to issue these sorts of regulations, and that failure must be remedied. By ensuring that States meet this required 3 year cycle of SIP reappraisal, Congress could address the concerns of transportation agencies that SIPs are too infrequently updated, while transportation plans are subject to more frequent updates.
- Prompt Upgrade of Models. Second, transportation agencies should be required to promptly upgrade their computer models to effectively consider air quality, induced traffic, and fully up-to-date planning factors. Congress should provide EPA and DOT with a strong mandate to establish best-practice planning model standards and to require timely action by MPOs and other agencies to meet these standards for conformity and SIP planning. A recent report (U.S. General Accounting Office, Environmental Protection: Federal Incentives Could Help Promote Land Use That Protects Air and Water Quality, Washington, DC, October 2001, GAO–02–12, page 95) notes that, "DOT and EPA efforts to improve travel-demand-forecasting models may help MPOs and communities determine the effects of transportation improvements on congestion and air quality. However . . . these efforts currently do not call for integrating land use or environmental components into the travel demand model . . . Without such integrated models, communities cannot consider the likely effects that their transportation decisions will have on land use, future growth and development, and air quality." U.S. GAO–02–12, op. cite, page 95.

In regions where transportation models used for conformity and air quality planning have not been upgraded to integrate land use and environmental components, including full sensitivity to induced traffic and growth effects of transportation investments, urban design, and pricing policies, less frequent conformity analysis is likely to impair timely upgrading of analyses.

Question 2. Do you think there are more cost effective options for achieving air quality improvements in the transportation sector than through the current program?

Response. Transportation conformity is not an air quality improvement strategy in and of itself. It is a highly cost effective accounting mechanism that assures the integrity of adopted air quality attainment plans by preventing adoption of transportation plans and programs likely to cause pollution in excess of the levels determined to endanger public health. The Clean Air Act allows States great flexibility in determining how to achieve health-based air quality standards—whether through controls on stationary sources, area sources, or transportation sources, and whether through adoption of cleaner technologies, management and pricing strategies, or growth and demand management.

Without a strong and well-enforced transportation conformity program, experience shows that transportation emissions tend to be underestimated, leading to the failure of air pollution control strategies. That failure—more than three decades after the 1970 Clean Air Act—continues to impose huge costs on our society, with the adverse health costs of motor vehicle air pollution estimated by US DOT in 2000 at $40 billion to $65 billion, which pales beside the $27 billion in annual Federal transportation expenditures.

Transportation conformity has played a significant behind-the-scenes role fostering cost-effective air pollution improvements in the transportation sector, including adoption of cleaner vehicle and fuel standards by States and Federal agencies, adoption of inspection and maintenance programs, and reallocation of transportation investments from sprawl-inducing, pollution-generating roads into transit, walking, bicycling, and Smart Growth strategies that meet economic and social needs for mobility with less need for travel by single-occupant vehicles.

EPA's own recent analysis shows that proposed air pollution reduction strategies and technology fixes alone are insufficient to deliver healthful air quality for all Americans over the next decade or even two (http://www.epa.gov/clearskies/maps.pdf). Thus, conformity is vital to assuring that motor vehicle emissions are properly accounted for as States and regions strive to achieve emission reductions from various sources and avoid having uncontrolled traffic growth undo progress toward healthful air quality.

RESPONSES OF MICHAEL REPLOGLE TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

Question 1. You testified that before State SIP's had established motor vehicle emission budgets, the transportation agencies were forced to rely on complex and widely criticized transition rules. EPA and DOT may be proposing a return of these transition rules in new non-attainment areas that will have a 1-year grace period to make a conformity determination. Would you agree that our air quality goals are better served by coordinating conformity with motor vehicle emissions budgets, rather than returning to these transition rules?

Response. As designed by Congress in the 1990 Clean Air Act, conformity is intended to focus on comparing forecast motor vehicle emissions in a transportation plan and program with an adopted motor vehicle emission budget (MVEB) established in a SIP designed to enable a region to attain the National Ambient Air Quality Standards (NAAQS) by deadlines established by law. Where such MVEBs exist, they should be used as the fundamental yard-stick to measure conformity of transportation plans and programs with air quality plans.

The problem we see with the "build/no-build" transition rule is principally in how it has been applied, and in the length of the transition to conformity against adopted SIP MVEBs, not in the underlying principal of the build/no-build transition rule. The build/no-build rule, first issued by EPA and DOT in 1991, compares emissions in a base-case no-build future scenario vs. emissions in a build scenario, adding or subtracting the applicable transportation projects changes proposed in any given TIP or RTP amendment. This is a desirable and acceptable conformity test to use in the absence of an adopted SIP MVEB when the evaluation uses analysis methods that properly account for induced land use and traffic effects of transportation investments and policies. However, as applied in many regions, build/no-build analyses have assumed no induced land use change or shift in the time-of-day of traffic caused by transportation system changes. Numerous peer-reviewed studies have demonstrated that induced traffic effects are profound and the addition of 10 percent more lane miles of roadways can be expected to induce an additional 6 to 10 percent vehicle miles traveled in a region in a few years time. If induced traffic is unaccounted for, the build/no-build analysis is invalid, and will underestimate motor vehicle emissions growth associated with major highway system expansions, working against the CAA statutory mandate that transportation plans and programs must contribute to timely attainment of the NAAQS.

It is vital that areas expected to be designated as new non-attainment areas should now begin to take steps to prepare to meet conformity analysis requirements. The TEA–21 Federal transportation law provides flexible funding to States and regions in the Surface Transportation Program and other funding categories that can be used for planning and data collection. Such funds should be used now to establish sound, up-to-date, local inventories of jobs, housing, highways, transit resources, and travel behavior, to develop locally applicable transportation planning models that meet best practice standards for appraising travel behavior and induced traffic, to code information on planned transportation investments and forecast job and housing growth expectations, and other information. Outside consultants should be retained to help cultivate local expertise to sustain these analysis systems, which have many cost-effective applications beyond conformity analysis in supporting sound capital program planning, traffic and transit operations planning, transportation equity analysis, growth management, cost-allocation evaluation, and other activities. The cost of establishing such planning and analysis systems is but a tiny fraction of the annual capital facilities investment costs of most States and regions, but can have a payoff far in excess of these costs by assuring more sound decision-making, investment planning, and identification of lower-cost and more optimal strategies for meeting local and national mobility, environmental, economic development, and equity goals. Establishing these planning and analysis tools in a metropolitan area can be accomplished in less than a year, but does require agency commitment and ongoing support.

EPA and DOT should promptly issue long-promised additional model guidance and regulations to assure that non-attainment areas properly account for induce land use and traffic effects in conformity analysis and SIP transportation modeling.

There are no valid reasons why any newly designated non-attainment area cannot establish the requisite transportation and emissions analysis systems well in advance of the expiration of the 1-year grace period following designation. Until adopted SIP MVEBs are available to provide a basis for conformity, the build/no-build test (with appropriate consideration of induced land use and traffic effects), along with the Reasonable Further Progress requirements of the CAA, should be the basis for evaluating conformity in non-attainment areas.

Question 2. If I am interpreting your testimony correctly, you appear to suggest that one way to judge the success of conformity is by how much it redirects transportation spending away from new highway construction. In Northern Virginia, however, they have delayed over $800 million in highway projects generating a total of 2 tons reduction in emissions, or $400 million per ton reduced. By comparison, EPA's vehicle emission standards cost below $1600 per ton. Stopping new highways does not sound like a very cost-effective strategy to reduce emissions, wouldn't you agree?

Response. I'm sorry, but you have misinterpreted my testimony and data and I must disagree with your assertion. I noted that a recent analysis by the Metropolitan Washington Transportation Planning Board showed that by deferring 100 lane miles of highway expansion projects in 2002—a 0.5 percent reduction in lane-miles of road capacity—Virginia saves $800 million in capital costs while cutting NOx emissions by more than 1 percent, or nearly 2 tons per day, and reducing vehicle miles of traffic by 0.6 percent. This illustrates how the very expensive expansion of new highways typically produces a growth in air pollution emissions by spurring more traffic, rather than a reduction in emissions as often claimed by the road lobby. It illustrates how reducing expenditures on new roads is often the most cost-effective emission reduction strategy, because it avoids generating both costs and air pollution. By not building additional traffic, sprawl, and pollution-inducing highways, regions like Northern Virginia can avoid the need for additional expenditures of up to $1600 per ton to reduce emissions because they can prevent the pollution from being emitted in the first place.

A savings of nearly $400 million per ton of NOx reduction for cutting highway expansions is highly competitive when compared to alternative emission reduction costs of $1600 per ton for pollution-control technology investments! More regions faced with missed deadlines for clean air attainment should be protecting public health and the taxpayer's wallet by redirecting public investments from road expansions into other more productive forms of investment, such as transit, the revitalization of walkable neighborhoods, education, affordable housing close to jobs, and public health services.

Question 3. You have been an advocate of using land use and other "Smart Growth" strategies to reduce air pollution. Yet, we all know that these strategies take a decade or more to change transportation patterns. How do you expect to generate substantial pollution reductions from these projects when the emission levels from these vehicles will be 95–99 percent cleaner than their 1970's counterparts?

Response. Even with significantly cleaner cars and truck technologies, Smart Growth strategies offer the promise of avoiding—at essentially no cost—as much as one-quarter of the potential motor vehicle emissions in 2020, thus helping to achieve more timely attainment at less cost. If Smart Growth strategies are ignored and sprawl and highway building advance without any accountability for impacts on emissions, society will need to invest billions of dollars more in pollution abatement technologies to clean up mobile and non-mobile sources so we can achieve healthful air quality.

The amount of motor vehicle pollution emitted per mile driven has fallen by more than 90 percent since 1970, but today motor vehicles still account for a major share of pollution—from one forth to three fourths of the NOx and VOC emissions—in most non-attainment areas. Adopted or submitted SIPs show that in the attainment year and in future years going out as far as 2020, motor vehicle emissions are expected to continue to account for a large share of emissions in many metropolitan areas, as Graph 1 shows. For example, despite adoption of cleaner technologies, motor vehicles are estimated to account for 28 percent of VOC and 39 percent of NOx emissions in Washington, DC (in 2005), 31 percent of NOx emissions in Connecticut/NY (in 2007), 45 percent of VOC and 61 percent of NOx emissions in Chicago/Illinois (in 2007), 67 percent of NOx emissions for Portland, Maine (in 2012), 30 percent of VOC and 39 percent of NOx emissions in Denver (in 2013), 79 percent of CO emissions and 71 percent of PM emissions in Las Vegas (in 2020), and 38 percent of VOC and 44 percent of NOx emissions in Salt Lake City (in 2020). And despite the fact that California leads the Nation in adopting cleaner vehicles and fuels, the Bay Area expects motor vehicles to contribute 42 percent of VOC emissions and 52 percent of NOx emissions (in 2006), and the South Coast non-attainment area expects motor vehicles to contribute 59 percent of PM emissions and 49 percent of NOx emissions (in 2020).

The magnitude of emission reductions needed to reach healthful air quality is considerably greater than that now identified through submitted and approved SIPs. EPA's recent posting of maps of estimated effects of the proposed "Clean Skies" initiative (http://www.epa.gov/clearskies/maps.pdf) shows that adopted and proposed measures are together inadequate to bring many of the nation's largest metropolitan

areas into full attainment of the NAAQS even by 2020. Significant further emission controls will be needed also to deal with hazardous air pollutants, greenhouse gas emissions, and other environmental pollution, even with the cleaner motor vehicles produced under the Tier II and heavy-duty diesel engine rules.

A conservative estimate is that Smart Growth strategies have the potential to reduce traffic growth and emissions over the timeframe of 20-year regional transportation plans by 15 to 25 percent compared to forecast trends in most metropolitan areas. Over the shorter timeframe of a 2-year TIP conformity cycle or the several years prior to reaching ozone attainment deadlines, many regions could accomplish reductions in traffic growth and related pollution well of several percent a year relative to trends with a concerted effort combining Smart Growth, pricing, and demand management strategies.

The degree to which Smart Growth can affect emissions and traffic growth is closely related to the pace of job and housing growth in a community. In slow growth communities, the opportunities for Smart Growth to change travel patterns are modest compared to fast-growing communities. Smart Growth is very pro-growth in the areas where it is being implemented while seeking to discourage job and housing growth in other locations where people lack non-driving travel choices. Where fast growth is occurring, there tend to be more opportunities for growth to become smarter.

The effectiveness of Smart Growth strategies in reducing traffic and pollution is also closely linked to how comprehensively these strategies are implemented. Effective Smart Growth means transit-oriented (not just transit proximate) development that is attractive for walking and cycling, includes a vibrant mix of land uses for various income groups, and highly attractive non-automobile access to other parts of the metropolitan area. It includes pricing policies and incentives that favor transit, walking, bicycling, and alternatives to driving while curbing subsidies for driving. Even in slow growth areas, Smart Growth transportation pricing and urban design incentives, such as Commuter Choice programs where employers pay for transit benefits and offer cash-in-lieu-of-parking benefits can produce substantial shifts in travel behavior and pollution reductions in the span of a year or two, with concerted marketing, promotions, demonstrations, and incentives for rapid adoption of Smart Growth changes. Research and experience cited in my most recent testimony to the committee shows the magnitude of near-term travel behavior and emission changes that have been achieved in a number of communities with these sorts of strategies.

Question 4. In your written testimony you state, "Because of steep increases in the number of vehicle miles, cuts in the amount of pollutant emitted per mile, particularly for NOx, and small particulates, have been offset by growth in miles driven." While this has been true in the past, doesn't EPA's data clearly show that future vehicle emissions are decreasing, even as vehicle travel increases?

Response. Since the 1970 Clean Air Act, increasingly stringent motor vehicle and fuel standards have significantly reduced vehicle emissions per mile. Federal light duty Tier 1 vehicle emission standards today allow only 4 percent as much VOC pollution per mile as vehicles emitted in 1969, and 10 percent as much NOx. Despite this sharp reduction, in 1999 motor vehicles still accounted for 29 percent of VOC and 34 percent of NOx emissions nationwide according to EPA. VOC emissions from highway vehicles declined 18 percent during the past decade, but NOx emissions increased by 19 percent during the same period. And as a 2002 TRB study, The CMAQ Program: Assessing 10 Years of Experience, noted (page 70), "Although tailpipe emissions from highway vehicles are only a small share of directly emitted PM on a national basis, they account for a substantially higher proportion of longer-lived atmospheric concentrations of fine particles in urban areas, for example, up to 40 to 50 percent in the Denver and Los Angeles metropolitan areas."

With the full phase-in of Tier 2 standards beginning in 2009, light duty vehicle emission standards will allow only 22 percent as much VOC pollution per mile as Tier 1 standards, and 18 percent as much NOx. But the slow pace of motor vehicle fleet turnover means that the full benefits of these emission reductions will not take effect until 2020 or later. In the meantime, unless regions adopt strategies to better manage travel demand, sprawl, and subsidies that encourage driving, motor vehicle travel will continue to grow and offset much of these emission reduction benefits. Between 1980 and 1999, vehicle miles traveled grew by 87 percent. If a similar pattern continues through 2020, NOx and VOC emissions from motor vehicles will decline by 2020 by only little more than half. But much deeper reductions than this will be needed to achieve healthful air quality for all Americans. In other words, technology alone will not make the amount of driving irrelevant to considerations of pollution control in the foreseeable future.

The recent adoption of more stringent motor vehicle emissions and fuel standards for light duty trucks and heavy-duty diesel engines will offer important additional contributions toward clean air. Nonetheless, progress toward timely attainment will for the next several decades be dependent on continued and improved measurement and monitoring of the amount and pattern of motor vehicle use, and greater efforts to avoid pollution by shaping motor vehicle use and travel behavior.

Question 5. In your written testimony, you state, based on the MATES-II study, "that 90 percent of the total cancer risk is attributable to toxic air pollutants emitted by mobile sources." But you fail to mention that 70 percent of that risk is from diesel emissions, and the EPA heavy duty diesel rule will substantially reduce these emissions. Moreover, you also fail to mention that the same study shows that cancer risk has been declining from 700 per million in 1990 to 300 per million in 1997, which suggests progress is being made on non-diesel related toxic emissions. You suggest that less highway construction and more programs to reduce vehicle travel are needed to reduce these risks, yet isn't technology and better fuels the real answer to reduce most of these risks?

Response. Less highway construction and improved programs to reduce vehicle travel should indeed be evaluated through the planning and project review process to appraise their capacity to avoid or mitigate adverse health risks caused by transportation related air toxics emissions. Travel demand and growth management strategies, pricing incentives, and other actions related to the operation, management, investment in transportation systems and related community systems can often provide very cost-effective approaches to reduce exposure of communities to air toxics and the cancer and other health risks associated with these exposures. Indeed, expansion of highways where unacceptably high air toxic exposure problems already exist will likely increase the scope of the problem by inducing traffic growth and exposures to air toxics. Cleaner technology and better fuels are not the only or best way to reduce most of these health risks, although these are an important part of the solution. While a reduction in cancer risk from 1990 to 1997 is documented in the MATES-II study, the cancer risk in 1997 is many times higher than the level at which EPA and FHWA are required to take actions to safeguard public health from such documented risks.

Diesel emissions are indeed the largest source of toxic air pollutants emitted from mobile sources and the EPA heavy duty diesel rule will eventually reduce those emissions substantially. But because of the long-delayed timeframe for implementation of the heavy-duty diesel rule and the very long lifetime of diesel engine equipment, barring major new pollution control initiatives, it will take decades to achieve the substantial emission reductions required to protect public health from toxic air pollutants from these motor vehicles. While technology and fuels will do a lot to reduce these risks, public health will be best protected by a program that combines such initiatives with better strategies to manage the demand and use patterns of motor vehicles—both diesel and non-diesel—and to manage exposure of the public to these emissions. This must include consideration of how changes in transportation investments—such as highway expansions—will affect the amount of traffic emitting toxic air pollutants, and whether alternative investments might better satisfy mobility objectives while avoiding or mitigating these adverse health impacts. As the example in Washington, DC, cited above shows, reducing highway system expansions can—at least at times—produce both cost savings and substantial reductions in pollution. There are many ways to better manage the system to minimize air toxics while meeting mobility needs, including promotion of faster adoption of cleaner technologies and alternative transportation investment and management strategies. But FHWA is refusing to face core issues related to health impact assessment in its project approval and transportation plan and program approval process.

The health risks from transportation related air toxics remaining after the emission reductions of the last decade far exceed Federal criteria for unacceptable health risks, and will continue to be unacceptably high even if further reductions in per-vehicle emissions are achieved in the foreseeable future. The future risks expected due to the traffic volume anticipated in many major highway corridors are not acceptable to the families who are exposed to toxic emissions. Furthermore, proper consideration of strategies that serve mobility needs without increasing single occupant vehicle travel can minimize these risks. FHWA has not given adequate consideration of these harmful health effects and the alternatives that could mitigate them in its process for reviewing and approving transportation plans, programs, highway funding agreements, and project environmental and design documentation.

The National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., requires a review of the harmful effects of exposure to these motor vehicle pollutants generated by highways. FHWA has violated both NEPA and the requirements imposed by 23 USC §109(a) and (h) and 23 CFR §771.105 to assess and mitigate the adverse

effects of air pollution from highway projects in a number of cases, such as the proposed widening of US 95 in Las Vegas.

It is not acceptable to dismiss the substantial cancer risks that are exacerbated by highway expansions simply because cleaner technologies are likely to be introduced into the marketplace at some future time without considering the health impacts on several generations of children and adults who we know will be harmed by these effects in the decades prior to these cleaner technologies coming into wider use. The evidence of serious health risks is compelling. California's South Coast Air Quality Management District published a study entitled Multiple Air Toxics Exposure Study (MATES-II) in March 2000. In February 2000, the Journal of the Air and Waste Management Association published a study entitled "Distance Weighted Traffic Density in Proximity to Home is a Risk Factor for Leukemia and Other Childhood Cancers" (JAWMA Study). But FHWA routinely fails to even attempt to estimate the concentrations of toxic vehicular emissions likely to result from vehicle travel in high volume traffic corridors proposed for major expansion, or to assess the health risks of public exposure to pollutant concentrations identified by these recent scientific studies as the source of elevated cancer risks and rates. Not performing such an assessment is arbitrary and capricious and inconsistent with NEPA.

EPA has listed 21 toxic air contaminants from mobile sources, including diesel particulate and diesel exhaust organic gases. The EPA concluded that "[t]he current EPA position is that diesel exhaust is a likely human lung carcinogen and that this cancer hazard exists for occupational and environmental levels of exposure." 65 Fed. Reg. 35, 446 (June 2, 2000). The EPA premised this position on findings by the World Health Organization, National Institute for Occupational Safety and Health, and International Agency for Research on Cancer. Id. Other Federal health agencies have listed diesel emissions as containing carcinogens. The National Toxicology Program at NEIHS on May 15, 2000, 2 months before your letter, listed diesel particulate as a "known human carcinogen." EPA has published a list of "Mobile Source Air Toxics (MSAT)" which "includes various volatile organic compounds (VOCs) and metals, as well as diesel particulate matter and diesel exhaust organic gases (collectively DPM + DEOG)." 66 FR 17,229 (March 29, 2001). This list clearly defines the hazardous air pollutants from motor vehicles that FHWA should consider in assessing the health effects of air toxic emissions from the major highway expansion projects.

In refusing to prepare environmental analyses, FHWA has cited evidence that toxic emissions from individual automobiles and overall emissions in urban areas had declined from 1990–97. FHWA has failed to explain, however, why this decline justifies a refusal to consider the public health significance of ongoing cancer risks identified in studies that relied on monitored ambient concentrations of toxic contaminants near major highways and other information gathered after 1997. Indeed, the toxic pollutant concentrations reported in MATES-II reflect lower per-vehicle emissions than are occurring in most States, because California vehicles are subject to stricter emission standards.

FHWA's response to environmental critics does not address the information showing that the health risks remaining after the emission reductions of the last decade far exceed Federal criteria for unacceptable health risks, and will continue to be unacceptably high even if further reductions in per-vehicle emissions are achieved in the foreseeable future. The future risks expected due to the traffic volume anticipated in the US–95 Las Vegas corridor and many other areas of the Nation subject to highway expansion are not acceptable to the families who are exposed to toxic emissions. Furthermore, proper consideration of strategies that serve mobility needs without increasing single occupant vehicle travel can minimize these risks. Congress should reaffirm FHWA's obligation to consider as part of project reviews these harmful health effects and the alternatives that could mitigate them.

Emissions per vehicle mile traveled are not relevant to assessing the magnitude of the public health risk associated with motor vehicle emissions. The key issue is total emissions from highway corridors and the impacts total emissions are expected to have on the health of nearby populations. When highway expansion increases the vehicle-carrying capacity of the highway it induces additional traffic volumes, which in turn will contribute to increased total emissions from the highway and exposure to higher concentrations in the ambient air of hazardous pollutants in nearby neighborhoods. Risks to human health increase in proportion to human exposure to pollutants in the ambient air, not emissions per vehicle. These increased exposures create significant public health hazards that must be addressed in environmental reviews, the regional planning process, and the air quality conformity process.

At least one reasonable estimate of the cancer risk attributable to diesel emissions is the estimate developed by the California environmental agencies presented in the MATES-II study. Even if a careful review of the evidence suggests a better estimate

of the cancer risk is only one-half or one-quarter of the risk estimated by California, the risk would still be very high.

Estimates that regional concentrations of criteria pollutants may improve are simply not relevant to assessing the likely public health impacts of toxic contaminants from motor vehicles. The regional modeling assessments performed to satisfy the "conformity" requirements of the CAA address only the direct emissions of CO, PM–10 and ozone precursors from motor vehicles. These pollutants are subject to emissions limitations established by EPA for new motor vehicles, and are expected to decline in the future because future vehicles are required to meet more stringent emissions standards. But no such standards have been established for toxic air contaminants. There is no basis for assuming that comparable reductions will be achieved for toxic air contaminants. Even if emissions from future vehicles are reduced, that reduction would not obviate the need to assess future emissions levels and whether total emissions in a heavily trafficked corridor will cause or contribute to unacceptable health hazards.

In considering whether technology cleanup vs. demand management and improved transportation system planning should be preferred strategies for avoiding or mitigating health impacts of transportation, it is vital to consider the health costs of highways. The Department of Transportation has estimated the national aggregate health costs of criteria air pollutants from highways at $40 to $68 billion per year. Table 9, Addendum to the 1997 Federal Highway Cost Allocation Study Final Report, U.S. Dep't of Transportation, Federal Highway Administration (May 2000). The methodology developed in the Addendum to the Highway Cost Allocation Study to estimate the costs of adverse health effects from air pollution provides a basis for estimating the adverse health effects, and costs, attributable to emissions from specific highway corridors. The Addendum assessed only the health effects attributable to pre-1997 criteria pollutants, and did not include the health effects attributable to toxic air contaminants emitted from motor vehicles. If FHWA intends to justify highway expansions by comparing the value of increased travel against the costs of providing that capacity, a fair assessment of the health costs to the community must be part of the calculus. In addition, that kind of cost-benefit calculus must be applied to both the highway option and reasonably available alternatives that can reduce or mitigate the adverse impacts on health.

Recent studies have significantly improved understanding of the linkage between vehicle emissions and the risk and incidence of cancer among people living near major highways. The MATES-II and JAWMA studies demonstrate that projects like the US–95 expansion in Las Vegas will increase cancer risks among exposed populations, a highly significant impact on the human environment that warrants environmental impact review. The most important new information derived from these studies is 1) the magnitude of the cancer risk caused by motor vehicle emissions from a highway corridor of the size of the US–95 project, and 2) the demonstrated increased incidence of cancer among children exposed to higher traffic volumes.

It has been known for nearly two decades that motor vehicles emit toxic pollutants that include known or suspected carcinogens. What had not been firmly established by sound scientific research prior to the MATES-II results is that these pollutants reach concentrations in the ambient air in the vicinity of heavily traveled highways that present cancer risks of at least 1 in 1,000 to 1 in 650, i.e., levels far greater than the threshold for mitigation established by EPA's cancer risk policy and Federal agency policies generally.

EPA's cancer risk policy requires that pollutants be reduced when risks exceed 1 in 10,000 for the maximally exposed individual. These high cancer risks for nearby residents, and even higher risks for those living adjacent to roadways, far exceed the risk levels adopted by EPA and Congress in setting national health standards, and are unacceptable to the residents of these neighborhoods. EPA has summarized the consensus cancer risk policy of Federal agencies as requiring careful assessment of measures to reduce cancer risks when the population risk is greater than 1 in 1 million.

Where the entire U.S. population is exposed to a chemical classified as a probable human carcinogen, the agency consensus appears to be that risks less than 1 in 1 million generally can be found acceptable without consideration of other factors while risks greater than that level require further analysis as to their acceptability. 56 Fed. Reg. 7757 (February 25, 1991). On the other hand, EPA and other Federal agencies have generally acted to reduce cancer risks greater than 1 in 10,000. Here, the evidence from MATES-II shows that communities near corridors such as US–95 with traffic volumes in excess of 220,000 vehicles per day will be exposed to cancer risks well above 1 in 10,000.

The MATES-II study derived its estimates of community cancer risks from ambient air monitoring of toxic pollutants in 12 residential neighborhoods during 1998

and 1999. MATES-II also included regional toxic emission data for the Los Angeles Basin and a computer modeling program to estimate exposures for areas of the region where monitors were not located. The conclusions of the MATES-II study are startling: the regional average risk of cancer for residents of the Basin is 1400 in one million (1 cancer for each 714 residents), and 90 percent of this heightened cancer risk is attributable to air pollution from mobile sources. (MATES-II at ES–3).

MATES-II determined that exposure to diesel particulate emissions and other toxics from mobile sources combine to cause 90 percent of the elevated risks. Id. at E–3. Areas with concentrated traffic suffered from increased risks of cancer above the regional average. Id. at ES–5. The study found that the highest cancer risk is in neighborhoods nearest highways where modeled risks were as high as 5800 in one million, meaning that one person out of 170 is likely to suffer cancer. Id. at Fig. 5–3a, p. 5–10.

The JAWMA study of cancer rates in Denver, also published in 2000, is consistent with the MATES-II findings. That study focused on rates of childhood leukemia among children under 12 living very near highways (within 750 feet). The study found that children with leukemia were 12 times more likely to live close to highways than children without leukemia, and concluded that a "strong association" exists between proximity to high traffic streets and childhood leukemia. JAWMA Study at 2. The study built on established research connecting childhood cancers to benzene and other volatile organic compounds found in automobile emissions. Id. Both the MATES-II and JAWMA studies have broad applicability. While MATES-II examined the L.A. Basin specifically, the general findings establish a clear link between automobile emissions and cancer risk. Even if the relative magnitude of emissions of cancer causing agents differs somewhat between locales, the underlying conclusion remains irrefutable: highways are the largest source of carcinogens emitted into the ambient air in the urban environments, and the pollutant concentrations are highest in neighborhoods near highways. The size of the cancer risk is proportional to daily traffic loads in the corridor. When traffic loads are known, approximations of ambient concentrations of mobile source toxics can be made for neighborhoods located next to highways in other States by comparing the daily traffic loads on those highways with the daily traffic loads on highways for which emissions are modeled in the MATES-II study.

Except for diesel particulate, these risk estimates are derived from well-established risk factors that have been the subject of intensive scrutiny for many years. Although the MATES-II cancer risks are derived from risk factors adopted by the California environmental agencies, those factors do not differ significantly from those reported by EPA. See Integrated Risk Information System (EPA, Cincinnati, OH)[http://www.epa.gov/iris]. In addition, these risk estimates are not for the maximally exposed individual living adjacent to heavily traveled highway corridors, but rather for regional populations. Nearby neighborhood exposures are substantially higher, and may be as much as an order of magnitude higher for the maximally exposed individuals.

With regard to diesel particulate, the cancer risks in MATES-II are estimated based on unit risk factors adopted by California, but not yet by EPA. "The current EPA position is that diesel exhaust is a likely human lung carcinogen and that this cancer hazard exists for occupational and environmental levels of exposure." 65 FR 35,446 (June 2, 2000). This characterization of DPM as a carcinogen is supported by the National Institute for Occupational Safety and Health (NIOSH), the International Agency for Research on Cancer, and the World Health Organization (WHO). Id. The National Toxicology Program at NEIHS on May 15, 2000, also listed diesel particulate as a "known human carcinogen." Although a risk factor for DPM has not yet been adopted by a Federal agency, more than enough data has been accumulated from numerous epidemiological studies to allow a risk factor to be determined for risk assessment purposes. Further, California's more stringent emissions standards mean that other jurisdictions, like Las Vegas, may suffer from higher concentrations of toxic emissions from mobile sources. The JAWMA study emphasized the relationship between proximity to highways and childhood cancers. As such, this study has broad application. Nothing in the study indicates that the areas examined were in any way exceptional. Based on the findings in the JAWMA study, one would predict higher rates of childhood leukemia among those living near major highways such as the expanded US–95 in Las Vegas. In response to this new information, Sierra Club and local civic and environmental interests have sought action by FHWA to assure a Supplemental Environmental Impact Study (SEIS) for the US–95 corridor expansion project in Las Vegas. Similar issues are presented in other corridors around the country where extremely high traffic volumes would be increased by road expansions in an area close to thousands of residents. But FHWA has refused to consider the issues being raised by environmental and health groups. These

issues go to the underlying questions posed by Senator Smith—should such requests for analysis be dismissed because of cleaner technologies are expected to become available in coming years and because emissions are decreasing somewhat in some areas? And are facility investment and transportation system management strategies worth considering as control strategies related to these public health problems?

A significant purpose of an EIS is the involvement and education of the public that the process entails. The United States Supreme Court has held that SEISs are necessary to ensure that this purpose is furthered. Marsh, 490 U.S. at 371 (1989). The cancer studies raise an issue that clearly warrants such public involvement. The US–95 expansion may look dramatically different to residents alerted to the heretofore unconsidered link between highways and cancer. An SEIS would provide an opportunity to inform the public about the issue and the degree of risk involved. The public has an obvious, critical interest in providing input on this issue.

Public involvement in the consideration of alternative modes of meeting travel demand in the US–95 corridor is critical. NEPA not only serves as a vehicle for informing the public of impacts, it also requires that alternatives be considered. Taken together with the requirement of 23 U.S.C. §109(h) to mitigate the adverse impacts of air pollution from highways, an SEIS should identify the alternatives that can mitigate or eliminate the cancer risk while at the same time meeting the mobility needs of people who live and work in the US–95 corridor or other similar corridors around the U.S.

Federal law requires assessment, reporting, and mitigation of health risks attributable to highway projects. FHWA's failure to assess the adverse health effects, the costs of these health effects, and the alternative transportation facilities and/or services that could prevent or minimize the adverse effects of the project violates NEPA, section 109 of the Federal transportation code and the Department of Transportation's ("DOT") environmental regulation at 23 CFR §771.105.

The United States Supreme Court has affirmed the position adopted by the Council on Environmental Quality (CEQ) that the purpose of the National Environmental Protection Act would be thwarted without an SEIS requirement. 40 C.F.R. § 1502.9(c); Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 370 (1989). Accordingly, CEQ regulations implementing NEPA impose a duty on Federal agencies to prepare an SEIS when "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed actions or its impacts." 40 C.F.R. § 1502.9(c)(ii). As noted above, the CEQ defines "significantly" according to context and intensity. Context includes effects on society generally and the locality in particular, and intensity includes the magnitude of the impacts on public health and the nature of the risks. 40 C.F.R. § 1508.27.

When deciding whether to prepare an SEIS, the agency must apply a "rule of reason," while taking a "hard look" at new information. Marsh, 490 U.S. at 373–74. In weighing the value of new information, the agency must make the decision according to the same NEPA guidelines governing the decision whether to prepare an EIS in the first instance. Id. If new information shows that the proposed action will affect the environment in "a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared." Id. When new scientific data raise environmental concerns that have not been addressed in a previous EIS, an SEIS is required. Portland Audubon Society v. Babbitt, 998 F.2d 705, 708 (9th Cir. 1993). New concerns that require an SEIS can be either quantitative or qualitative. Environmental Defense Fund. v. Marsh, 651 F.2d 983, 996 (5th Cir. 1981).

In addition to NEPA, Federal highway law requires the consideration of the adverse effects of air pollution prior to approval of the plans and specifications for a highway, 23 U.S.C §109(a), and the adoption of measures that "eliminate or minimize" the adverse effects of "air pollution." 23 U.S.C. §109(h).

In a case challenging DOT's approval of a highway project without assessing its impact on air pollution, the court in D.C. Federation of Civic Associations v. Volpe, 459 F.2d 1231 (D.C. Cir. 1971), held that 23 U.S.C. § 109(a) required such an analysis:

We can find no basis in the statute's language or purpose for the conclusion that certain hazards are, as a matter of law, immaterial to the Secretary's evaluation of a project's safety. The District Court would surely agree that Congress did not intend to permit construction of a bridge in a situation, however rare, where air pollution would be a significant threat to safety. It does not follow, of course, that air pollution will be a significant hazard in all-or even any-highway projects. And the District Court apparently concluded that no extraordinary dangers are likely to arise from the Three Sisters Bridge. Still, the gathering and evaluation of evidence on potential pollution hazards is the responsibility of the Secretary of Transportation, and he undertook no study of the problem.

DOT's approval of the highway bridge was remanded.

Federal highway law goes beyond NEPA by requiring that the decision to approve a highway be——

"made in the best overall public interest taking into consideration the need for fast, safe and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects and the following: (1) air, noise, and water pollution; (2) destruction or disruption of man-made and natural resources, aesthetic values, community cohesion and the availability of public facilities and services; (3) adverse employment effects, and tax and property value losses; (4) injurious displacement of people, businesses and farms; and (5) disruption of desirable community and regional growth. Such guidelines shall apply to all proposed projects with respect to which plans, specifications, and estimates are approved by the Secretary after the issuance of such guidelines."

23 USC §109(h). At a minimum, this provision requires DOT to determine the costs of eliminating or minimizing the adverse health effects attributable to air pollution, and then requiring mitigation in the "best overall public interest."

DOT's 1987 regulations implementing this requirement and NEPA provide that the analyses required by §109(a) and (h) are to be performed as part of the NEPA review of the project. 23 CFR Part 771. Thus because both §109(a) and (h) require an analysis of the adverse effects of air pollution and the costs of eliminating or minimizing such effects, a supplemental EIS is required.

Section 109(h) also requires DOT to "eliminate or minimize" the adverse effects attributable to a new or expanded highway. This provision is implemented through DOT regulations in 23 CFR §771.105, but has not been applied by FHWA with regard to the adverse health affects associated with toxic and fine particle air pollutants emitted from this highway project. DOT's regulation adopts as—

the policy of the [Federal Highway] Administration that:

(b) Alternative courses of action be evaluated and decisions be made in the best overall public interest based upon a balanced consideration of the need for safe and efficient transportation; of the social, economic, and environmental impacts of the proposed transportation improvement; and of national, State, and local environmental protection goals.

(c) Public involvement and a systematic interdisciplinary approach be essential parts of the development process for proposed actions.

(d) Measures necessary to mitigate adverse impacts be incorporated into the action. Measures necessary to mitigate adverse impacts are eligible for Federal funding when the Administration determines that:

(1) The impacts for which the mitigation is proposed actually result from the Administration action; and

(2) The proposed mitigation represents a reasonable public expenditure after considering the impacts of the action and the benefits of the proposed mitigation measures. In making this determination, the Administration will consider, among other factors, the extent to which the proposed measures would assist in complying with a Federal statute, Executive Order, or Administration regulation or policy.

On its face, paragraph (d) requires that measures necessary to mitigate the adverse health effects of hazardous air pollutants and fine particles be incorporated into the plans and specifications for the project. Subparagraphs (1) and (2) then establish criteria for determining whether the costs of mitigation are eligible for Federal funding. The rule does not contemplate the approval of a project that would have significant adverse effects on human health without requiring that those effects be mitigated. The project must either include measures to eliminate long-term human exposure to the levels of hazardous air contaminants that are associated with significant risks of adverse health effects, or alternatives must be developed that can prevent these adverse health effects. None of these requirements of DOT's rule have been addressed in the review of the US–95 project in Las Vegas.

For all of the above reasons, less highway construction and more programs to reduce vehicle travel should indeed be evaluated through the planning and project review process to appraise their capacity to avoid or mitigate adverse health risks caused by transportation related air toxics emissions. While cleaner technology and better fuels are an important part of the solution, they are not the only way or necessarily the best way to reduce most of these risks.

Proposals to streamline NEPA reviews through such actions as imposition of arbitrary deadlines for agency action, limits on public involvement, curbs on the engagement of resource agencies and the public in determinations of project purpose and need or available reasonable alternatives, limitations on judicial review of NEPA decisions threaten to reduce compliance with these important legal requirements and

public health safeguards. We urge Congress to oppose such efforts as fundamental assaults on America's core environmental and public health laws.

STATEMENT OF THE NATIONAL ASSOCIATION OF HOME BUILDERS

Thank you for the opportunity to submit a statement for the record presenting the views of the National Association of Home Builders (NAHB) on the issue of transportation conformity and its impact on the home building industry.

NAHB represents more than 205,000 member firms involved in home building, remodeling, multifamily construction, property management, housing finance, building product manufacturing and other aspects of residential and light commercial construction. The members of NAHB recognize the importance and value of a safe, easily accessible and reliable transportation system. Homeowners and potential homebuyers depend upon transportation systems to move them from their homes, to their places of employment, to shopping and to their schools. Homeowners also demand communities with clean air. The transportation conformity process creates the nexus between the need for safe, effective transportation with the desire for maintaining clean air. Unfortunately, the conformity process can be confusing, bureaucratic and burdensome. The transportation conformity program's goals and processes must be reevaluated and reforms need to be made. NAHB's members believe the building industry can play a constructive role in addressing this issue.

Background

Transportation conformity is a requirement under the Clean Air Act (CAA) and the Transportation Equity Act for the 21st Century (TEA–21) that mandates States with impaired air quality to conduct air quality assessments prior to Federal approval, or the expenditure of Federal funds, for construction of any major transportation project that may have an impact on regional air quality (e.g., highway expansion, bridge construction, new freeway construction, or transit project). In short, it is a Federal requirement that local transportation plans must "conform" to the State air quality plan.

Transportation conformity applies to counties with impaired air quality—today there are approximately 107 areas (generally an area is a conglomeration of contingent counties in a metropolitan area, called a "nonattainment" area) in 34 States that the U.S. Environmental Protection Agency (EPA) has designated as having excessive amounts of ozone (smog), particulate matter (soot), carbon monoxide, and/or nitrogen dioxide. In addition, EPA is in the process of implementing new, more stringent standards for ozone and particulate matter. With the implementation of these new standards, the number of nonattainment areas considered to have impaired air quality and subject to transportation conformity requirements could double by 2007.

Transportation conformity determinations are set up as an all-or-nothing proposition. The projects in the local transportation plan are taken in the aggregate. If local planners are unable to show conformity of both a 20-year transportation plan and a 3-year transportation plan (including the funding to back the projects contained in those plans) with a the State air quality plan, the area experiences a "conformity lapse." The result of a conformity lapse is that all Federal transportation funding for the area is cutoff until the transportation plans are approved. With Federal funding suspended due to a conformity lapse, badly needed transportation projects are delayed or even canceled, leaving the population of these areas with continued traffic congestion.

Impacts on the Home Building Industry

By all measures, the housing industry, which accounts for 14 percent of the nation's Gross Domestic Product, has been a bellwether during the recent difficult economic times. Fortunately, to date, transportation conformity requirements have not hindered the industry's ability to continue producing safe, affordable housing in most cities. The construction component (residential fixed investment) has outperformed the overall economy in four of the last five calendar quarters. In recent economic data for the first quarter of 2002, housing grew 14.6 percent while the economy grew 6.1 percent. Over the past year, low interest rates and strong underlying demographic demand has kept housing strong while the rest of the economy has struggled to regain its footing.

The construction of 1,000 single family homes generates 2,448 jobs in construction and construction-related industries, approximately $79.4 million in wages and more than $42.5 million in Federal, State, and local revenues. The construction of 1,000 multifamily homes generates 1,030 jobs in construction and related industries, approximately $33.5 million in wages, and more than $17.8 million in Federal, State

and local revenues and fees. NAHB members will construct approximately 80 percent of the almost 1.6 million new housing units projected for 2002.

In 2001, forty-one of the largest 50 housing markets in the United States were either nonattainment or maintenance areas subject to transportation conformity requirements. As these population centers grow, the demand for affordable housing must be coupled with the need for a safe, efficient and modern transportation system. Unfortunately, driven by consumer demand, land developers and builders often plan their own projects according to local transportation and growth plans. Since many consumers factor transportation into their decisions about home location, delayed or canceled transportation projects change the demands of the homebuyer after development projects are planned or even completed. If a metropolitan area is unable to appropriately wade through the red-tape of the Federal conformity requirements so that it can keep transportation project funding flowing, previously approved transportation projects are halted, the congestion continues, and homebuyers are left idling in traffic.

In 1999, a NAHB survey showed that 83 percent of the survey's respondents favored a detached single-family home in a suburban setting with a longer commute to work and farther distances to public transportation and shopping. Overwhelmingly, the survey showed that the greatest concern to respondents was traffic congestion. Respondents chose road widening (44 percent), new road construction (27 percent) and greater availability to public transportation (33 percent) as solutions to traffic problems. Though a substantial number of respondents advocated the use of public transportation, 92 percent owned automobiles and 85 percent said that they use them for commuting.

The survey highlights the tradeoff Americans are willing to make: greater traffic congestion in return for the home of their own choice, in the setting of their own choice. Further, while Americans support public transportation, they rely on the automobile as their primary means of transportation and support transportation improvements to ease traffic congestion. It is clear that transportation, whether by automobile or by transit, is a vital component of the decisionmaking process for homebuyers. This point is not lost on home builders. Home builders depend on a safe, efficient, modern transportation system because it is an important selling point for the homebuyers they serve.

NAHB Activity

NAHB began to focus on transportation conformity in 1999 when environmental advocates in Atlanta, Georgia decided that an effective way to influence local land use planning was to oppose transportation plans in court. Atlanta proved to be only the beginning of a larger strategy: hold a nonattainment metropolitan area's transportation plan hostage while seeking a settlement that favors their particular land use objectives. Throughout the county, environmental groups have petitioned Federal courts to have transportation plans frozen and then stricken by the court because they are "flawed" in some way. If a transportation plan is stricken, essentially there is no plan and, therefore, no conformity. Without conformity, Federal funding would be frozen until a "better" plan is approved.

In response, NAHB formed a coalition with other transportation construction interests to intervene on a national level in transportation conformity lawsuits. NAHB has participated in transportation-related litigation in Sacramento, Atlanta, Baltimore, and Salt Lake City. NAHB is of the opinion that Congress did not intend for environmental groups to have standing to challenge transportation planning decisions under the Federal Aid to Highways Act and that the courts should not resort to picking and choosing specific transportation projects for a region. We believe that Congress envisioned a dynamic process where transportation documents are continuously reviewed and updated on a regular basis in an effort to account for new data, technology improvements, and shifts in transportation growth. The conformity process is not static, and by necessity, is dependent on estimates and predictions based on ever-changing data and projections regarding future transportation trends. However, while this litigation continues in absence of clarification by Congress, it is imperative for parties with an economic interest or those parties who are reasonably affected by an ultimate decision have the opportunity to intervene in those lawsuits. Efforts to keep transportation planning flowing without court-selection of specific transportation projects were very successful in 2001, and these efforts continue through 2002.

NAHB has also recognized that a conformity lapse can result from a poorly coordinated administrative process as much as any court decision. For example, Houston was days away from lapse in the summer of 2001, and San Francisco did experience a conformity lapse in early 2002. Both of these areas became bogged down in underlying challenges to State air quality planning, such as modeling issues, that over-

lapped with upcoming deadlines for approval of transportation plans. It was not that the transportation plan itself was flawed, but that the air quality plan approval process was not synchronized with the transportation plan approval process. The transportation planning process itself can be unnecessarily burdensome on local planners, and changes should be made to the requirements to facilitate better air quality and transportation planning.

Concerns about the Current Transportation Conformity Requirements

In reconsidering transportation conformity while reauthorizing TEA–21, NAHB urges Congress to carefully weigh the air quality benefits gained by implementing the complicated transportation conformity requirements against the economic impacts of the current transportation conformity system. NAHB supports air quality planning aimed at reaching the goals of the CAA and understands the need for future motor vehicle emissions to be factored into transportation planning. As reauthorization progresses, Congress should consider whether transportation conformity is achieving its intended goals.

NAHB would like to work with Congress to address what we see as the major problems with the transportation conformity process. Through several meetings and conversations with industry stakeholders and transportation and environmental officials, NAHB has identified several areas of concern:

- Under the current transportation conformity system, the introduction of "new" air or transportation data triggers the need for a new air quality plan and, in turn, a new conformity determination. Unfortunately, it is difficult to find a balance between introducing new air and transportation data into the system while still maximizing the time available to State and local transportation planners to make conformity determinations prior to statutory deadlines. Transportation planners are confused by current EPA and U.S. Department of Transportation (DOT) guidance about what procedures should be followed and which data should be used in planning.
- The Federal agencies have not concluded properly or consistently what kind of project can move forward during a transportation conformity lapse situation. As EPA and DOT attempt to interpret a court decision from 1999 that interprets the statute, once a project is approved by a local government and well on its way to becoming a reality, conformity lapse can leave a partially completed project unfinished.
- Organizations representing environmental interests are attempting to manipulate the judicial process to force Metropolitan Planning Organizations (MPOs) to adopt favored local transportation projects. Environmental groups have developed a legal strategy to challenge modeling, pollution estimates and emissions forecasts with which they disagree—even though these challenges should be made during the public participation phase of the planning process. Environmentalists are petitioning the courts to freeze and invalidate transportation plans and transportation projects such that an area could be thrown into conformity lapse if the case were successful. Abusing the court system in this manner enables environmental groups to hijack the collaborative stakeholder process that develops both the short and long-term transportation plans.
- The way that EPA implements its new 8-hour ozone and fine particulate matter standards will have significant impact on the transportation conformity process. As stated earlier, the number of nonattainment areas may double, limiting State and Federal resources. Further, the newly designated nonattainment areas will have little experience with the implementation of an already complicated conformity process.

NAHB looks forward to working with Congress to seek solutions to these problems as reauthorization of TEA–21 continues.

Thank you for allowing NAHB the opportunity to share its views on the transportation conformity process. NAHB applauds the efforts of the Senate Environment and Public Works Committee to tackle this difficult issue. We look forward to working with members of the committee on this issue and other issues of concern to the home building industry during the reauthorization of TEA–21.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

August 9, 2002.

The Honorable JAMES M. JEFFORDS,
Committee on Environment and Public Works,
U.S. Senate,
Washington, DC 20510.

DEAR MR. CHAIRMAN: I am writing on behalf of the American Association of State Highway and Transportation Officials (AASHTO), which represents the departments of transportation in the 50 States, the District of Columbia and Puerto Rico. We want to thank you and the members of your committee for convening a hearing on July 30, 2002 to address transportation and air quality issues.

With the enactment of the Clean Air Act Amendments (CAAA) in 1990 and the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, transportation planning and air quality planning became more closely linked through transportation conformity. The policy objective of the transportation conformity process is to coordinate air quality and transportation planning by ensuring that transportation plans are consistent with planning for attaining Federal air quality standards. The results have been positive—coordination between air quality and transportation planning has improved and cooperation between air quality and transportation planning officials has increased. The process has resulted in greater awareness of decisionmakers of the linkages between transportation and air quality and has encouraged broader involvement in transportation planning by stakeholders. We support and applaud these improvements.

Nevertheless, after more than 10 years of experience, we believe the transportation conformity process is still not working as effectively as it could. For example, under the existing requirements, the transportation and air quality planning processes are still misaligned:

- Different Planning horizons: U.S. DOT's metropolitan planning regulations require that metropolitan transportation plans have a minimum of a 20-year planning horizon, while the Clean Air Act requires State Implementation Plans (SIPs) to cover a period that extends only to the attainment date, typically a five to 10 year period, resulting in a mismatch. The result is a defacto "cap" on future emissions through the end of the 20-year transportation plan period. Travel growth and associated emission increases can be offset only with transportation measures—new fuel and vehicle technologies that may be coming online cannot be considered. This puts the transportation sector at a distinct disadvantage and does not allow for analyses of potential measures from all sectors.

Recommendation: Amend TEA–21 to require conformity determination on first 10 years of the transportation plan or the attainment date, whichever is later.

- Different Frequency Requirements for Transportation and Air Quality Plan Updates: Transportation plans and their conformity demonstrations must be updated every 3 years; TEA–21 requires TIPs to be updated every 2 years; and there is no requirement to update attainment SIPs once approved by EPA. Maintenance plans need to be updated after 8 years with a new 10-year plan developed.

These requirements have created a situation where transportation plans are updated regularly while SIPs are updated only on a discretionary basis. Because transportation plans, TIPs and SIPs must use the latest planning assumptions each time they are updated, the assumptions in SIPs tend to be older than those in plans and TIPs, creating an inconsistency in the process. This is important, as these differences in assumptions are critical to projecting on-road mobile source emissions. A current example is Sacramento, California, where the most recent SIP was developed in 1994—eight years ago—while the transportation conformity analysis must use the most recent planning assumptions and data.

Recommendation: Amend TEA–21 to require metropolitan plan updates every 5 years in nonattainment and maintenance areas, and reaffirm that TIPs must continue to be consistent with plans.

- Different Emission Estimating Techniques: The conformity rule requires that the latest planning assumptions and emissions models be used in transportation plans, TIPs, and SIPs when they are updated. Under these requirements, regional emissions analysis are being performed using the latest emissions model and are being compared against SIPs that frequently were developed using older models (see discussion above on different frequency for transportation and air quality plan updates). The result is an uneven comparison as different estimating techniques and parameters produce significantly different estimates of current and future emissions levels. For example, in 2002, EPA released MOBILE6 model. Non-attainment areas

have 2 years to begin using the model for conformity determinations. There is no corresponding requirement that SIPs be updated using the new model.

Recommendation: Amend TEA–21 to require that SIP budgets and conformity demonstrations be based on the same mobile-source emissions factors model and/or same vehicle fleet mix data.

• Different Lead Times for Sanctions and Conformity Lapses: If a conformity lapse occurs, consequences on the transportation plan and/or TIP are immediate. If there is a SIP failure, however, penalties are not invoked until at least 18 months after EPA sites an area with a SIP violation.

Recommendation: Amend TEA–21 to align conformity lapse with highway sanctions time clocks.

• fter 20-years of maintenance, areas still need to meet conformity requirements: Conformity requirements currently apply to all nonattainment and maintenance areas. This means that even if an area has completed the 20-year maintenance period, if the 20th year is anytime within the transportation planning horizon, the area still must meet conformity requirements until the last year of the transportation plan (e.g., end of 20-year maintenance period 2006, transportation plan horizon 2025). This is increasingly becoming an issue as more areas are reaching the end of their 20-year maintenance period.

Recommendation: Amend TEA–21 to clarify that conformity applies only during the maintenance period.

In conclusion, we believe it would be useful and appropriate to consider process improvements that could enhance integration of transportation and air quality plans and strengthen the transportation-air quality linkage. Moreover, we believe it is essential to consider and establish an orderly process for implementing the upcoming designation of more than 200 new areas for non-attainment under the 8-hour ozone or PM2.5 air quality standards.

Attached is a complete set of AASHTO's recommendations regarding transportation conformity that were approved by the Board of Directors on April 21, 2002. We respectfully request that this letter and the attachment be made a part of the official record of the Senate Environment and Public Works Committee's July 30, 2002 hearing on Transportation and Air Quality.

AASHTO appreciates the opportunity to work with you and your committee, and looks forward to continuing to explore approaches with you for improving transportation and air quality planning coordination through the transportation conformity process.

Respectfully yours,

JOHN HORSLEY, *Executive Director.*

TEA–21 REAUTHORIZATION

MONDAY, SEPTEMBER 9, 2002

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
SUBCOMMITTEE ON SURFACE TRANSPORTATION AND
MERCHANT MARINE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION, INFRASTRUCTURE, AND
NUCLEAR SAFETY,
Washington, DC.

The subcommittees jointly met, pursuant to notice, at 2:38 p.m. in room SR–253, Russell Senate Office Building, Senator Breaux [chairman of the Subcommittee on Surface Transportation and Merchant Marine] presiding.

FREIGHT ISSUES

Present for the Committee on Commerce, Science, and Transportation: Senator Breaux.

Present for the Committee on Environment and Public Works: Senators Reid, Jeffords, and Inhofe.

OPENING STATEMENT OF HON. JOHN BREAUX, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator BREAUX. The committee will please come to order. I would like to welcome our colleagues from the Environment and Public Works Committee who are with us this afternoon for this very important hearing, particularly Senator Reid and Senator Inhofe and also Senator Jeffords and others who I know will be attending. This is a joint hearing of the Subcommittee on Surface Transportation and Merchant Marine and the Subcommittee on Transportation, Infrastructure, and Nuclear Safety. I also thank all of our witnesses for being with us.

I would just make a brief comment to point out that one of our fastest-growing segments of our economy, and our gross domestic product for this country, is international trade. This segment of our economy is completely dependent on our transportation sectors and on the intermodal transportation of the goods that are engaged in commerce.

Today we are going to look at what has become one of the backbones of our entire Nation's economy, the infrastructure for the intermodal transportation system of the United States. I think all of us who represent port areas are familiar with the importance of an intermodal, interconnected, transportation system, that without

it we will not continue to be one of the great trading nations of the world.

Intermodal containers, for instance, in the ocean shipping area, are increasing dramatically. It used to be that a ship that had 2,000 containers on it was considered one of the largest in the world. Today we have ships carrying 7,000-plus containers. If those containers were lined up one behind the other on rail cars, it could extend over 35 miles, just from the containers on one large container ship.

So we want to look at the problems associated with intermodal transportation. I am delighted that our leader on the Democratic side, Senator Reid, who has been so active in these transportation measures from an appropriations standpoint and others, is with us to help with this hearing this afternoon. Senator Reid, any comments?

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. Thank you very much, Mr. Chairman. I am very happy that we have here with us the chairman of the full committee, Senator Jeffords, who has been so good at allowing us to do things on the committee. As chairman of this subcommittee, I appreciate his allowing us to do this joint hearing.

Senator Breaux, you being from a State where you see these ships come in all the time, you are used to them. But for me, every time I go to a place where we have freight that comes by ship I am stunned how big these are. I cannot imagine a ship could stay afloat with 35 miles of railroad cars in it. It is just hard for me to comprehend that we have vessels that can do all of that.

I am happy to co-chair this hearing with you, Senator Breaux. The subcommittee that you chair, Surface Transportation and Merchant Marine, is extremely important and, even for those of us who are not in ports, we all understand or should understand that solving America's freight and passenger transportation problems will require a comprehensive intermodal and flexible approach.

Jurisdiction over surface transportation programs is divided between our committee and your committee. We have to do everything we can to coordinate our efforts. You and I have been around long enough that it is a question of what we can get done and do it as quickly as we can. Once we get something done, there is a lot of credit to pass out. We do nothing, and I think we'll get discredit for that.

We need to work not only with our committees, but we have to work in Finance, Budget, and Appropriations. So we have to do a lot to set the policy agenda. We can do that. We cannot begin to address the significant problems facing our Nation's transportation system unless we have adequate funding. Each of these committees I have mentioned will be an important partner in our efforts to secure the additional funding and budget protection necessary to write a transportation bill that addresses our Nation's significant highway, transit, and rail infrastructure needs.

Funding problems—today we will deal with freight transportation. Efficient transportation of freight is essential to our Nation's economic growth and global competitiveness. Nearly $10 tril-

lion worth of freight is transported each year on our roads, railroads and waterways. We depend on our transportation system to get everything from food and other agricultural products to consumer goods to construction materials to coal to their destinations.

Freight transportation will double in the next 20 years. This growth in freight will vastly outpace the growth of our road and rail system and it can simply overwhelm our transportation infrastructure. Already, bottlenecks exist at border crossings with Canada and Mexico and in metropolitan areas. The next transportation bill will have to address these capacity issues and improve access to intermodal facilities.

In addition, we have to address operational issues that impact the reliability of our transportation system. Intelligent transportation systems will play a critical role.

We are fortunate to have a number of distinguished witnesses today. I especially look forward to Katie Dusenberry, who chairs the Arizona State Transportation Board, to talk about the traffic bottleneck at Hoover Dam. As a result of the closure of Hoover Dam, we have had to divert traffic—2,100 trucks a day now are detoured 23 miles or more.

Senator Breaux, you have heard me talk about my home town of Searchlight. That is where they go, 2,300 trucks every day. It is dangerous. It is the busiest two-lane highway in Nevada and it is extremely dangerous and it is only going to get worse. This bridge is essential to freight movements on the Cana-Mex corridor and is a top priority for our entire region of the country.

Senator Breaux, one of the things that we have to keep in mind also is if you look at a chart, on numbers, trucks haul most of the stuff and we want to do what we can to make sure that our highways get the attention they need. But it is kind of a misleading figure to look simply at numbers, because the trucks cannot haul most of the stuff until it gets to them and most of that comes with rail or through ocean traffic, barge traffic. So we have a lot to do to make sure that we better understand the freight system. If there were ever an area where we cannot be provincial, that is, we in Nevada have to care about Louisiana even though we do not have—in Las Vegas, four inches of rain a year. You get that much in a couple of hours—we have to be concerned because if we are going to keep Las Vegas economically sound, we are going to have to figure a way to get the traffic from Long Beach, New Orleans, and other places.

[The prepared statement of Senator Reid follows:]

STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Welcome to today's hearing on freight transportation issues. I am pleased to co-chair this hearing with Senator Breaux and the Commerce Subcommittee on Surface Transportation and Merchant Marine he chairs. Solving America's freight and passenger transportation problems will require a comprehensive, intermodal, and flexible approach. Jurisdiction over surface transportation programs is divided between the Environment and Public Works Committee, the Banking Committee, and the Commerce Committee, and we will have to closely coordinate our efforts. This joint hearing is an important example of that cooperation, and I look forward to working closely with Senator Breaux and our other partners throughout the TEA–21 reauthorization process.

In addition to working with the Commerce and Banking Committees on policy issues, I intend to work closely with the Finance, Budget, and Appropriations Committees on funding issues. While we have a lot of important policy work ahead of

us, we cannot begin to address the significant problems facing our nation's surface transportation system without adequate funding. Each of these committees will be an important partner in our efforts to secure the additional funding and budget protection necessary to write a transportation bill that addresses our nation's significant highway, transit, and rail infrastructure needs.

One particular funding need that we will address at our hearing today is freight transportation. The efficient transportation of freight is essential to our nation's economic growth and global competitiveness. Nearly 10 trillion dollars worth of freight is transported each year on our roads, railroads, and waterways. We depend on our transportation system to get everything—from food and other agricultural products to consumer goods to construction materials to coal—to its destination.

Freight transportation is expected to double in the next 20 years, as the economy grows and international trade increases. This growth in freight traffic will vastly outpace the growth of our road and rail systems and threatens to overwhelm our transportation infrastructure.

Already, key bottlenecks exist at road and rail connections to major U.S. seaports, at border crossings with Canada and Mexico, and in metropolitan areas where roads and rail infrastructures are stretched beyond their capacity.

This next transportation bill will have to address these capacity issues and improve access to intermodal facilities if we are to keep our economy moving and maintain our leadership in international trade.

In addition, we must address operational issues that impact the reliability of our transportation system. Intelligent Transportation Systems will play a crucial role in improving the reliability of our transportation infrastructure and ensuring the flow of up-to-the-minute information to users and managers.

We are fortunate to have a number of distinguished witnesses with us today to provide our committees with insights into the freight challenges we face and, we hope, some proposed solutions to these problems.

One witness I would like to particularly thank for making the trip to be here is Katie Dusenberry, who chairs the Arizona State Transportation Board. Ms. Dusenberry will be testifying on an issue that is of vital importance to my State and the entire Southwestern region—the closure of the Hoover Dam to truck traffic due to post-September 11th security concerns.

As a result of the closure of the Hoover Dam bridge to freight traffic, over 2,100 trucks per day are now detoured 23 miles or more. To address this problem, the States of Arizona and Nevada are working together, and with the Federal Government, to build a Hoover Dam Bypass Bridge. This bridge is essential to freight movements on the CANAMEX corridor and is a top priority for my State. The Department of Interior has identified the Hoover Dam bypass project as its No. 1 national security priority.

I am pleased that Ms. Dusenberry has joined us to provide her expert testimony on this project.

Again, thank you to all of our witnesses for your participation today. Our first panel will consist of Associate Deputy Transportation Secretary Jeffrey Shane, who is also the Director of the Office of Intermodalism, and Jay Etta Hecker from the U.S. General Accounting Office. Thank you for agreeing to be with us today and I look forward to your testimony.

Senator BREAUX. Thank you very much, Senator Reid.

In order of appearance, I recognize the chairman of the full Environment and Public Works Committee, our friend Jim Jeffords.

OPENING STATEMENT OF HON. JIM JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. Thank you. Senator, I appreciate all the work you have done along with Senator Reid in putting this hearing together. Coordinating two committees is not an easy task. It is so essential, and I applaud your efforts.

Today's hearing lays important groundwork for the TEA–21 reauthorization next year. The proper and efficient handling of freight is absolutely critical to the American economy. It is that simple. Without this, consumer prices would skyrocket, factories would have temporary shutdowns, businesses could not function, and families would even worry about food shortages in the land of plenty.

I care about freight issues. They are important to me in Vermont and to every county and every State in the Union. Chairmen Reid and Breaux have highlighted some important facts. I will repeat one: The U.S. transportation system carried over 15 billion tons of freight valued at over $10 trillion during 1998. Trucks carry about 80 percent of that value.

Now for the most critical point: The volume of freight that needs to be carried in the United States will more than double by the year 2020. Thus, the transportation bill for the next generation of Americans, which we are currently crafting and will pass next year, must address this issue in a positive manner.

America needs to invest in vital intermodal freight infrastructure so that American businesses have competitive choices and more opportunities. For example, our international ports should offer multiple options, such as train and truck, to move incoming freight or to efficiently load ships with American products. Careful strategic investments near urban areas, factories, border crossings, ports or elsewhere can greatly help. Of course, I understand that regional needs vary, which is why the new law must embrace flexibility and local decisionmaking. For example, Vermont has a strong tradition of moving heavy freight by rail to the St. Lawrence Seaway. Freight moves through Vermont north to the Province of Quebec and south to the Eastern Seaboard. Vermont's granite and marble quarries, its dairy farms and its timber industries produce relatively heavy products, and its high-tech industries such as IBM produce high value but low weight products. Allowing flexibility, local decisionmaking, and competitive choices will provide for efficient intermodal freight movement.

Those who ship and receive freight in America are concerned with efficiency and timeliness. We need intelligent freight systems in addition to intelligent transportation systems. The buyer's cry is: I want it on time and unbroken. Yet this week's New Yorker magazine, in an article entitled "Stuck in Traffic," explains how congestion threatens efficiency on our highways. The article wonders if the world will end, not with a bang, but with a traffic jam.

America has spent hundreds of billions of dollars building, improving, and repairing our massive highway transportation systems. I will push for a similar revitalization of our rail system. We need a modern rail equivalent to our highways.

Rail will yield strong benefits throughout our Nation. First, movement of goods onto rail can usually reduce congestion on our roads and permit truck freight to move faster and safer. Second, it will make our highways last longer as the heavy freight is moved by rail. Truck shipments exert a tremendous toll on our Nation's highways.

Third, more targeted, strategic, less costly investments can help move huge volumes of freight while offering businesses another viable option. For example, much of the truck traffic on Route 7 in Vermont could be handled by rail through precisely targeted strategic investments in rail corridors, instead of through expensive road-building projects. Each Senator in this room probably has similar examples for their States.

In closing, let me again emphasize my interest in working with everyone in this room on these critical freight issues. I look forward to hearing the testimony here today. Thank you, Mr. Chairman.

Senator BREAUX. Thank you, Senator Jeffords. Senator Inhofe.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Mr. Chairman. I think you are aware that this committee is having a scheduling conflict with Senator Armed Services. So I will not be able to stay.

I did want to come down and express myself on a couple of things. The significance of a reliable freight transportation system is always imperative, although it is more so now in times of war. As the ranking member of the Transportation and Infrastructure Subcommittee, I now have the opportunity to work more closely on making sure that transportation needs are met.

I believe there is still much that needs to be done in accomplishing our goals. I am pleased to be meeting today in conjunction with the Commerce Subcommittee and discussing the matters at hand. We face many challenges with our current transportation system concerning the consequences on our economy and our environment. While I understand the focus on improving our important border infrastructures to handle increasing traffic volumes in the future, my concern is committing to the enhanced safety and security of commercial vehicle operations at our borders.

Mr. Chairman, when you and Senator Reid talked about the ports, a lot of people are not aware that Oklahoma is a port. We are the home of America's most inland port. So we have extensive operations there.

I am certain it is possible to have a transportation system that is safe and secure, as well as efficient and productive. The past two reauthorization acts developed and promoted by this committee have been instrumental in stimulating surface transportation policy. As the committee considers reauthorization proposals, it is necessary to review whether changes need to be made. I would be interested to hear our witnesses. I believe it is necessary to define what program changes might need to be implemented in reauthorization to aid the improvement of intermodal connections surrounding ports, railheads, and other intermodal transfer facilities.

Mr. Chairman, I ask unanimous consent to insert testimony for Mr. Jim Fisk of MagTube Incorporated and Charlotte Thorton on innovative approaches for freight transportation issues, if I might.

Senator BREAUX. Without objection, it will be made a part of the record.

Senator INHOFE. Thank you, Mr. Chairman.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Thank you Mr. Chairman. Today's hearing on freight and intermodal transportation is exceptionally important to me. A reliable freight transportation system is always imperative, although it is particularly important these days during times of war.

As the ranking member of the Transportation and Infrastructure Subcommittee, I now have the opportunity to work more closely on making sure that transportation

needs are meet. I believe there is still much that needs to be done in accomplishing our goals.

We face many challenges with our current transportation system that causes concerning consequences on our economy and environment.

While I understand the focus on improving our port and border infrastructures to handle increasing traffic volumes in the future, my concern is committing to the enhanced safety and security of commercial vehicle operations at our borders. I am certain it is possible to have a transportation system that is safe and secure, efficient and productive.

A better understanding of freight demands and similar issues helps us to analyze the increasing demand for freight transportation, assessments of the implications of freight demands for the entire surface transportation system and improvements in freight efficiency and security.

The past two reauthorization acts developed and promoted by this committee have been instrumental in stimulating surface transportation policy. As the committee considers reauthorization proposals, it is essential to review whether changes need to be made.

I will be interested to hear if our witnesses believe it is necessary to define what program changes might need to be implemented in reauthorization to aid the improvement of intermodal connections surrounding ports, railheads and other intermodal transfer facilities near our ports and borders.

Mr. Chairman, I ask for unanimous consent to insert testimony from Jim Fiske, from Magtube, Inc. and Charlotte Thorton on innovative approaches for freight transportation issues.

Mr. Chairman, I look forward to today's hearing and want to welcome all of our witnesses.

Senator BREAUX. Thank you. We have that waterway all the way up to Oklahoma from Louisiana.

Senator INHOFE. We do, we do.

Senator BREAUX. Thank you very much, colleagues.

I would like to welcome and am pleased to have Mr. Jeffrey Shane, who is Deputy Secretary for Policy at the Department of Transportation, back before the committee; also, Ms. JayEtta Hecker, who is with the General Accounting Office and has just done an extensive report on some of these issues, particularly in the marine transportation area, to present testimony.

Mr. Shane, Mr. Secretary, we have your testimony. We note it is an extensive document. If you could help us summarize it, we will proceed to questions. Ms. Hecker, the same for you.

STATEMENT OF JEFFREY N. SHANE, ASSOCIATE DEPUTY SECRETARY AND DIRECTOR, OFFICE OF INTERMODALISM, UNITED STATES DEPARTMENT OF TRANSPORTATION

Mr. SHANE. Chairman Breaux, Chairman Reid, Chairman Jeffords, and Ranking Member Inhofe: Thank you very much for allowing me to represent Secretary Mineta today and testify on freight transportation intermodalism. These are issues that affect our economy, as we have just heard, in profound ways and both committees are to be commended for the leadership you have shown in this area.

Mr. Chairman, you referred to my longer statement. I assume it will be placed in the record. I would appreciate that.

Senator BREAUX. Without objection, it will be.

Mr. SHANE. Thank you very much, and I will try to summarize within the time allotted.

With the possible exception of our obligation to ensure for our citizens a safe and secure transportation system, DOT has no higher priority than facilitating the seamless transportation of goods throughout our country and in international trade flows. Conges-

tion, bottlenecks, choke points, and all the consequences of insufficient capacity and inefficient intermodal connections impede that growth, raise costs to consumers, and impair our economic well being in ways that are simply too often overlooked.

Ensuring smooth global supply chains has become of even greater importance as companies increasingly shift to just-in-time manufacturing techniques, and ability to move freight and cargo quickly across the different modes of our transportation system serves as the linchpin of that manufacturing revolution.

The growth of international trade, particularly as the world moves toward a far more liberal framework for trade, represents another key challenge to our transportation system. While we have included a wide range of trade and transportation statistics in the longer statement that I have submitted for the record, I would like to draw your attention again to just one, the one cited by both Chairman Reid and Chairman Jeffords: that the volume of shipments into and out of the United States is expected to double between now and 2020.

It is essential that our ports and our airports and border entry points have the capacity to accommodate these increases, especially with the more aggressive security procedures that will have been put in place in response to September 11.

ISTEA and TEA–21 have created a solid framework for addressing the transportation and logistics needs of our country. As we move forward with the reauthorization of TEA–21, however, one thing is clear. The demand on our Nation's transportation system is growing faster than supply. Statistics show that population growth combined with substantial increases in vehicle miles traveled and freight tonnage moved have resulted in rising levels of congestion on our Nation's highways, despite increased Federal investments under ISTEA and especially under TEA–21. Projected future growth in all of these areas will only worsen congestion without a strong commitment to make our infrastructure far more robust and far more efficient than it is today.

Imagine, if you will, what travel on our highway system would be like today if our freight rail system were suddenly shut down. By the year 2010, you will not have to imagine it, because expected increases in truck traffic over current levels will be equal to the entire volume of freight that is carried on our Nation's rail system today. That is why Secretary Mineta believes that the administration and Congress have to work together to make increasing the efficiency of freight transportation a central feature of our surface transportation reauthorization legislation next year. Coordination between the modes and enhanced private involvement in the system are two themes that need to be emphasized in that effort because, although much has been accomplished over the last decade based on improvements put in place by ISTEA and TEA–21, the promise of intermodalism, more efficient movement of passengers and freight throughout all parts of our transportation system, and the potential for private sector participation in infrastructure expansion have yet to be fully realized.

In conclusion, it is clear that the commercial movement of freight was successfully woven into a number of TEA–21's programs, especially in the areas of funding flexibility, border and corridor plan-

ning, and the application of new technologies. We will need to think carefully about all of these issues as we build on TEA–21 by enhancing existing programs and, where appropriate, developing new ideas to ensure that our freight transportation system can meet future challenges.

As you know, earlier this year Secretary Mineta outlined a series of principles that will guide us through the reauthorization process. Using those principles as our base, we have been carefully examining proposals put forward by stakeholders as we develop our reauthorization proposal. For example, we will work with our partners in the States and in metropolitan planning organizations to achieve wider application of innovative financing programs.

We will consider changes to the Borders and Corridors program that will encourage broader transportation planning and integrate infrastructure investments with national and international business developments. We will continue to apply innovative technologies through the ITS program and in collecting data on freight movements and trade flows, and we will work closely with the private sector to formulate innovative transportation solutions that develop new ways to utilize public-private partnerships that leverage scarce Federal funds.

I am confident that, working together, the administration, Congress, and our stakeholders can expand our transportation infrastructure to ensure increased mobility, security, and prosperity for years to come.

Thank you very much again for the opportunity to appear here today. I look forward to answering any questions you may have.

Senator BREAUX. Thank you, Mr. Secretary.

Next, from the General Accounting Office, Ms. Hecker.

STATEMENT OF JAYETTA HECKER, DIRECTOR, PHYSICAL INFRASTRUCTURE GROUP, UNITED STATES GENERAL ACCOUNTING OFFICE

Ms. HECKER. Thank you, Mr. Chairman, Senator Reid, and Senator Jeffords. We are really honored to be here today. We, as you noted, are releasing the report on marine transportation financing and a framework for infrastructure investments today. But because of the focus on the freight issue, I will broaden my remarks to focus more on the broader context of freight issues.

I will cover four areas: first, the background, which will include this review of the growth that people have talked about; the new data that we collected for you on expenditure and direct receipts from users of the different modes; some data on Customs fees that you particularly wanted us to gather; and finally, the framework for review of critical decision points in evaluating investments in transportation.

The scope of our work, in addition to this work on maritime, is focused on a long body of work on capital budgeting, needs estimates, and, Federal highway R&D. We have work, not yet released, in response to requests from the Environment and Public Works Committee on mobility challenges, innovative finance, State capacity and project delivery. In addition, there is a wide range of expert studies that date back to 1994, a major commission on inter-

modal freight challenges, the TRB report, the intermodal freight connectors report, and many other technical reports.

The background issue that I would just like to cover is really putting the issue on the table that you have all stated, and that is, the enormous increase in projected freight tonnage. According to the Federal Highway Administration's updated figures, freight tonnage by all modes will increase by 41 percent in the next 10 years and 76 percent by 2020.

[Chart.]

This shows the different growth rates for the different modes. As can be seen in the chart, it is estimated that there will be a 43 percent increase in the 20-year period for freight transported by water, a 55 percent increase by rail and an 84 percent increase by truck.

Now, this really obscures the new challenges, because the key of intermodal transportation is really figuring out ways that the intersection and connections between these modes are addressed as well.

[Chart.]

The second point is the history of the funding approaches and receipts from the different modes. This chart depicts the average amounts collected and expended by mdoe for fiscal years 19992001. As can be seen, the maritime users, or the expenditures in the maritime sector, are about $4 billion a year, with user assessments covering about $1 billion. The aviation expenditures are about $10 billion a year, with $11 billion of user assessments and the highway area has about $25 billion of expenditures, with the average for the same period being $34 billion in user assessments.

The key difference here is that the marine system largely relies on general revenues, whereas the aviation and highway systems have historically relied almost exclusively on collections from users.

[Chart.]

I turn now quickly to the third area that you asked us to address and that is the amount of duties that are collected on imported goods transported by the different modes. This basically is in pie chart form and shows that a little over 75 percent of the import fees are collected on goods that come in through the maritime sector. As you see, almost $4 billion comes in through aviation Customs fees and less than $1 billion comes over the land borders of Canada and Mexico.

Now, what is important about the Customs duties is that clearly these are duties or taxes on the value of selected imported goods. This, of course, is a traditional source of revenue for the general fund. It is paid by importers of the taxed goods and varies based on where our trade agreements are and the type of commodity.

Therefore, it is not really a good proxy as a tax on users of the marine system. Although we recognize there is a proposal and discussions to designate Customs duties for the marine transportation system, this is clearly a policy call by the Congress. However, some funds, actually about 30 percent of Customs fees, are already designated for specific uses by the Government, and that includes such areas as agriculture and food programs, migratory land conservation, aquatic resources, reforestation. So some of those duties are already earmarked.

The other thing about the potential for designating Customs duties is that they really are not a new source of capital for the Federal Government. It is money that is already coming in, already accounted for, already spent, and therefore, the notion or the proposal that somehow you can draw on that would amount to a draw on the general fund of the U.S. Treasury.

The fourth area—and I am sorry to see the yellow light go on because this is the most interesting contribution that we are trying to make—is a framework for developing national freight policy for consideration of transportation investment decisions. As you see, we basically outline four key steps: defining national goals, defining the roles of the different levels of Government, developing approaches and tools that promote cost-sharing and efficiency, and finally, evaluating performance.

The key thing about the goals issue is that it needs to be intermodal and it has not been. This other whole issue of the so-called "orphan" status of the intermodal freight connectors. We still have a very stove-piped system and we need a conception of national goals for transportation that are integrated, intermodal, and freight-oriented.

Another element about the goals involves developing Government commitment to performance and results. Therefore, another key indicator of the goals is having performance-oriented measures for system performance and efficiency.

Defining roles, as I said earlier, is about the relative roles of the different levels of Government. The role of MPOs is a key thing here. They have not really paid attention or placed priority on freight. It is rational on their part to do so because while they do not benefit, they bear most of the costs. So there are some structural issues about the relative roles of Government.

The third area, on determining appropriate tools, really is driven by the roles issues. As you define the relative roles, you implement and effectuate those by using the appropriate tools that leverage Federal funding and promote accountability and efficiency. A key thing that I think several of you already alluded to is that in appropriate tools, we also have non-investment and non-capital tools to improve the efficient use of the existing system. That would involve tools such as demand management and congestion pricing; technology improvements which include the ITS area that several of you mentioned; enhanced maintenance and rehabilitation, and improved management and operations.

Quickly, the final area is basically evaluation. We need to understand how current policies work and we need to track the performance of proposed policies. The more it is framed as performance of the efficiency of the system, the more likely we will be able to determine whether we are really getting the improved efficiency in the performance of the transportation system instead of focusing on capital or completed projects. Evaluations allow us to determine the outcome we want to achieve.

That concludes—I am sorry about the red light—my remarks. The key is that the freight intermodal focus is clearly a cornerstone of the next generation of transportation legislation.

Senator BREAUX. Thank you, Ms. Hecker and Mr. Secretary.

I take it, Ms. Hecker, to start with you—and I want Mr. Shane to comment on it—the fact that you are proposing what you have labeled a framework for developing an effective Federal investment strategy indicates that in GAO's opinion we do not have that now?

Ms. HECKER. We continue to have policies and legislation specific to different modes. Certainly the maritime legislation has never been integrated in a systematic way with highway authorization. Furthermore, the whole issue of freight has not been systematically examined. For example, our railroad policies and the effect of some of those policies on the freight infrastructure and the tradeoffs between different modes has not been systematically explored.

So yes, I think there is real value in moving toward a more systematic view of transportation requirements.

Senator BREAUX. Mr. Secretary, we have an office over in DOT that is an Intermodal Office. Is that not what they should be doing?

Mr. SHANE. That is right, and as a matter of fact, Mr. Chairman, I head that office. So that I like to think that we are doing some of that.

I do not disagree, however, with Ms. Hecker that there is certainly more room for further integration. We all know that. To some extent there is an element of stovepiping in the legislation that we have and that we continue to work on. But it would be unfair to characterize ISTEA, for example, the Intermodal Surface Transportation Efficiency Act, and the Transportation Efficiency Act for the Twenty First Century, TEA–21, as completely oblivious to the importance of further integration and intermodal planning.

I think there has been an awful lot of that and there have been some very powerful results as a result. Programs like the CMAQ program, the congestion mitigation program, TIFIA, an assortment of other elements of TEA–21, have indeed funded more integrated approaches to transportation and encouraged intermodal planning at the State and local and regional level.

So I am interested in what GAO has been doing and we would certainly look forward to consulting more and finding out, particularly as we move through the reauthorization process with Congress, where there might be further opportunities for improvement. But I do not think it is fair to characterize the system as totally stove-piped even today.

Senator BREAUX. Are you all working on the reauthorization from a conceptual standpoint as far as recommendations to the Congress?

Mr. SHANE. We are, Mr. Chairman, and I would go further and to say we are beyond the conceptual standpoint. We have been organized—we have got 200 people at the Department of Transportation organized into functional groups, cross-modal, cross-cutting, working with stakeholders in all elements of the transportation sector, working with each other, and thinking great thoughts, if I might say, about the future of these programs, such that by early next year, once we have gone through an exercise with OMB—as you know, that is always required as the administration puts a proposal together for the Congress—we hope to transmit a bill which will be, I think, hopefully, the center of gravity for Congress's deliberations over the reauthorization of TEA–21.

Senator BREAUX. Are we likely to see from those recommendations any type of thinking outside of the box, so to speak? Or are we talking about pretty much the same type of planning and recommendations that we have had in the past?

Mr. SHANE. I hope you are going to see some out-of-the-box thinking, Mr. Chairman. I have been impressed probably more than any other aspect of TEA–21 with the effectiveness of those parts of the program which have been able to leverage Federal money, that is to say to encourage private sector participation, to encourage State governments and other levels of Government to really step up to the plate in a more important way.

In an era of scarce resources—I mean, the era of cheap money is all over and we all know that—it is critical that we find even more effective ways of doing that. Programs like TIFIA, the intermodal connectors program, a variety of others, have produced I think disproportionate gains for relatively small expenditures, and we need to pursue as many opportunities of that sort as we can going forward or we are simply not going to have the resources solely at the Federal level to really meet the demands that we all have acknowledged here this afternoon. Senator Breaux: My final question is in what timeframe are we likely to have a completed package of recommendations from a conceptual standpoint?

Mr. SHANE. Our intention, of course subject to OMB's process, but I cannot imagine that that is going to be an impediment because we have been working with OMB already, is to get the bill, the administration bill, to the Congress very shortly after it returns in January or February of next year.

Senator BREAUX. Senator Reid.

Senator REID. Would both of you give me your thoughts on what we can do when we reauthorize TEA–21 to get the most efficient use out of the transportation infrastructure? Not theory; I mean actual things that we can do.

Ms. HECKER. I think the four areas that I mentioned in terms of focusing on operations and not just construction——

Senator REID. Give me specific things, because all this theory is good, but we have to do something specific.

Ms. HECKER. ITS and the lack of integration of ITS is a specific example. We have not really taken full advantage of the technology to streamline the flow of traffic to have a single standard for ITS. There is a lot more research that is promising about the role of technology.

The focus on operations is another area. It goes precisely to your point.

Senator REID. Tell me what you mean by that? "Focus on operations," what does that mean?

Ms. HECKER. The efficient performance and utilization of the existing system, that it is underutilized——

Senator REID. How do we legislate that?

Ms. HECKER. Well, there has been a comprehensive study that I would rather defer to, that has talked about their permeating all aspects of the Federal relationship——

Senator REID. Ms. Hecker, the only reason I pin you down a little bit is it is easy to get all these theories, that we should evaluate performance, establish goals, develop approaches, but when it

comes down to it, this subcommittee that I am responsible for, next year we have to do real specific things and we are not going to sit around and say, "We are going to evaluate these goals and evaluate performance."

We do not have the benefit of doing that and that is why we need experts like you and Mr. Shane to tell us specifically what we can do to make this new transportation bill meet the modern needs of this clogged transportation system we have.

Ms. HECKER. Well, I think the programs that we talked about, the Border and Corridor programs and the connector programs, it shows that they have not received adequate attention. So some shift of either the funding available or the restrictions will be missing to bring attention to these intermodal links.

Senator REID. You have the time to think about some of the things that we should do. This is your opportunity to give us some specific ideas of things that we could do in the next bill.

You have mentioned the intelligent transportation system, but be more specific. This does not mean we are going to follow everything that you are recommending, but at least it will give us some direction and insight as to what you think we could do to improve the intelligent transportation system.

An example of that is the new Amber Alert that works so well. People really look up on those road signs to get some idea what is going on. So we will leave the record open for a couple weeks for you to give us some specific ideas as to what we can do to improve TEA–21.

Senator REID. Mr. Shane, do you have any ideas?

Mr. SHANE. Yes, Senator, I have a few ideas. I think what I said before is my main—one of my main ideas, the notion that we need to leverage our Federal funds much more effectively. That is not a theory; that is something that we need to find ways of doing along the lines that were explored in TEA–21, I think quite successfully. By leverage, I mean—if you look at the national highway system intermodal connectors, that is a tiny fraction of the mileage on the national highway system. Yet, according to the report that we submitted to Congress that was requested in TEA–21, in the year 2000 the physical quality of those portions of the national highway system is far inferior to the national highway system generally, and the consequences of that inferior quality have a disproportionate negative impact on the efficiency of our whole freight transportation system.

So by attacking a tiny little fraction of the overall mileage on the national highway system through a program of that kind, we extract disproportionately huge benefits. It is that sort of opportunity that we need to pursue.

I mentioned the CMAQ program. You have got real intermodal success stories coming out of CMAQ, including rail success stories, because States have been able to use that money in very creative ways. The TIFIA program, which is a loan guarantee program, it actually requires the expenditure——

Senator REID. I am very familiar with that.

Mr. SHANE [continuing]. Of relatively little money. Again, it stimulates private sector interest in infrastructure expansion in ways

that we have not seen before. We need to find more ways to exploit tools like that.

Finally—and I do not mean by any means, last or least; it is not the least; it may be the most important—the Corridors and Borders program. There is so much interest in trying to facilitate the movement of freight through regional planning, including sometimes very complicated assemblages of Government entities and private sector entities, in order to really streamline the flow of freight in our system, that if the Borders and Corridors program is not big enough we need to figure out ways of either making it bigger or making it more creative such that it has the effect.

Senator REID. It has not worked very well. In theory it should have worked better than it has worked. I think we have to do some things to change it, because I think theoretically it is a great program.

Mr. SHANE. I agree, and there is a huge amount of pent-up interest in it; and the results of solving that problem in the reauthorized program I think will be huge and of enormous benefit to the economy.

Let me just add one last thing if I may, and that is that working with all of these programs one thing that continues to impress me—and I am not just talking about the surface transportation programs; I am talking about all of our programs—when the private sector comes in and wants to do business with us, whether it is to expand highway infrastructure or airport infrastructure or anything else, particularly if it is a program that actually makes some Federal money available, they find themselves in a Faustian bargain. Even when there is enormous interest in trying to build infrastructure in ways that will respond to the demands that we have in the system today, sometimes our procedures can be counterproductive.

One of the things I would like to see us do in the reauthorization process—and I am not here to make any announcements of bright new ideas; these are in process now—is to find ways of really streamlining our own clearance process for these projects. I am talking about all of the transportation projects that are funded or stimulated in any way by the Federal level.

If I may go on for a second, I can give you an example of the sort of thing I mean. We have a security program which has been a huge success. It actually began, Senator Jeffords, in Vermont, called Operation Safe Commerce—a public-private partnership emerging more or less spontaneously in order to test the security of container transportation in our system in international transportation.

Nobody at the Federal level suggested it, nobody approved it. It just happened. Well, we began to think that it was a good idea and we set up an executive steering committee. In fact, I co-chair the executive steering committee with the Deputy Commissioner of Customs, Don Browning. It is an example of how much interest there is in Washington in something that really works.

But now I am noticing something that worries me. Now that we have an executive steering committee, suddenly it has become a Government program. In a funny way, one of the worst things that happened was that they got an appropriation of $28 million. Now

we have to be really responsible. Now we have to have procedures and accountability and we have to have, you know, the Inspector General looking at things, and all of a sudden a spontaneous effort to set up a test bed for container security could, unless we are very careful—and I want to assure you that we are trying to be very careful—if we are not very careful, we will stymie it. It'll grind to a halt just by virtue of the fact that the Federal Government has now applied all of its usual procedures and safeguards and everything else.

We need to get past that mentality in our transportation infrastructure programs or we will not meet the demand that our country will face in 2020 for sure.

Senator BREAUX. Senator Jeffords.

Senator JEFFORDS. Well, thank you very much. I appreciate your testimony. Thank you for your comprehensive testimony, I should say. I look forward to working with you in the TEA–21 reauthorization effort.

Later in this hearing Mr. Huerta on behalf of the Coalition for America's Gateways and Trade Corridors will ask for funding of $2 billion annually for the Borders and Corridors program. You may have just referred to that. But Mr. Wickham of the American Trucking Associations will explain that the congestion at the 7 busiest border crossings costs the trucking industry about 2.6 million hours in delay time per year. Also, Mr. Larrabee of the Port Authority of New York and New Jersey will explain the estimate that trade in all types of cargo will not double, but triple, by the year 2020. Just this weekend, as I rode to New York I enjoyed a visit from Amtrak, letting us know how they feel about the importance of moving more and more of the cars off the highways and onto the railroads and to work in that direction.

So we have a tremendous need here to understand exactly how all of this is going to happen. I hope that you are working in a way that you can assist us in finding the means and the ways that we can accommodate all these changes that are needed. It is going to be huge in the sense of the cost to be able to orderly transfer our transportation systems between the freight and airways and all of that, to do the best job we can do.

So I just believe you will be doing that, but would like for you to tell me you will. Mr. Shane?

Mr. SHANE. I will, Senator.

[Laughter.]

Senator JEFFORDS. Thank you. I thought that might smooth things down a little bit.

Also, Ms. Hecker, I appreciate the detailed report the GAO submitted to our two committees.

You point out the need for significant improvements to our marine transportation system and note that the marine transportation system is generating billions of dollars of revenue. The report discusses aging infrastructure, changes in the shipping industry, and increased concerns about security.

It has been said that the footnotes often contain either the most boring or the most intriguing points in the study. Footnote 12 of your report notes that under current law 30 percent of the gross receipts from Customs duties, about $15 billion per year, is re-

served for agricultural and food programs. Your report further notes that congestion challenges often occur where transportation modes connect, such as in ports.

You also note that if there is an enhanced Federal role, you recommend that the enhanced Federal participation supplement participation by others rather than just replacing it.

Your report has drawn a picture for us, but you have not connected the dots, which indeed may be our job. But can you give us a rough estimate of the cost of addressing the aging infrastructure and the new security concerns?

Ms. HECKER. I will try to answer directly, but the direct answer is, "No, I cannot give you the number." We have actually done some of this work, and I think there was testimony before you, Senator Reid, on reviewing all of the estimates of the needs of the different modes. They cannot be added up. They are done with inconsistent assessments. Most of these assessments do not assume capacity constraints. Therefore, if they are not capacity-constrained, these assessments cannot tell you whether it can grow that much and many of these studies do focus on opportunities for more efficient management and utilization of the system.

So there really is not a single estimate of the cost of addressing the aging infrastructure and security concerns. It is a comprehensive challenge of the whole performance of the system, that we need some initiatives to build, but we need efficient, leveraging financing methods that, as you said precisely, do not supplant or replace State, local, private funds, but supplement entice, and trigger additional expenditures by other parties. Then we need some of those efficiency-inducing operations.

So there really is not a single number. I apologize; I like to answer questions directly, but the answer is no, there is not one single number.

Senator JEFFORDS. Thank you.

Thank you, Mr. Chairman.

Senator BREAUX. I would like to ask one final question on this. They tell me that 75 percent of goods that enter and exit the United States, imports and exports, by volume, and about 60 percent I guess by value, come through the ports around the country. But to get to the ports, a lot of it is coming by truck, by rail, and what have you. So it really is all interrelated.

The report from Ms. Hecker points out that about 80 percent of the funding for the ports comes from the general treasury; and the opposite is true, almost 100 percent of the aviation, trucks, and highways is really coming from user fees.

The question is is the administration talking or looking at ways to increase the funding for the ports? The ports as I have traveled around the country are horribly congested. The trucks cannot get in, the railroads cannot. It is very difficult to coordinate because of the volume and the congestion at the ports. These are very expensive propositions.

Is the administration looking at any different recommendations on how we raise the money for ports, which are going to affect rail and trucks as well?

Mr. SHANE. Yes, Mr. Chairman, we are. Captain Bill Shubert of the Maritime Administration has certainly been speaking with me

and with Secretary Mineta at some length about the possibility of coming back to Congress with some proposals. Unfortunately, I cannot suggest any detailed programs right now, but I am hoping that in the not too distant future we will engage in a more specific discussion of that very important issue.

Senator BREAUX. I hope this discussion is going on, because if we have intermodalism each mode is being financed in a different fashion and yet they are all totally interrelated. To the extent that you can think outside of the box in trying to figure out ways that all of these fees can be coordinated for all methods of transportation, I think that that is going to be very, very helpful.

The Customs duties for the ports are not going to the ports; they are going to the general treasury and they finance agriculture and other good things out of the general treasury. But I think that most of the users like to see the users' fees targeted to the services that they are getting. Now, if that happened we may have a little less funding out of the general treasury for the ports, if it is offset by user fees. But I think we really need some in-depth thinking about how we are going to be financing the intermodalism forms of transportation. I hope you would address that specifically.

Senator REID. Mr. Chairman, would you yield?

Senator BREAUX. Absolutely.

Senator REID. People go to the gas pump and that goes to highways. We get all kinds of user fees to take care of our airports. But as you say—and that money goes directly to the airports and to the highways, whereas the problem you have with ports, as you indicated, that money can be used for anything else.

So I think we need some help on that.

Senator BREAUX. Then we have got the 4.3 cent gas tax and we know all the debate on that, with the railroads still, I take it, still, and barges as well, still paying it for deficit reduction; trucks, highways are not paying it. I mean, is there a consistency here or is there an inconsistency here?

Do you envision any recommendation on that?

Mr. SHANE. All of this is being examined. I know this is a waffle, Mr. Chairman, but it is all being examined. We have to get on top of these issues, and I am hoping that we will come back to you very shortly.

Senator BREAUX. That is important, because I think what I am hearing from GAO is, when we are talking about trying to coordinate all of this, that it has to be better coordinated if we are going to have an intermodal transportation system. How we help finance it, how we address the problems associated with each one of them has to be interconnected. I think there is room for improvement in that particular regard, and that is what we hope we see in the new recommendations.

Senator REID. Mr. Chairman, the other problem we have is that typically, even though you say you think you have things worked out with the Office of Management and Budget, you do not, believe me. The problem we have is they are focused on a 1-year plan. All they care about is what this year looks like. They do not care about what it looks like next year or the year after or the year after.

We have got to pass a 5-year bill here. So we have to do something that takes into consideration more than 1 year. That is why

the suggestion of Senator Breaux is so important. We need somebody to help us on this. Otherwise we are going to do some things that they really may not like. We could use some help. That is why I was so direct with Ms. Hecker. We need more than generalities and we need more than theories. We need some real specific things that we can do to make this 5-year program we are going to promote and pass next year one that is good for 5 years.

Mr. SHANE. If I could just comment very briefly, the reason I said what I said about OMB was that typically——

Senator REID. Do not worry. We will cover for you.

[Laughter.]

Senator BREAUX. We will not tell them you said it.

Mr. SHANE. I am not going to even go there.

[Laughter.]

Mr. SHANE. Typically we have a procedure whereby the bill is submitted to OMB, it is all wrapped up tidily, and that will be sometime later in the fall, and then we find out what they think about it and then we have a big argument with them. What we determined to do this time at DOT was to actually give them a fairly detailed preview of the direction of some of our thinking, because we did not want to be surprised. We did not want to do a lot of work and then have it just "offed" by OMB at some late stage.

They for their part were interested in knowing whether we really were doing something. So we had a reciprocal reason for wanting to meet. I have to say it was a very positive meeting. I think there was a lot of mutuality in terms of the way both OMB and DOT were looking at the importance of being creative about these programs going forward.

So it is not a political statement when I say I think we will do OK with OMB. Funding levels are obviously going to be a struggle. They always are. That is the game. But in terms of the actual shape of the programs, the content, and thinking out of the box and that sort of thing, OMB is prepared to be quite creative and they have been quite cooperative.

We would be prepared to even sit down with staff and provide the same kind of preview, so that you do not just receive a black box sometime early next year and open it and see for the first time what it is we have in mind. We really do want to work cooperatively and creatively as we move forward. That is the only process that is going to produce the kind of benefits we need.

So I offer that and we are prepared to come up.

Senator BREAUX. And do not be afraid of new ideas.

Gentlemen, thank you. Ms. Hecker, thank you very much. Both of you are excused.

We would like to welcome up the next panel of witnesses and thank them for being with us: Ms. Katie Dusenberry, who is chairman of the Arizona Department of Transportation Board; Ms. Michael Wickham—Mr. Michael Wickham, chairman and CEO of Roadway Express; Mr. Ed Hamberger, who is President of the Association of American Railroads; Mr. Rick Larrabee, the Director of Port Commerce for the Port Authority of New York and New Jersey; Mr. Michael Huerta, Coalition for America's Gateways and Trade Corridors; and Mr. John D. Caruthers, who is chairman of

the I–69 Mid-Continent Highway Coalition and one of my constituents from Shreveport.

We thank all of you for being with us and are anxious to receive your testimony. Ms. Dusenberry, we have you listed first and we would love to hear from you first.

STATEMENT OF KATIE DUSENBERRY, CHAIRMAN, ARIZONA DEPARTMENT OF TRANSPORTATION BOARD

Ms. DUSENBERRY. Good afternoon, Senator Reid, Senator Breaux, and the other members of the committee. Thank you for the opportunity to present to you the views of the Arizona Department of Transportation Board and the freight industry regarding the Hoover Dam Bypass Bridge.

I am Katie Dusenberry, as you said, chairman of the Arizona Department of Transportation Board and chairman also of Arizona's CanaMex Task Force Subcommittee on Transportation. You probably are wondering why I am testifying before you in dealing with concerns of commercial vehicles. You see, I am in the trucking business. My husband, our son, and I own and operate a 78-year-old family owned trucking company with offices and warehouses in five Arizona cities. We employ over 250 hardworking people and have almost 300 pieces of commercial vehicles. So I have a keen understanding of hauling issues.

As has been mentioned before, the freight business is rapidly changing, from distribution of farm-to-market and domestic products to delivery of export and import goods to and from entry ports to consumers everywhere in our country and in the world. If you live in the city, everything you wear, everything you eat, even what you are sitting on, comes to you by truck.

One of those important port-to-port transportation corridors is the CanaMex corridor which runs from Mexico City, Mexico, through five U.S. States and into Edmonton, Alberta, Canada. This is an essential north-south trade route for commercial vehicles and their products. The biggest functional failure in this north-south corridor is the restriction of commercial vehicles across Hoover Dam.

This brings me to sharing with you the importance of completing full Federal funding for the Hoover Dam Bypass Bridge across the Colorado River. Prior to the terrorist attacks on September 11th, 2001, the only highway for freight and passenger vehicles to go between two large metropolitan areas, the cities of Phoenix, Arizona, and Las Vegas, Nevada, an important link in the CanaMex corridor, was to cross the Colorado River on a two-lane road, one in each direction, atop the Hoover Dam.

This dam, built almost 60 years ago, reached its road capacity more than 10 years ago. Envision the steep grades of the approach roads, with their sharp hairpin turns, turns so sharp that freight trucks could not pass on the turns and would come to a complete stop before entering the turn to allow any oncoming truck to navigate that turn. Speeds on those approach roads ranged from 5 to 18 miles per hour. If accidents occurred, delays of 2 to 5 hours were very common, and one accident a few years ago resulted in an 18-hour delay. Cars and trucks would be backed up for miles.

So planning for the bridge began long before September 11. But since then, commercial vehicles are restricted from crossing the dam. They are now diverted 23 miles at a cost of $30 million per year in fuel costs alone, to another inadequate river crossing, down a winding mountain road where some trucks in the last few months have lost control, resulting in serious accidents.

The Hoover Dam crossing is the only highway in the country that has not been reopened to commercial traffic since 9–11. This is not surprising since the dam is a high security risk and any breach of the dam would flood more than 250,000 people and cutoff electric power to over 1.3 million in California, Nevada, and Arizona.

The project to build the dam and its approaches in Nevada and Arizona will cost $234 million. Through commitments from the States of Nevada and Arizona, together with Federal moneys from the TEA–21 Borders and Corridors discretionary funds, we have pieced together $126 million. The environmental impact statement is finalized. The record of decision for the project approval is in hand. With the money we have, design and construction of the approach roads in Nevada and Arizona are under way.

$108 million is needed to complete this nationally needed project. We are asking you to give this project your highest priority in discretionary funding to ensure full funding of this bypass bridge and meet our anticipated completion date of 2007.

Thank you for allowing me to testify this afternoon. If you have any questions I would be pleased to answer them.

Senator BREAUX. Thank you very much.

Senator REID.

Senator REID. Mr. Chairman, thank you.

I am going to ask Ms. Dusenberry, have you ever been to Searchlight?

Ms. DUSENBERRY. No.

Senator REID. You have never been to Searchlight, Nevada?

Ms. DUSENBERRY. No.

Senator REID. Oh, boy.

Ms. DUSENBERRY. Where is Searchlight, Nevada? I travel a lot in Arizona, but I am sorry I have not been to Searchlight.

Senator REID. Have you been to Laughlin?

Ms. DUSENBERRY. Yes.

Senator REID. Just a few miles from Searchlight. You should get up there sometime.

Ms. DUSENBERRY. I need to get up there.

Senator REID. Yes.

Ms. DUSENBERRY. Do they have gambling—no.

[Laughter.]

Senator REID. You realize that is where all the traffic is going, is through Searchlight?

Ms. DUSENBERRY. Ah, the traffic now, the truck traffic now.

Senator REID. Mr. Chairman, I have a series of questions that I would like to submit to each of these witnesses. I would ask if they within a couple weeks would get back to us with responses to those questions. Is that OK with you?

Senator BREAUX. Without objection. I know that Senator Reid, because of his other duties, is going to have to be departing before

perhaps everyone finishes. But that would be totally acceptable. He has worked very hard on getting these witnesses here and I know he is going to look forward to your responses.

Senator REID. Thanks, Mr. Chairman.

Senator BREAUX. With that, our next, Mr. Wickham.

STATEMENT OF MICHAEL W. WICKHAM, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, ROADWAY EXPRESS, INC., ON BEHALF OF AMERICAN TRUCKING ASSOCIATIONS

Mr. WICKHAM. Chairman Reid, Chairman Breaux, thank you for the opportunity to testify on behalf of the American Trucking Association and Roadway Corporation. Having spent my entire career at Roadway, I am most proud of the fact that we continue to improve our safety record year after year, mile after mile, and today our trucks and drivers are the safest on the road.

When moving freight, whether modally or intermodally, safety is the No. 1 priority. The trucking industry, ATA, and Roadway believe the one thing that we can and must do to improve the efficient movement of freight is to refocus our traffic laws to prevent excessive speeding. Excessive speed simply is a factor in nearly one-third of all fatal accidents and more than one-fifth of accidents involving trucks. We ask Congress to provide specific funding for speed enforcement for both truckers and motorists and section 402 and the MCSAPS program.

Trucks move 67 percent of the freight tonnage, 86 percent measured by value. This is freight that moves by trucks alone. It does not touch any other mode. While the intermodal movement of freight can and does play an important part and should be encouraged, the potential for rail intermodal transportation to slow the growth of truck traffic is limited by market forces beyond the control of Congress, the States, and to some extent the modes themselves. Today, just 1.2 percent of the freight moves in rail intermodal shipments. Despite anticipated growth in this sector, which will exceed trucking growth, by 2014 rail intermodal shipments will capture only 1.5 percent of the freight market, while trucking's market share as measured by tonnage will expand to 69 percent.

It is not constructive to assume that the business logistics trends of the past half century, which have made trucks the dominant mover of freight, will somehow reverse themselves and that our Nation's reliance on trucks will subside. Congress should focus its attention and resources where they are needed most and will pay the greatest dividends for our country, and that is on improving the efficiency of the highway system and the productivity of the trucking industry.

Efficient highways have allowed trucks to deliver freight on time. This has allowed manufacturers to substantially reduce their inventories through the use of just-in-time logistics, saving the U.S. economy hundreds of billions of dollars and creating thousands of jobs. Unfortunately, congested and unreliable highways threaten to reverse these gains. Congress should not allow the performance of critical highway corridors to continue to deteriorate, nor should highway money be further diverted under the false notion that investing in other modes will negate the need for highway investments.

The national highway system carries 75 percent of all truck traffic. Yet 40 percent of travel on urban national highway system routes takes place under such congested conditions that even a minor incident can cause severe traffic disruptions. We strongly urge Congress to make improving the national highway system its priority during highway reauthorization through significantly higher dedicated funding. Congress should also consider innovative ideas such as the construction of voluntary truck-only highways.

Improving the national highway system connections to intermodal terminals is of primary concern to all freight modes, including the trucking industry. They should receive dedicated funding. However, if we focus our attention on the 2,000 miles of connector highways and ignore the 160,000 miles of other national highway system highways that tie the intermodal facilities together, the efforts at the ports and points will be pointless.

ATA supports the expansion of the Borders and Corridors program. Along with representatives of other freight modes, we are a member of the Coalition for America's Gateways and Trade Corridors and we associate ourselves with the Coalition's remarks. We hope that Congress will ensure that in the future the program focuses on the most critical corridors and border crossings and that funding eligibility is not expanded.

While infrastructure improvements are essential, we recognize that highway capacity expansion cannot itself solve all of our problems. Nor is there sufficient funding available to address our many needs. Fortunately, there are ways to improve the freight system's efficiency beyond adding highway capacity. Congress can take a significant step by granting States the authority they need to reform their truck size and weight regulation. Using fewer trucks to move goods would reduce congestion significantly and would improve important safety, air quality, and economic benefits and lower pavement costs.

Congress and the States should achieve—could achieve for free what they would otherwise have to invest billions of dollars in expanding transportation capacity to accomplish. Missing or ignoring such opportunities would be shortsighted.

I realize that there are misgivings about the safety implications of reforming size and weight regulations. However, the best available evidence indicates that increasing trucks' capacity can actually produce safer highways. A DOT study found that triples and other longer combinations have an accident rate which is half that of other trucks.

This evidence reflects our company's own experience with triples. Since 1990, Roadway triples have been involved in exactly one fatality. That is one fatality over 155 million miles of travel. Triples are the safest trucks in our fleet by far and there is no practical or scientific basis for the Federal law that restricts States from determining where they should operate.

Neither ATA nor any of us in the industry is interested in seeing these trucks operate except where they can be run safely and where their operation does not produce additional infrastructure costs. ATA strongly recommends that Congress look to the recently completed TRB study on truck size and weight as a guide toward responsible implementation of size and weight reform. Next year

Congress has the opportunity to decide whether the American people will share the road with a safer, more productive truck or a lot more trucks. That choice is critical.

Thank you for the opportunity to share the industry's ideas.

Senator BREAUX. Thank you, Mr. Wickham.

From the railroads' perspective, Mr. Hamberger.

STATEMENT OF EDWARD R. HAMBERGER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, ASSOCIATION OF AMERICAN RAILROADS

Mr. HAMBERGER. Thank you, Mr. Chairman, for the opportunity to be here today. I am particularly pleased to participate in this unprecedented joint committee hearing. I think it is appropriate that the committees recognize the importance to coordinate transportation public policy, much as carriers coordinate the transportation of America's goods outside of the Beltway.

Rail intermodal freight transportation has been the fastest growing segment of traffic for the U.S. freight rail industry over the past 2 decades, growing from 3.1 million trailers and containers in 1980 to nearly 9 million in 2001. It now accounts for approximately 20 percent of revenue for class 1 carriers and moves seamlessly throughout the North American rail network.

There are numerous reasons why rail intermodal transportation has become such a vital part of the U.S. and indeed North American freight transportation mix. One, it saves shippers and customers money by combining the door to door convenience of trucks with the long haul efficiency and cost effectiveness of rail.

Two, it saves fuel. In fact, on average a railroad can carry a single ton of freight 400 miles on one gallon of fuel, the equivalent of Baltimore to Boston.

Rail intermodal improves air quality. According to the EPA, for every ton-mile, a typical locomotive emits roughly three times less nitrogen oxide and particulate matter than a typical truck.

Four, rail intermodal reduces highway congestion. An intermodal train can take approximately 280 trucks from the highways or the equivalent of 1,100 automobiles.

We have heard a lot about the increased demand that is going to be out there for freight transportation, and clearly to meet that demand freight railroads will have to invest heavily in projects that increase efficiency and capacity. Railroads are incredibly capital-intensive, as you know, Mr. Chairman. In the year 2000, railroads put almost 18 percent of their revenues into capital expenditures, more than four times as much as the average for manufacturing.

In terms that Congress often deals with, if that had been translated into a per-gallon excise tax it would have equaled $2.05 for every gallon of fuel burned by the industry reinvested back into that industry, our industry, the freight railroads.

Unlike my good friend Jeff Shane, let me not waffle, Mr. Chairman. We need that 4.3 cents back. It is $170 million a year, $2 billion since it was enacted, that would go back into the industry and back into the infrastructure.

We have joined the Freight Stakeholders Coalition and in my testimony we have outlined nine specific recommendations. Let me

just highlight four of those: one, dedicate funds for the NHS connectors to the intermodal freight facilities.

Two, develop ways to increase available funds without new user fees and taxes, through innovative financing options. We have identified two of those. One would be to institute tax incentives and tax-exempt financing for companies that invest in intermodal freight infrastructure. Examples of qualified assets would include track and roadbed located on intermodal corridors and intermodal transfer facilities and related equipment. The second option would allow the funding of rail infrastructure through tax-exempt indebtedness, which would include track, bridges, tunnels, terminal facilities, signals, and computer systems.

Let me just digress for 1 second because I cannot let Mr. Wickham's statement go unanswered when he said that it would not cost the Government anything to increase the size and weight of trucks. You realize, of course, that the Secretary, the Department of Transportation, has issued a report that indicates that at 80,000 pounds trucks pay approximately 60 percent of the damage that they do to roads and bridges. At 100,000 pounds that number falls below 50 percent. So indeed it is not at no cost at all and in fact it would merely exacerbate the already uneven playing field on which we find ourselves competing.

Three, significantly increase funds for an expanded corridor, border, and gateway program. We belong to Mr. Huerta's coalition and he will talk about that.

Four, increase funding and promote the use of the CMAQ program to reduce congestion and improve air quality.

In addition to the Freight Stakeholders Coalition agenda items, we have two additional others: one which we discussed at length with the Environment and Public Works Committee some time ago, to increase funding of the section 130 grade crossing program and clarify that the funds may be used for maintenance; and two, expand the rail rehabilitation and financing program and remove the restrictive program requirements. This committee has already endorsed that by a vote of 17 to 3.

As you mentioned in your opening comments, Mr. Chairman, our Nation's global supremacy is derived in large part from a transportation system that is second to none. Freight railroads are an indispensable part of that system. We are confident that we can continue to play a major role in meeting our Nation's future transportation needs. As you know, we move 40 percent of the Nation's goods by ton-mile right now.

But for those needs to be met efficiently, it is imperative that the intermodal push initiated by ISTEA and TEA–21 be developed further. We look forward to working with both these committees, others in Congress and others in the private sector to see that this can occur.

Thank you.

Senator BREAUX. Thank you, Mr. Hamberger.

Next we have Admiral Larrabee. I am particularly glad to have you with us today, Admiral. I know that a year ago tomorrow you were in the World Trade Center in obviously extreme difficult circumstances and situation. We are very delighted to have you with us today and look forward to hearing your testimony.

STATEMENT OF RICK LARRABEE, DIRECTOR OF PORT COMMERCE, PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Mr. LARRABEE. Thank you, Mr. Chairman. Mr. Chairman, thank you for the invitation to be here today to testify on matters of intermodal transportation and port access. The work of your committees demonstrates the importance of considering how separate modes of transportation operate as part of a total system. My hope is that this hearing will heighten your interest in this subject, further your understanding of how the efficient movement of intermodal cargo is a matter of national interest, and convince you that improvements in the Federal policy and the level of assistance are warranted.

The Port Authority of New York and New Jersey is a bi-State public authority whose mission on behalf of the States is to identify and meet the critical transportation infrastructure needs of our region and provide access to the rest of the Nation and to the world. We operate the region's major aviation and marine facilities, as well as PATH, the commuter transit system, ferry and bus terminals, the interstate tunnels and bridges, and other facilities.

Our airports are responsible for roughly 20 percent of all U.S. international cargo, which, combined with domestic cargo, totaled nearly 2.9 million tons in 2000 and a value of $150 billion.

The seaport serves 35 percent of the U.S. population and over 200 nations. The terminals in New York and New Jersey handled over 3 million containers last year and $80 billion of general bulk and breakbulk cargo moved through the port in 2001. Another 1 million containers arrive in our region via rail from the West Coast.

Meanwhile, 250 million vehicles traveled annually over our bridges and through our tunnels and 2.5 million buses used our two bus terminals in New York City.

These statistics attest to the vitality of the trade and the economic activity of the Nation and our region. But it also hints at a major challenge we and other regions face: to make sure American gateways and freight corridors have the capacity to keep up with the growth in trade and a larger economy. To be clear, this is not a case of "build it and they will come." It is a matter of build it because the cargo is already coming. In fact, it is already here, resulting in even greater congestion.

Addressing these challenges will require investing in the infrastructure and adjusting policies to foster smart solutions for long terms. Partnerships are coming together locally and regionally to support projects and we need a strong Federal partner to accelerate these activities.

The Port Authority is coordinating with the States of New York and New Jersey and is in the process of developing specific recommendations for future legislation. Therefore, I will devote the remainder of my statement to some general observations for your consideration. These are in no particular order.

First, we and other ports greatly appreciate the attention that Congress and the administration are giving the maritime transportation system. It is our hope that the Federal Government will act affirmatively on identifying MTS infrastructure requirements.

Second, congestion can be found throughout the country, but it is especially severe in major gateways and metropolitan areas that are essential elements of the Nation's economic infrastructure and security. These areas, including the New York-New Jersey region, deserve special attention and face unique challenges to upgrade aging facilities, new, modern standards to accommodate larger and heavier container freight movements.

Third, expanding capacity should not mean that trucking alone will have to bear the brunt of the growth. Clearly, trucking will be an essential part of the transport strategy in the decades to come, carrying more and more freight, but in our region and others trucking and the highways on which they depend are not expected to have the capacity to handle the growing population and anticipated doubling and tripling of domestic and international cargo. Therefore, a greater share of our future transportation needs needs to be addressed by other modes, which leads me to my fourth point.

Your committee should consider to foster the development of other modes to accelerate increased demand. Rail certainly is one part of the answer. We are building three new intermodal rail yards at our maritime terminals in order to dramatically expand our capacity to move containers on rail. In addition, the Port Authority is working with the railroads and public agencies to identify specific rail regional projects that will improve line and terminal capacity.

Another answer can be found off our shores. We are undertaking a program to encourage intermodal cargo to move by water wherever possible. There is tremendous underutilization of capacity on the water that can bring new capacity to intermodal transportation along major corridors with less investment. It is not the solution, but if examined for associated capital, energy, and environmental costs, it can be part of a solution with Federal support.

Fifth, innovations approved by Congress in TEA–21, such as Congestion Mitigation Air Quality and national corridor planning and development programs, were very worthwhile policy steps to take. These innovative programs could be improved and expanded even further, especially to add to the capacity of major gateways.

Sixth, investments in freight movements could also benefit passenger services. These include TEA–21 projects intended to divert freight from heavily traveled automobile routes to dedicated freight corridors, whether on land or water. We have undertaken a comprehensive look at how intermodal freight improvements can be strategically planned and implemented to stitch together freight corridors. Already underway is a project to bring intermodal rail to Howland Hook Marine Terminal on Staten Island, a significant step to improving direct rail service to New York City.

Another project referred to is the Port Authority's Port Inland Distribution Network, PIDN, which would mitigate against growing congestion at marine terminals and highways by transshipping cargo via railroads and barges destined for Northeast locations. There is a strong interest in PIDN among Northeast States as alternatives to congested corridors like I–95.

Federal interest and support could help such initiatives demonstrate how water transportation can manage part of the freight

growth. Flexibility in Federal programs can be a way to support these initiatives.

Last, the use of intelligent technology has proved very worthwhile in our region for managing the flow of our busy highways and crossings.

I think your committee can benefit greatly by the thoughtful attention that has been given to these issues by my counterparts here today as well as in Government and the private sector, including a number of transportation and freight-related associations identified in my written testimony. Federal freight transportation policy is still in its adolescent stage, which means there is great opportunity for improvement to meet the challenges I have described.

Thank you again for allowing the Port Authority of New York and New Jersey to participate.

Senator BREAUX. Thank you very much, Admiral.

Mr. MICHAEL HUERTA.

STATEMENT OF MICHAEL P. HUERTA, SENIOR VICE PRESIDENT AND MANAGING DIRECTOR, ACS STATE AND LOCAL SOLUTIONS, ON BEHALF OF THE COALITION FOR AMERICA'S GATEWAYS AND TRADE CORRIDORS

Mr. HUERTA. Good afternoon, Chairman Breaux. It is my pleasure to be with you today to review our Nation's freight transportation system and needs. I would like to briefly summarize my formal statement and would welcome the opportunity to respond to any questions that you might have.

As you know, my name is Michael Huerta. I am a Senior Vice President and Managing Director of ACS State and Local Solutions. ACS is a premier provider of business process and information technology outsourcing solutions to world-class commercial and Government clients. We provide travelers with time and money-saving transportation technologies, including the operation on behalf of several agencies of EasyPass, the electronic toll collection system in the Northeast, which is actually fully interoperable from Maryland to Massachusetts, and the PrePass waste station preclearance system at more than 200 locations in 24 States coast to coast.

From 1993 to 1997, I served as Associate Deputy Secretary of Transportation and was the Director of the Office of Intermodalism.

I appear today on behalf of the 23 groups that comprise the Coalition of America's Gateways and Trade Corridors. The coalition's sole interest is to encourage adequate Federal investment in our Nation's intermodal freight infrastructure. Our members include motor carriers, railroads, ports, and freight corridors—in short, the men and women that move America's freight.

International trade is the key to America's economic future. The imports and exports that fuel our economy are doubling every 10 years and freight traffic within the U.S. borders will increase 100 percent by 2020. You have heard from all the witnesses about the tremendous growth in international trade. Any way you cut it, freight transportation is growing dramatically.

This growth in freight is good for all of us, in fact very good. Rapidly accelerating trade, combined with domestic growth, have cre-

ated a $10 trillion U.S. commodity flow that produced millions of new job opportunities and a higher standard of living for Americans.

However, these benefits will only last as long as we can keep the freight moving. As part of the reauthorization process, we must rethink the portion of TEA–21 that was devoted to freight-related projects. The facts are the current port and trade corridor system is at the present time very pressed to accommodate the traffic we have today. That infrastructure is failing. Intermodal connectors currently have up to twice as many engineering deficiencies and pavement deterioration issues as the national highway system routes, and at the same time demands on intermodal connectors are expected to double by 2020.

Recognizing the growing freight needs, as part of TEA–21 Congress established the National Corridor Planning and Development Program and the Coordinated Border Infrastructure Program, commonly referred to as the Borders and Corridors programs. The legislation also provided $140 million annually for these programs combined.

Unfortunately, the current Borders and Corridors programs have fallen short of the intended goals for two reasons. First, the programs were funded at levels far less than necessary to meet freight transportation and intermodal connector needs. As witness to that, since the beginning of the programs, requests from the States and metropolitan planning organizations have exceeded Federal funds available by a ratio of 15 to 1.

Second, the Borders and Corridors programs have been extensively earmarked in the annual appropriations process, frequently allocating funds to projects that may or may not have been those with the greatest national significance to the movement of freight.

With respect to the reauthorization of TEA–21, the coalition strongly recommends that the programs be continued, but bolstered to ensure that the original goals are met. The coalition respectfully commends several recommendations to the committee for your consideration.

First, to meet the high level of demand, funding for the Borders and Corridors programs must be increased and increased dramatically. The coalition believes that a minimum of $2 billion is needed annually. The distribution of funds should be freight-specific. There should be a qualification threshold based on freight volumes and freight-related congestion to ensure that the limited dollars that are received reach the corridors, the borders, and the gateways of the greatest significance to trade.

Third, the designation of entities eligible should be expanded to include other public and quasi-public organizations that may not today be qualified to receive funds under the program.

Fourth, the Borders and Corridors program should be redefined to address the needs of all trade gateways, not only the land corridors and gateway-connected trade corridors. Many gateways that handle huge volumes of freight are not eligible for funding because they may not be at so-called borders. For example, we do not think of Illinois as being a border State, but one-third of the Nation's freight passes through Chicago and it is the largest intermodal hub in the Nation. Similarly, inland ports are also important gateways

that enable the efficient movement of goods throughout the entire country.

The designated high priority corridors available for funding under the Borders and Corridors programs need to be reexamined to ensure freight-intensive areas can apply for funding. Currently there are many important projects in need of funding that do not fall in one of the 43 priority corridors designated under TEA–21. In conclusion, I would like to say that America's freight is America's future. We must keep the infrastructure that underpins the movement of freight strong. That means additional Federal investment. Every dollar invested in the highway system yields $5.70 in economic benefits to the Nation, but at the same time investment in the freight infrastructure is also critical for national defense. Ports and their connectors have always been the point of embarkation for defense material and this role is even more important in the wake of the terrorist attacks of a year ago.

Thank you for the opportunity to offer the coalition's views and I look forward to responding to your questions.

Senator BREAUX. Thank you very much, Mr. Huerta.

Next we will hear from my friend John Caruthers, who is chairman of the I–69 Highway Coalition. I kind of use the names "Caruthers" and "I–69" interchangeably now. It is like you are one and the same thing. So we are delighted to have you with us, John, and pleased to receive your testimony.

STATEMENT OF JOHN D. CARUTHERS, JR., CHAIRMAN, I–69 MID-CONTINENT HIGHWAY COALITION

Mr. CARUTHERS. Thank you, Mr. Chairman, and thank you for the compliment, and thank you for the opportunity to discuss with you the importance of I–69 to the efficient movement of the Nation's freight.

I–69 when finished will span the Nation's heartland from the Canadian border to the Mexican border, traversing 9 States—Michigan, Illinois, Indiana, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana, and Texas. Two sections of this system are already existing and open to traffic. The first one starts at Port Huron, Michigan, on the Canadian border and extends to Indianapolis. The second, Interstate 94, extends from Port Huron southwest to Detroit and west to Chicago.

The rest of I–69 is under development, from Indianapolis south to Memphis, Tennessee; Shreveport; Bossier City, Louisiana; and Houston, Texas; to the Lower Rio Grande Valley and Laredo at the Mexican border. Completion of I–69 will not require an entirely new facility. In some areas it will link existing interstates or upgrade and link other existing highways. Work is under way along the entire I–69 corridor.

While I–69 traverses 9 States, it is important to the Nation as a whole. Trade has shifted, particularly since NAFTA, from an east-west to a north-south trend. Canada and Mexico are now our two largest trading partners. Last year, 2001, 80 percent of the U.S. trade with Mexico and 67 percent of U.S. trade with Canada went by truck and I–69 corridor accounted for 63 percent of the Nation's truck-borne trade with both Canada and Mexico.

The Michigan border points of Detroit and Port Huron account for 48 percent of our truck-borne trade with Canada and the Texas border between Laredo and the Lower Rio Grande, Brownsville and McAllen, accounts for over 49 percent of our truck-borne trade with Mexico.

Looking at freight flows nationwide, not just with Canada and Mexico, approximately half of the total freight shipped in the United States in 1997, over 5 billion tons, passed through, originated, or terminated in the I–69 corridor. Freight is entering and leaving the I–69 corridor by truck, rail, air, and water. 17 of the Nation's top 25 seaports are in this corridor. 13 inland waterway ports and 15 of the Nation's top 25 air cargo airports are directly served by I–69.

Every major eastern and western rail carrier and both Canadian carriers have terminal operations on the I–69 corridor. There are truck-rail intermodal facilities in every major city along the corridor. I–69's port of Houston leads the Nation in foreign waterborne tonnage, and container traffic in the Gulf of Mexico ports served by I–69 is growing faster than the national average or faster than traffic at Atlantic or Pacific ports.

Trade entering I–69 from all modes of transportation is growing faster than in the rest of the Nation. Trade tonnage moving through I–69 points of entry from 1990 to 1999, including land, sea, and air, grew 18.3 percent, or more than twice as fast as the national average of 8.3 percent.

A Federal Highway Administration study suggests that the recent growth in freight traffic will continue through the year 2020. The vast majority of the new growth will be in the trucking industry, with the dominant movement on the Southwest to Northeast direction, a movement ideally suited for the I–69 corridor.

Yet there is no direct interstate-level highway from Indianapolis to the Mexican border. When the interstate system was initially designed, it was laid out generally east-west, reflecting the demographics, trade patterns, and defense needs at the time. When the interstate was completed in 1995, some of the newer north-south sections like I–69 were left unfinished. The premise of the Corridors and Borders program was the recognition that within the 160,000 mile National Highway System there were unfinished corridors essential to the Nation's trade and economic growth that needed to be completed and merited a separate program. The program, however was only funded at $140 million a year nationwide and many of the projects that qualified or were earmarked for funding were of local, not national, interest.

Despite insufficient funding, the I–69 corridor made such significant progress that all of I–69 can go to construction during the period of the TEA–21 reauthorization. Much of it can be completed if dedicated funds are available to do so.

Having built the interstate system, we cannot rest on our laurels. We must invest our resources in those unfinished corridors that serve today's and tomorrow's 21st century trade flows, such as I–69. There are a number of mechanisms to accomplish this: limiting the Borders and Corridors program to major trade corridors and increasing its funding, dedicating program funds to complete unfin-

ished interstate links, or funding freight corridors. Any of these options would work, whether alone or in combination.

The point is we must recognize the need for and build the infrastructure to serve our Nation's freight flows. The traffic is there. The intermodal connections, rail, water, and air, are also there. The trade is surging at Houston, Detroit, and Laredo. Yet the interstate-level facility to transport these products safely, efficiently, and economically, I–69, remains unfinished.

Thank you very much.

Senator BREAUX. Perfect timing, John. Thank you very much, and thank all of the witnesses for being here. I think the discussion today has been good. It is going to give a lot of our professional staff some ideas and thoughts as we approach the reauthorization of TEA–21.

Obviously, I heard my questions to the Assistant Secretary to start thinking outside the box about what we need to be doing in these areas. I realize that in the private sector it is awfully difficult to bring about a great deal of cooperation because all of you—not all of you at the table, but railroads and truckers and ocean-bearing traffic and aviation—are all financially competitors. So it is hard for you to sit down and figure out what is good for the whole country when you have a responsibility to your independent modes of transportation, with railroads and the trucking industry and aviation industry and ocean-bearing traffic for the ports.

Mr. Huerta, in the coalition that you have, how difficult is it to get these various competitive modes to sit down and say, all right, what are we going to do to make it work? I mean, we have got congestion at the ports. We do not have enough railroads coming into the ports, we cannot get enough trucks in to pick up the containers. We are going to double the amount of containers coming in and going out in the foreseeable future.

How difficult is it to try and bring about cooperation? What needs to be done in that area? I am sure each one of these segments would like to do it all by themselves, and that is not going to happen. So how do we get them to work together to come up with some recommendations that can make sense for the Congress?

Mr. HUERTA. Mr. Chairman, one thing that we hear in our coalition meetings and that I think you heard today is that there is unanimity among all the modes of surface transportation that we are not doing enough about freight transportation. The discussions that we have had at the coalition focus on the fact that, while there are many ways that you can fund freight programs under the current categories through which the surface program is reauthorized, generally it is very hard to build the level of support for freight programs, because they may extend beyond the borders of a particular State or a particular metropolitan area.

These are national needs that are out there and when you are looking at something from the point of view of a particular region, it is sometimes hard to put that national lens on and look at the world that way. What you have heard from all of us is that international trade is extremely important, the growth of the economy domestically is extremely important, and moving the freight through the system is going to be essential in the coming years.

So we all agree on things like the Borders and Corridors program. It was a terrific concept. It has worked very well. There just is not enough money.

Likewise, there are many other ways that you can get freight projects identified. What we would like to see is how do you give them the priority. We are looking for more than just, yeah, you can spend money on a freight project. We would actually like to see some funds designated for freight projects. Senator Breaux: Address a question that is a concern to me about the congestion at the ports of our Nation. We have got 75 percent of the traffic by volume either going out or coming into ports internationally, and of course NAFTA has brought a lot more by trucks through Canada and through Mexico. But that traffic coming in and out of the ports which are so congested is going to be coming by rail, it is going to be coming by trucks, and if we do not have a system in these ports to make it work better, we are just going to have some ports that are so congested you are not going to get railroads coming in or trucks coming in or anything going in and out, in the timeframe that we need it, to be effective and to be efficient in the world community.

So I mean, tell me a little bit about what they did to the Alameda corridor? Is that helpful in looking at possible solutions, what they were doing out there?

Mr. HUERTA. It is helpful and it in fact has been used as a model for many other port access projects around the country. But let us step back and look at Alameda in terms of what it involved. The project had something like a 13-year history before it actually got into construction and it was an extremely complicated thing to try to move through the traditional funding process.

Ultimately, it was funded through a combination of user fees and local funds that were generated by the two port authorities in Los Angeles and Long Beach. Then the Federal portion, the largest piece of the Federal portion, was actually a Federal loan. But we did not have the authority to do that project when the loan idea was first proposed. It required special legislation that was enacted by Congress as part of the national highway system designation.

That success at Alameda, though, became the model for the TIFIA program, which works for large infrastructure projects such as this, where there is a user fee that can perhaps repay the costs of the loan and other funds that might be in place. However, a loan program is not going to work all the time. There are major corridor and access projects at rail terminals, at trucking terminals, and at ports around the country that might not be able to support a user fee, and that does not make them any less important in terms of elevating their profile for funding.

But they have the added complexity that a port access project, for example, in the State of Washington or in the State of New York, benefits people far into the interior of the country. Under the current planning and funding framework, it really falls to the State or the metropolitan area where that project is located to lead that project through the overall funding mechanism and to make it a priority in that region.

What we need is a way for these big mega-projects to assume the national profile that they really have, such that they are not the

responsibility of a single State or a single metropolitan area to carry them out and fund them.

Senator BREAUX. Maybe, Admiral, you can get in on this. But if we have needs at all of the ports—and I am talking about ports, but I am really talking about making it more efficient for railroads to serve ports, for the trucking industry to serve the ports, as well as the ships taking the goods and services in and the containers in and out of the ports to operate more efficiently.

So give me some discussion on the concept of port user fees. I know there is all this, all right, we are going to be noncompetitive if we have to have user fees. Well, user fees are paid by the ultimate consumers of the product. I have always had the concept that if they are the same across the board no one has an unfair advantage, if everybody is paying the same user fee that is dedicated for port development and infrastructure in those seaports around the country.

Is that concept a viable concept as a means of getting extra funds for fixing the ports and eliminating some of the congestion, or is it a bad idea? We have got to find out where we have the money and it is not going to be easy and somebody is going to be unhappy. Talking about taxes, they are unhappy. Talking about fuel taxes, they are unhappy. Talking about user fees, they are unhappy. Do we need more money? Yes.

Admiral

[Laughter.]

Senator BREAUX. The shippers are behind you.

Mr. LARRABEE. There are a lot of people behind me, Senator.

I do not know. To me it goes back to I think the testimony given for GAO today, and that is what are our real needs, what are the benefits that we can look at, and then I think the question of where do we get our funding. For us, as we spend—in my particular port over the next 3 years, we will spend nearly $2 billion on improving channels, on improving terminals, and on improving rail infrastructure. We are going to spend about $290 million just to create a greater capacity to handle cargo by rail. We think that in the next 10 years we can shift, at least in our port, what now constitutes about 14 percent of our cargo going out by rail to about 24 percent. We can shift barge traffic by from 2 percent to about 21 percent. I am not suggesting that we are going to change the fact that trucks are still going to be a predominant feature in our region, but the notion that there is great public benefit by looking at this system in a smarter way to me has value, and I think the issue of who pays for it can be a lot easier when you have figured out a better way to handle this.

The issue of who pays for this right now, of course, and things like the harbor maintenance tax, there is a great deal of controversy over that and I do not know that you can get anybody to agree on a rational approach. That is a decision the Federal Government is going to have to make.

Senator BREAUX. We cannot even decide whether it is a fee or a tax.

What about the concept of moving some of the traffic in the ports to staging areas away from the ports? I mean, most of our ports are right in the urbanized areas. The port of New Orleans is right

downtown. The port of Houston is right downtown. Your ports in New Jersey and New York are right in the middle of the greatest urban area probably in the world. Los Angeles, they all have it.

We all have the same problem, which is the port is right in the middle of urbanized areas. That was fine 100 years ago, but today how do you get the trains in, how do you get the trucks in, how do you handle all that volume going right down in the middle of an urbanized area in order to pick it up or to take it there? It does not work anymore.

So the concept by some is to move, I guess, the staging area further away from the actual port facility in an urbanized area, so you can get the stuff to an area and put it on the rails and put it on the trucks, instead of having to do it right in the middle of New Orleans or right in the middle of New York City, for instance. Does that make any sense?

Mr. LARRABEE. We have over the last couple of years looked at where all of our freight goes. I can tell you by zip code where every container that comes into the port ultimately is destined for. We know that about 90 percent of the cargo that goes outside the immediate New York-New Jersey region goes to one of 7 or 8 load centers, places like Albany, New York, and Buffalo, New York, places like Camden, New Jersey, and Providence, Rhode Island. Once we have identified the fact that a lot of that cargo goes to those places, the next thing we have looked at is how do you get it there in a more efficient way. Dedicated rail and dedicated barge service has become the way that we have begun to look at it. We think that we can move cargo more efficiently, at a cheaper price, in about the same amount of time, with a greater degree of reliability, by using dedicated rail and barge.

As I suggested before, we think we can improve the intermodal split from what now is an 85 to 87 percent truck-only operation to something that closely approaches 50 percent by truck and the rest by other modes. That is an approach that is gaining interest in all the Northeast States. It reduces traffic and congestion and air quality problems. It reduces maintenance on the roads, and in our mind is going to dramatically increase the productivity of the Port of New York and New Jersey.

Senator BREAUX. Mr. Wickham, let me have your comments and thoughts about that? I am not suggesting this is a way of lessening traffic overall, but only in the immediate vicinity of the downtown urban ports around the country, to have a staging area, I would take it, where trucks would come in away from the actual port sites. Do these ideas have any merit or what are your thoughts?

Mr. WICKHAM. I think they do. That freight ends up on a truck sooner or later anyway. When it goes to Albany, the container is unstuffed and it becomes a trucking shipment at that time.

When I look at the national transportation system that we have, I think some of the fights that modes have over productivity are silly, because at the end of the day the whole system is more productive if every element of the system is as productive as it can be safely. So some of the debate that goes on I think does not serve any good purpose.

I think the way to look at this system is to maximize the productivity of every participant in the transportation system. That takes

away the need for more capacity in a lot of cases. Productivity is capacity. So that concept that you are talking about, consolidating farther away from the port to reduce the transportation out of the port, does not bother me at all.

Senator BREAUX. I am glad to hear you say that. It seems to me—I am just thinking offhand, which is what I normally do—is the fact that these ports around the country are trying to build all these staging areas where you come in with your trucks, and it is like—how you do it I will never understand. You have got this big yard of containers and the trucks are coming in, picking them up, taking them out, and trying to do all of this in the middle of a city.

It seems to me that if you had a dedicated rail line leaving that port facility and just running these container cars out further away from the port outside the city, and then having their trucks come in, because all these containers cannot go to every little town and destination in America by rail because they are not there. But you could have the dedicated rail line taking it outside of the port to a central staging area where the trucks could come in.

It seems to me that that certainly helps the congestion and makes it more efficient as far as the ports are concerned.

Mr. WICKHAM. Well, it is one of the reasons that you have as many containers in Chicago as you do. They originated in Alameda and came through on a rail leg to be distributed in the Midwest. That I think is maximizing the efficiency of the whole system.

Senator BREAUX. I was interested in your comments, Mr. Wickham, on safety and speed and also the recommendations on the States having greater authority again on the size and weights. All of these are arguments we have been through on will continue, and I appreciate your recommendations on those areas.

On speed, I thought in the old days all the trucks had Governors on them that would restrict the amount of speed. They do not do that anymore, or do they?

Mr. WICKHAM. Oh, yes, we do. Our fleet does. Most big fleets do. But my point was not just the truck speed; it is the automobile speed as well. The statistics indicated that in a large percentage of the accidents involving trucks the other vehicle was speeding. We want to see very strict enforcement of speed for cars and trucks, because I think that is the lowest-hanging fruit we have in the safety area right now.

Senator BREAUX. Well, those are things that we are going to be discussing, I know, in the reauthorization and they are good suggestions.

Mr. Hamberger, on the question about rails in the ports, I take it, am I correct, that the cost of the rails serving the ports is a port cost, not a railroad cost? And if you are building something to do business, should not the rails be picking up the costs of the equipment?

Mr. HAMBERGER. I am not precisely sure what you are asking. It is my understanding that the intermodal yards that are built, for example just 18 miles outside of L.A., are those built, maintained, and run by the railroad companies. I know that each of our members has spent hundreds of millions of dollars in the last 2 years building intermodal yards, in some cases, establishing partnerships with ports on facility improvements. Two of them right outside of

Chicago, both UP and BN-SF; down in Georgia, Norfolk Southern. I know they have done some work in Harrisburg to take intermodal shipments from New York-New Jersey as well.

Senator BREAUX. Admiral, is that your understanding about who bears the costs of the rails within the port system? Is that the port or is that the railroads?

Mr. LARRABEE. Senator, typically the formula that I am familiar with is that the port builds the intermodal rail facility inside the port. But as you build capacity in a port like New York and New Jersey, you have to look down that system to make sure that you are not creating a bottleneck someplace else.

So we have been working very closely with all of our railroads to make sure that as we build the capacity in the Port of New York and New Jersey that their systems are able to handle that increase in activity. So I think that there is a balance as you get further away from the port.

Senator BREAUX. So the current system, I take it, from a port perspective is working all right as far as the intermodal railroads? I mean, you would like the railroads to pick it all up, I am sure.

Mr. LARRABEE. My agency is unique in that we are required to be financially self-sufficient. So when I propose a project like "ExpressRail," which will grow our rail capacity in one terminal from about 25,000 lifts to a million lifts in the next 5 years, I have got to find a way to get a return on that investment. And I will charge a user fee or a tariff for those movements. We have used that formula very successfully.

Senator BREAUX. Do you have the authority to do that as the port?

Mr. LARRABEE. Yes. We have bonding authority that covers all of our lines, and that is where all of our capital money comes from, paid back to investors. But I have got a responsibility as a business line to make sure that that money is recovered.

Senator BREAUX. Ms. Dusenberry, thank you. I know that Senator Reid was very much wanting to hear what you had to say and was very aware of the project that you spoke to. With regard to that project, what does Congress need to do to help in getting it implemented? Is it a funding question or is it—what is it?

Ms. DUSENBERRY. It is a very definite funding question. The shortfall in the amount of funds we have been able to accumulate is $108 million and we feel this needs to come in a stream from the Federal Government, either a stream that we can borrow against, or one lump sum would be very nice if you wanted to give it to us in one lump sum.

Senator BREAUX. But I take it your people say that under the existing highway formulas that you do not get adequate funding to do the type of project that you suggested?

Ms. DUSENBERRY. That is true. Both Nevada and Arizona have contributed $20 million, each State, toward this project out of our regular flow of HRF funds that come into our State, and we feel from this point on that it is a Federal highway, it is on Federal land, it is going to be run by FHWA, and we feel our contribution cannot be any more.

Senator BREAUX. Well, I think you have made a good point. I think Senator Reid has been a big supporter of this project. My

only suggestion is that I think you ought to go visit Searchlight, Nevada.

Ms. DUSENBERRY. I will need to go to Searchlight.

Senator BREAUX. If you could just drive through Searchlight, I think it would make——

Ms. DUSENBERRY. I think I can drive through it very quickly.

Senator BREAUX. Oh, yes, it will not take a lot of time.

[Laughter.]

Ms. DUSENBERRY. We would like to invite you to the groundbreaking of our bypass bridge approaches.

Senator BREAUX. Well, I would like to come.

Ms. DUSENBERRY. On October 21st, if you can. It is going to be on the top of Hoover Dam, so you can see what the congestion is.

Senator BREAUX. I will go there right after——

Ms. DUSENBERRY. We will go to Searchlight.

Senator BREAUX. I will go there right after I go to the I–69 groundbreaking.

[Laughter.]

Senator BREAUX. Mr. Caruthers, thanks, John, for being with us. I've never seen—I have been in this business almost 30 years this month and I do not think I have ever seen a coalition nationally on a project like this that you have been able to put together. I think that is what really has made it successful, because it has really involved not just one State, but all the States along the route, and that is not easy because everybody has different ideas about how to do it. But it has been really important.

I guess one of the things that—I do not know why, but when we built the interstates back starting in the Fifties it really was an east-west bias, was it not? We were building highways east and west, but north-south sort of to a large port of the country really got left out.

How much more important is that north-south highway now since NAFTA was passed? It seems like you talked about we have had huge numbers of increase in amount of trade from Canada and from Mexico going north-south.

Mr. CARUTHERS. That is right. I believe I mentioned that Louisiana exports to Mexico have tripled. Texas has doubled. Truck-borne freight I am talking about, travel, now. Even as far north as Indiana—and for example, Illinois' trade exports to Mexico by truck have tripled. Their trade with Canada has doubled. So this is going on in every State in the I–69 corridor.

Senator BREAUX. Mr. Wickham, how important is that type of a corridor? It seems to me when you are going north-south through the central part of the country you are really on—you do not have a lot of interstates that you can travel over.

Mr. WICKHAM. That is correct, and it is becoming more important. You can obviously see the east-west bias. I think it was done for the defense reasons, that the highway system was put in place. But it is apparent that the north-south direction was lacking and it is becoming more and more important.

We have subsidiaries in Canada and in Mexico and we can connect ourselves operationally and information systems-wise, but the crossings become problematic and then transportation north and south after you make the crossing is a little more difficult than it

is east and west. But it is obviously becoming more and more important because of NAFTA and the growth.

Senator BREAUX. Thank you.

Mr. Caruthers, what is the most important priority that we should be doing from a congressional standpoint? I guess maybe the reauthorization for I–69. Where are we in terms of—what are the priorities now? Where are we now?

Mr. CARUTHERS. Well, it seems to me—and I am thinking like you, from off the cuff right now—the freight bottlenecks are at the borders and in the corridors, and the Borders and Corridors program seems to me to be the simple structure already in effect that needs only one thing, and that is funding.

Senator BREAUX. I–69, if we had more funding in it, would be able to benefit directly from that.

Mr. CARUTHERS. That is right. That is right. We can finish it almost within the TEA–21 reauthorization of 6 years if the funding is provided.

Senator BREAUX. Ms. Dusenberry, you had a comment?

Ms. DUSENBERRY. I mentioned in my testimony that the Hoover Dam Bypass Bridge was a part of the CanaMex corridor. Mexico is a—the western part of Mexico, west of the Sierra Nevada mountains, which are hard to traverse across in Mexico, is the largest producer of produce that comes into the United States. That border crossing—those border crossings in Arizona are extremely important.

We are working on a study now, we are calling it "The CyperPort," in Nogales, Arizona, where we are looking at electronically serving all of the trucking so there is no paper exchanged. We are working on a uniform bill of lading so that the trucking across the border can run paperless and seamless across the border.

We hope that this technology that we are developing will transfer to other border crossings, both in Canada—Canada has been interested in what we are doing—in Canada and the other Mexican ports when we get this seamless system developed.

Senator BREAUX. Well, I think the committee has had some good ideas and some good suggestions. I think it is good that we were able to start talking about this before the fact. We have TEA–21 coming up, but I think with Senator Reid and Senator Jeffords and Senator Inhofe all wanted, and our staffs, to get some discussion now so we get these ideas being thought about as to what we need to be doing. I think that your points are all well taken.

Admiral, good luck to you and all the people at the port for the rest of the week. I know it is a particularly trying time, but we appreciate your service and being with us today.

With that, the committees will stand adjourned.

Whereupon, at 4:37 p.m., the hearing was adjourned.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. JEFFREY N. SHANE, ASSOCIATE DEPUTY SECRETARY AND DIRECTOR, OFFICE OF INTERMODALISM, U.S. DEPARTMENT OF TRANSPORTATION

Chairman Breaux, Chairman Reid, Ranking Members Smith and Inhofe, and members of the committee: Thank you for inviting me to testify today on the topic of "Freight and Intermodalism." I would like to commend your committees for their continued leadership on these important issues and in supporting our efforts to ensure the seamless transportation of goods throughout our country. I believe that

ISTEA and TEA–21 have created a solid framework for addressing the transportation and logistics policy issues currently facing our Nation, and the lessons we have learned will serve as important guideposts during the upcoming reauthorization debate.

Demands on our nation's transportation system are growing faster than supply. While statistics show that since 1970 our population has grown 40 percent and vehicle miles traveled have doubled, the Federal Highway Administration's Highway Statistics Manual indicates that our highway physical infrastructure has increased by only 6 percent during that timeframe. In fact, according to the Texas Transportation Institute, the costs associated with congestion in the 68 urban areas they studied totaled $67.5 billion for 2000, including 3.6 billion hours of extra travel time and 5.7 billion gallons of fuel burned by vehicles sitting in traffic. Even after the significant investments in surface transportation infrastructure under ISTEA and TEA–21, our transportation system is still experiencing rising levels of congestion that adversely impacts the free movement of freight on our nation's roadways.

In 1998 (the latest year for which data are available), the U.S. transportation system carried nearly 4 trillion ton-miles of freight valued at over $9 trillion. Of this, shipments totaling $7.8 trillion were primarily domestic movements, with an additional $1 trillion representing international merchandise. By the year 2020, forecasts predict that the U.S. transportation system will handle cargo valued at over $28 trillion, of which $24 trillion will be domestic movements and over $4 trillion will pass through our nation's gateways.

Truck shipments accounted for 71 percent of total tonnage and 83 percent of the value of U.S. shipments based on the 1998 data. Trucks also make the vast majority of local deliveries, although the industry also carries large volumes of freight between regional and national markets. Water and rail also carry significant shares of total U.S. tonnage, but much smaller shares when measured on a value basis. Air cargo shipments, on the other hand, moved less than 1 percent of total tonnage but carried 12 percent of the value of freight shipments during 1998.

To put these figures into a broader context and provide a better sense of the challenges we must face, the increase in the volume of freight being shipped on our nation's highways will, by the year 2010, equal the total volume of freight currently carried on our entire rail system in the average year.

One of Congress' principal goals in establishing a unified, Federal Department of Transportation (DOT) in 1967 was to facilitate coordinated transportation services across all modes while encouraging these services to be provided by private enterprise whenever possible. Another goal was to ensure that the connections between and among the transportation modes function smoothly while facilitating international trade and economic development. The Department provides a common framework that meets the various needs of our highway, marine, aviation and rail systems by ensuring greater coordination among programs affecting different modes of transportation while increasing the connectivity of these modes.

The landmark Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) increased funding flexibility and emphasized intermodal planning. The financial reforms of the Transportation Equity Act for the 21st Century (TEA–21) gave States and local governments vastly greater resources and the flexibility with which to implement the intermodal solutions fostered by ISTEA. Together, they have laid a sound framework for future Federal surface transportation programs and the intermodal strategies needed to leverage and improve system management and utilization.

Although much has been done over the past decade, the promise of intermodalism—the efficient movement of freight and passengers through all modes of our transportation system—has not yet been fully realized. As bottlenecks grow and system congestion worsens, the Department increasingly will be asked to facilitate projects that enhance freight transportation efficiency. Also, in the aftermath of 9/11 participants in the transportation system have been called upon to integrate security measures into their operations, and the Department has initiated several programs to encourage that integration. For the freight industry, this will require strong private sector involvement with the Federal Government empowered to foster cooperation across all modes through new public/private partnerships.

Freight Movement and International Trade

Understanding future freight activity, both foreign and domestic, is important for matching infrastructure supply to demand and for assessing investment and operational strategies. The U.S. economy depends upon a wide variety of products that move within State boundaries, through interstate commerce, and to and from various parts to the world. Using data from its Freight Analysis Framework (FAF), the

Department has developed information on current and projected freight flows, including a forecast of activity through the year 2020.

FAF projects annual domestic freight volumes will nearly double between 1998 and 2020, increasing from 13.4 billion tons to over 22.5 billion, which raises the question of which modes will carry these new shipments. The FAF forecast assumes that growth in freight activity will be captured largely by increases in air and truck shipments. Domestic air cargo tonnages are projected to double, although its share of total tonnage would remain fairly small. Movements by truck are expected to almost double over the 1998 to 2020 period, capturing a larger share of total traffic. Finally, while both rail and domestic water shipments are projected to increase, their volumes are not expected to grow as dramatically over the forecast period, mainly because of slower demand growth in many of the key commodities carried by these modes.

Since the 1970's, international trade has emerged as a major component of the U.S. economy, as imports of consumer goods, petroleum, and manufactured products have increased along with exports of raw materials, agricultural products, and manufactured goods. This trend toward increased international trade is expected to continue, as suggested by DRI/WEFA's projection that over 30 percent of the U.S. economy will be tied to international trade in goods and services by the year 2020, up from 23 percent in 1998.

This projected growth in trade has led to concerns over congestion at U.S. ports, airports, and borders entry points. International trade, expressed in tons, is forecasted to grow at an annual rate of 2.8 percent and more than double by 2020. While increases are expected for all regions of the world, the largest growth will likely come in our trade with Mexico, Canada, Asia and South America. Cargo trade with our NAFTA partners moves primarily by truck and/or rail, and most international shipments of water and air cargo are transferred to or from trucks, rail cars or barges after arriving in the United States or before heading to export markets. Given the importance of trade to our nation's economy, identifying ways to more efficiently move freight across our borders will be critical in the years ahead.

NHS Intermodal Connectors

The condition of the existing transportation system and its connections directly affects the efficient movement of cargo. When Congress created the National Highway System (NHS), it recognized the need to provide adequate highway access to intermodal freight terminals. Intermodal passenger terminals are generally well served by NHS connectors but infrastructure connecting freight terminals to primary NHS routes is often in need of improvement.

NHS connectors are typically short, averaging less than two miles in length, and are usually local, county or city streets that have lower design standards than mainline NHS routes. They typically serve heavy truck volumes moving between intermodal freight terminals and mainline NHS routes, primarily in major metropolitan areas. Despite the fact that connectors are less than 1 percent of total NHS mileage, they are the "front door" to the freight community for a broad array of intermodal transport services and options.

TEA–21 directed the Secretary of Transportation to conduct a review of the NHS connectors that serve intermodal freight terminals and submit a report to Congress. The objectives of the review were to: (1) evaluate the condition of NHS connector highway infrastructure to major intermodal freight terminals; (2) review improvements and investments made or programmed for these connectors; and (3) identify impediments and options to making improvements to the intermodal freight connectors.

The findings of our report to Congress, dated July 2000, are especially relevant as we consider reauthorization of TEA–21:

- Intermodal connectors that primarily serve freight terminals have significant mileage with pavement deficiencies and generally exhibit inferior physical and operational performance than other similar NHS facilities;
- An analysis of investment practices shows a general lack of awareness and coordination for freight improvements within the State departments of transportation and metropolitan planning organizations (MPO) planning and programming process; and
- Given the pressing needs for passenger-related projects and the fact that many of the benefits from an increased freight investment are received outside of the investing jurisdiction, there is little incentive for local investment in freight projects.

The ability to recognize and effectively address connector needs within the context of our overall intermodal freight system are important elements in preserving and promoting the substantial productivity gains we have witnessed as a result of better supply chain management.

Multi-State and Cross-Border Transportation Planning

End-to-end movements of commercial freight must be viewed within the context of a transportation system that is not bounded by State or international borders. A regional perspective and decisionmaking capability is required to provide effective coordination for the infrastructure planning and investments that support these commercial activities. Recognizing that the health of their economies depends upon efficient movement of goods along regional transportation system segments that often lie beyond their immediate responsibility, several State and Provincial Departments of Transportation have joined together to promote regional transportation consortia. The following examples illustrate this coordinated and complementary approach to regional transportation planning and infrastructure development:

- I–95 Corridor Coalition (I–95CC): The geographic region represented by the I–95CC consists of 12 States (ME, VT, NH, MA, CT, RI, NY, NJ, PA, DE, MD, VA) and the District of Columbia. With a population of just over 67 million people, it is home to nearly a quarter of the nation's inhabitants and a quarter of the nation's jobs, but contains only 6 percent of the landmass of the Nation. The population density of the region makes efficient goods movements both essential and extremely challenging in this largely urbanized environment. DOT representatives from the 12 States and the District of Columbia have developed an intermodal strategic plan for the I–95CC that is addressing freight transportation needs within the context of the region's social, economic, and environmental goals.
- Gulf/Rivers Intermodal Partnership (G/RIP): In a cooperative effort of seven southeastern and Gulf State departments of transportation, regional planning entities and four public port authorities, G/RIP works to improve waterside/landside infrastructure investments through education programs for public planners. The partnership uses the region's ports as classrooms in addition to periodic forums with senior regional public and private sector policymakers to discuss topical infrastructure issues.
- International Mobility and Trade Corridor (IMTC): The IMTC is a coalition of over 60 U.S. and Canadian business and government entities whose mission is to identify and pursue improvements to cross-border mobility in the "Cascade Gateway", which includes four land border crossings between British Columbia and Washington State. Two-way trade at the Blaine, WA, border crossing alone was valued at more than $35 million per day in 2000. Congestion and processing delays at the Blaine border crossing result in over $40 million in additional operating costs annually—losses that exceed 1 day's revenue generated by this commercial traffic. IMTC-sponsored projects are funded through bi-national financial partnerships at Federal, regional, and local levels.

TEA–21's Record

congressional support for the commercial movement of freight was woven into many parts of TEA–21, helping to strengthen the nation's transportation system through: enhanced stability and flexibility of funding; the borders and corridors programs; and increased application of new information technologies.

Stability and Flexibility of Funding

TEA–21 revolutionized transportation funding through its budgetary firewalls and innovative financing provisions as well as by providing record amounts for surface transportation programs. The budgetary firewalls that were introduced created confidence among grantees regarding program funding. As a result, States and localities have relied upon these assurances and increased their funding levels to match or even exceed Federal commitments made in TEA–21. The Department sees its role as one of exercising leadership in convening public and private sector parties to undertake innovative financing of major transportation projects.

One of the most impressive intermodal success stories is the Alameda Corridor freight project. The Alameda Corridor is a multi-modal project that uses a mix of private funds and public programs, including a $400 million loan from the Department of Transportation, to improve rail and highway access and to reduce traffic delays in the critically important area of the Ports of Los Angeles and Long Beach. The recently completed $2.4 billion project, which opened for revenue service on April 15, 2002—on time and within budget—will have far-reaching economic benefits that extend well beyond Southern California.

The funding flexibility created under ISTEA and continued in TEA–21 allows States and communities to tailor their transportation choices to meet their unique needs. It enables State and local decisionmakers to consider all transportation options and their impacts on traffic congestion, air pollution, urban sprawl, economic development, and quality of life.

TEA–21's innovative credit program has further augmented both the highway and transit programs. The Transportation Infrastructure Finance and Innovation Act (TIFIA) has provided almost $3.6 billion in Federal credit assistance to 11 projects of national significance, representing $15 billion in infrastructure improvements. These loans, loan guarantees, and lines of credit for highway, transit, rail, and intermodal projects have encouraged private investment to strengthen transportation infrastructure.

Despite these successes, there are still areas where we can improve. For example, while freight transportation projects are often regional or multi-State in scope, funding is typically distributed through States and localities. Also, conventional financing programs have provided funding for a wide variety of projects focused on individual modes of transportation, but when dealing with major intermodal projects these programs have often proven insufficient. Finally, because TEA–21's programs are oriented toward the public sector, it can be difficult to truly incorporate the needs of private sector transportation carriers and shippers in the planning process.

The Borders & Corridors Program

TEA–21 established the National Corridor Planning and Development and Coordinated Border Infrastructure Program (also known as the "Borders and Corridors" program). Both programs are financed by one funding source, which is authorized at $140 million annually from fiscal year 1999–2003. Due to the obligation limitation provisions of TEA–21, awards the first 3 years averaged about $123 million, but based on the law's RABA provisions and congressional direction awards for the fourth year (FY 2002) will be nearly $480 million.

congressional designation (or "earmarking") of projects in the Borders and Corridors program increased from 0 percent in fiscal year 1999 to about 50 percent in fiscal year 2000 and 65 percent in fiscal year 2001. Given this trend and the cost of preparing full applications, in May 2001 the FHWA solicited 'Intent to Apply' for fiscal year 2002 in place of full applications with a provision that full applications would only be requested if warranted based on that year's DOT Appropriations Act. When Congress designated 100 percent of the funding for fiscal year 2002, FHWA did not solicit full applications and instead requested abbreviated applications for projects designated by Congress. As a result, congressional earmarking has prevented the Department from taking a strategic approach and using the program to facilitate trade through targeted transportation investments that maximize system efficiency.

Awards under the Borders and Corridors program have been as follows:

FY 1999—$123.1 million
FY 2000—$121.8 million
FY 2001—$123.6 million
FY 2002—$478.0 million

For some projects construction is nearly complete or underway. One project that has essentially been completed is near the World Trade Bridge between Laredo, Texas and Nuevo Laredo, Mexico. Before this bridge was opened, traffic queues up to 4 miles long were common on an existing bridge and traffic was grid locked for several miles along I–35. Subsequent to its opening, trucks were diverted to the new bridge leaving the existing bridge to serve autos, buses and pedestrians. The gridlock has now disappeared and travel time has been reduced dramatically for trucks, autos and pedestrians while improving safety and creating jobs.

Some construction projects currently underway that are likely to be completed in the next 2 or 3 years include the FAST (Freight Action Strategies) corridor in Washington State and the Bridge of the Americas and the Paso del Norte Bridge between El Paso, Texas and Ciudad Juarez, Mexico. In the FAST project, replacing a number of highway/rail grade crossings with grade separations will improve safety, relieve congestion and improve operation of the water ports and the rail lines. In El Paso, a modest expenditure (about $3 million for each bridge) will improve physical inspection capacity on each bridge by as much as 40 percent.

Other projects are at least three or more years from completion including such important bottleneck relief projects as: the Ambassador Bridge Gateway in Detroit, Michigan; the SR 905 connector to the border crossing south of San Diego, California; and the Hoover Dam Bypass between Arizona and Nevada. Finally, the future I–69 between Michigan and the Texas lower Rio Grande Valley, which is more of a new access and economic development project, is probably more than a decade from completion.

Application of New Information Technologies

Any seamless transportation system—present or future—relies heavily on information technology. The same information revolution that has swept through the private sector and increased our nation's productivity must also be applied to our transportation systems. "Smarter" systems have the potential to dramatically reduce the barriers and costs that currently limit the ability of passengers and freight carriers to operate across modes. They also will help us to ensure safer and more secure freight transportation networks.

TEA–21 authorized a total of $603 million for Intelligent Transportation Systems (ITS) research for fiscal years 1998 through 2003, which has funded important research projects that support freight movements by focusing on system optimization and more effective use of existing infrastructure. These efforts also facilitate the integration of the operational aspects of all of our transportation systems, while system construction projects address their physical connectivity. Intermodal freight is a major emphasis of DOT's ITS efforts, and the Department is currently conducting several ITS operational tests designed to improve the efficiency and security of the inter-modal movement of freight.

For example, the Chicago O'Hare cargo project uses a "smart card" and biometric identifiers to identify the shipment, vehicle and driver during transportation from the shipper to and through the air cargo terminal. Another project, Cargo-Mate, has particular applicability to port and container security, in addition to enhancing the efficiency of freight movement. This system is designed to perform real-time processing of asset and cargo transactions, provide for the surveillance of cargo movement to and from ports, and provide an integrated incident and emergency response capability.

In a cooperative venture between Washington State and British Columbia, under the auspices of the International Mobility and Trade Corridor (IMTC), electronic cargo seals are being deployed to demonstrate the use of low cost disposable technology to track cargo movements and monitor the security of containerized freight. This test will examine the use of a Congestion Notification System to improve truck access to the Port of Tacoma. When these and related projects are completed and the technologies deployed, the IMTC will have the first fully operational bi-national electronic commercial vehicle operations (CVO) border crossing system in North America.

The Department also is participating in the International Trade Data System (ITDS), which will create a single Federal data base for all international trade and transportation transactions. Expected to become operational in FY2004 at the nation's busiest land borders, and at all land, sea and air ports of entry by 2006, ITDS will extend the benefits of customs modernization across the entire Federal Government. The ITDS and Customs' Automated Commercial Environment (ACE) are being jointly developed so that taxpayers and Federal agencies will have a single system for processing international trade and transportation information that will also serve as an important tool in facilitating the transport of cargo.

Continued Federal, State and local investment in the development of new transportation technology has the potential to yield enormous operational benefits and give transportation professionals much greater capacity to manage increasingly complex systems.

Security Issues

The events of 9/11 have made us all realize that transportation planning must also make the security of freight shipments a top priority, in addition to the system's safety and efficiency. As freight moves from one mode to another, from ship to rail to truck for example, we must ensure that these modes and the public are protected from terrorist attacks. The Transportation Security Administration (TSA) now oversees transportation security across all modes, with the most prominent of course being the new requirements for aviation. However, TSA is also concentrating on sea, rail and land shipments and the links between these modes when assessing possible security threats. Intermodal connectivity is critical for national security, and TSA is coordinating with the other modes in DOT, other Federal agencies, and industry to achieve the highest possible security levels for the transport of goods.

Operation Safe Commerce (OSC) is an innovative public-private partnership dedicated to enhancing security throughout international and domestic supply chains while facilitating the efficient movement of legitimate commerce. The overall objective is to provide valid recommendations and workable solutions to legislators, regulatory agencies, the International Maritime Organization and the World Customs Organization on how best to address the critical issue of international cargo security. I serve as co-chairman of the Executive Steering Committee that directs the

OSC initiative along with the Deputy Commissioner of the U.S. Customs Service, and have been very pleased with the substantial progress we have made so far.

A recently completed initial pilot test applied available technology to analyze the supply chain security of a shipment from Eastern Europe to New Hampshire by equipping a cargo container with onboard tracking, sensor and container door seals. This shipment was monitored as it was transported through numerous countries, and the jurisdictions of several Customs administrations, using various transportation modes. I11OSC proposes to develop and test security practices to govern the packing, loading and movement of cargo throughout several international supply chains. This effort will seek to prototype various solution sets in order to test combinations of physical, technological and logistical security practices that will best secure domestic and international supply chains.

Operation Safe Commerce will attempt to do this by addressing three key components to secure supply chain management. First, it will demonstrate what is needed to ensure that a shipper exerts reasonable care and due diligence in properly packing, securing and manifesting the contents of a shipment of goods. Second, it will demonstrate various methods to ensure that the electronic documentation accompanying a cargo shipment is complete, accurate and secure from unauthorized access. Third, it will test supply chain security procedures and practices, and implement enhanced manifest data elements and container sealing procedures, to determine which applications of information and technology are most effective in securing international and domestic shipments.

Operation Safe Commerce will serve as a technology and business practice "laboratory" to vet innovate solution sets that support the objectives of other Federal initiatives such as the Department of Transportation Container Working Group, the U.S. Customs Container Security Initiative and Customs—Trade Partnership Against Terrorism, and the Department's Intelligent Transportation System and the Borders and Corridors Programs.

These efforts will continue once TSA and the United States Coast Guard transfer their missions and functions to the proposed Department of Homeland Security. Secretary Mineta fully supports these efforts to improve our Nation's homeland security, and if approved by Congress the Secretary has pledged to fully cooperate with the new Department to ensure that security over all modes of transportation is enhanced.

Building on TEA–21

As we consider the reauthorization of TEA–21, we continue to face many of the same challenges that confronted the authors of ISTEA and TEA–21. Applying an intermodal approach to these challenges enables us to extract the maximum amount of capacity from our existing infrastructure through creative programs and wise investments.

Accordingly, intermodalism plays a large role in the core principles and values that motivate the Department's preparation for TEA–21's reauthorization. We will seek to do the following:

- Preserve funding flexibility to allow the broadest application of funds to transportation solutions, as identified by States and local communities.
- Strengthen the efficiency and integration of the Nation's system of goods movement by improving international gateways and points of intermodal connection.
- Focus more on the management and performance of the system as a whole rather than on "inputs" or functional components.
- Develop the data and analyses critical to sound transportation decisionmaking.
- Foster the development and deployment of technology, to support intermodal freight security, productivity, and safety.
- Expand and improve innovative financing programs, in order to encourage greater private sector investment in the transportation system, and examining other means to augment existing trust funds and revenue streams.

Supporting the efficiency of commercial freight transportation continues to be a cornerstone of the Department's vision for America's transportation system. ISTEA and TEA–21 legislation gave us many tools to bring this vision to reality, and our experience has given us new ideas for programs that will get us even closer to our goal of a seamless transportation network. Greater investments in transportation infrastructure and wider use of information technology will certainly be required to achieve this goal.

The Department looks forward to working with our partners in State DOTs, metropolitan planning organizations, and private industry to apply innovative funding strategies such as TIFIA and State Infrastructure Banks to develop large-scale projects that might otherwise be beyond the financial means of the individual stakeholders.

We will also consider possible changes to the Borders and Corridors Program that would encourage broader transportation planning on the basis of economic regions and export markets to ensure that our infrastructure investments are truly integrated with regional and national business developments.

Private industry has made it clear to the Department that reliable information on product shipments is of critical importance to them. If our transportation system is to provide adequate levels of service for the freight industry and their customers, we must continue to apply innovative technologies through the ITS Program and collect information on commodity movements to provide a firm foundation for transportation planning.

The Department will also work with the private sector to formulate innovative approaches to providing transportation solutions and develop the professional capacity to apply these solutions to the challenges that confront us. We will consider new ways to develop public-private partnerships that can leverage public infrastructure investments and ensure that the private sector is more engaged in our planning processes.

I am confident that working together, the Administration, Congress, States and localities, and the private sector can preserve, enhance, and establish surface transportation programs that will result in increased mobility, security and prosperity, as well as more transportation choices for all Americans.

Mr. Chairman and members of the committee, thank you again for the opportunity to testify before you today. I look forward to responding to any questions you may have.

RESPONSES BY JEFFREY N. SHANE TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Freight transportation is expected to double in the next 20 years. This increase in freight traffic will occur at the same time that congestion on our roads is already at levels many of us consider unacceptable. Clearly capacity issues have to be at the top of our list as we begin to reauthorize our surface transportation programs. However, in addition to building new physical capacity, we will need to seek ways to squeeze more out of our existing transportation infrastructure through intelligent transportation systems, better operations, and perhaps a more efficient mix of transportation choices. For example, to move passengers and freight from congested roads to rail. Please give your thoughts on what we can do when we reauthorize TEA–21 to get the most efficient use out of our transportation infrastructure.

Response. Improving intermodal freight efficiency will involve both public agencies and private freight companies. In particular, we must focus on:

(1) improvements to the NHS freight connectors, providing for greater opportunities to use truck/water and truck/rail options to move freight in and out of terminals;

(2) greater deployment of Intelligent Transportation Systems to improve system operations and to ensure intermodal conveyance of critical freight information for efficiency and security-this should include not only an ITS backbone for information exchange between the roadside and vehicles, but should also include other transport modes, and agencies involved in trade facilitation and security;

(3) continued development of international standards for cargo security, to enable efficient and secure trade among NAFTA partners, and with other international trading partners;

(4) enhanced use of innovative finance to leverage additional investment for freight transportation improvements; and

(5) additional emphasis on intermodalism to make better use of all modes for freight transport.

Question 2. We clearly have significant freight transportation needs across our Nation. How do we determine what our freight priorities should be? Do we have sufficient information to determine which freight corridors, border crossings, port, intermodal facilities and connector should be our top funding priorities? Where is our freight infrastructure least efficient and where is the growth expected to occur?

Response. Since 2000, the Department has engaged in a comprehensive effort to (1) improve our understanding of freight flows; (2) define and analyze trends that might affect the demand, supply, and distribution of future freight transport requirements; and (3) work with State and local governments, other Federal agencies, and the private sector to define public policy strategies to enhance the planning, finance, and operation of the Nation's intermodal freight network. As part of this effort, we continue to work with major trade associations and governmental organiza-

tions to devise strategies that appropriately address freight efficiency, along with the national objectives of safety, security, and environmental awareness.

As part of this effort, we have developed the Freight Analysis Framework (FAF), a multimodal analytical system that enables us to map domestic and international freight movements and, when linked with transport network information systems, to match and compare systems demands with supply, both under current conditions and under future scenarios. When combined with other information systems developed to track maritime and rail movements and cross border freight flows, the FAF provides a powerful data/analytical system to determine the relative importance of corridors, gateways and border crossings, and regional freight movements.

The FAF, validated by extensive meetings with State and local officials and the private sector, suggests that major freight transport challenges form around: (1) major trade transport gateways, including certain maritime ports of entry, land crossings with Canada and Mexico, and significant trade hubs; (2) long distance multistate and international trade corridors; and (3) State and local freight concerns. Future trade forecasts suggest that volumes will increase at all major gateways and along trade corridors. This growth is likely to vary by region, however, as population and economic growth continues to shift and international trading patterns change in response to variations in market conditions.

Domestic freight demand is expected to increase by approximately 67 percent from 1998–2020 while international freight is expected to increase by approximately 85 percent. For example, US-Canada trade is expected to double over that time period, and US-Mexico trade is expected to increase by more than 200 percent. These increases in trade will require an emphasis on gateways, hubs, border crossings, and long distance trade corridors as we prepare to reauthorize our nation's surface transportation programs next year.

The FAF, in combination with stakeholder documentation of need, can be used to quantify the relative magnitude of growth along major corridors, and has been used extensively as we define the Department's surface transportation reauthorization initiatives. Mapping current and future freight flows is a valuable first step in defining the geography and magnitude of freight movement but is not, in itself, sufficient to define where our resources and attention should be focused. When overlaid on system condition information, however, the combination of demand and supply provides valuable insight into the freight bottlenecks that we need to address in this reauthorization package.

With freight transportation primarily the responsibility of the private sector, Federal transportation policies offering near term solutions to these problems are limited in their effectiveness. Longer term, federally led strategies to identify and deal with these problems, however, can have significant effects on future efficiencies. Advanced Federal policies and programs to strengthen intermodal capacity at gateways and along major trade corridors can result in important improvements to the Nation's trade transport network.

As we look to the future, we are evaluating institutional, financial, and technology enhancements that would enable State and local governments, in partnership with the Federal Government, to identify bottlenecks, establish priorities, and develop comprehensive funding strategies to mitigate the freight bottlenecks that can threaten our economic well-being if they are not properly addressed.

Question 3. The Borders and Corridors Program has not worked very well. One improvement we should consider is to revise this program to encourage public-private partnerships through a greater emphasis on innovative finance and other creative incentives. How else can we improve the Borders and Corridors program to target the highest priority freight corridors and intermodal facilities.

Response. It is difficult to judge exactly how well the National Corridor Planning and Development and Coordinated Border Infrastructure (NCPD/CBI) discretionary grant program, as set forth under the Transportation Equity Act for the 21st Century (TEA–21), has performed. This is due, in part, to the fact that projects funded under the program have increasingly been earmarked during the appropriations process rather than selected through a competitive application process as originally intended by Congress. From fiscal year 1999 to fiscal year 2002, over two thirds of all NCPD/CBI funds went to projects identified in appropriation act report language (the percentage was 100 percent in fiscal year 2002), thereby severely limiting the Department of Transportation's ability to administer these programs in a strategic way. Moreover, the amounts made available often are not sufficient to fund an entire project, further limiting the program's usefulness in enhancing our nation's primary border crossings and trade corridors.

With respect to your suggestion "to encourage public-private partnerships through a greater emphasis on innovative finance and other creative incentives", the Depart-

ment agrees that a greater emphasis on innovative finance should be a part of any future program.

The Department also agrees that projects should "target the highest priority freight corridors and intermodal facilities." One way to accomplish this is to emphasize the importance of having proposed projects be consistent with the continuing, cooperative, and comprehensive transportation planning process required by sections 134 and 135 of title 23 United States Code.

Question 4. One way to squeeze more capacity out of existing infrastructure is through more rapid deployment of ITS and an increased focus on the operations and management of regional transportation systems. How much potential do ITS initiatives have for improving the efficiency of freight operations and what can we do to promote the development of a freight-friendly ITS infrastructure?

Response. Freight oriented ITS provides a direct benefit by linking improvements in systems operations to supply chain logistics and domestic and international cargo security. Following 9/11, various Federal agencies have developed cooperative agendas designed to promote more secure domestic and international cargo movement, combining the resources of ITS with trade facilitation functions (Customs, INS, USDA, etc.), and our international trade partners. Cooperative efforts with the private sector, through the Intermodal Freight Technology Working Group (IFTWG) have identified opportunities, currently deployed and under evaluation, to use ITS to enhance "end to end" supply chains. Programs like Operation Safe Commerce and the Container Working Group are identifying best practices in technology deployment, standards, and interoperability, and the lessons being learned will provide valuable guidance on the use of ITS to better integrate improvements in safety, security, and freight productivity.

ITS and systems operations strategies have enormous potential to effect capacity improvements and enhance freight flow. Whether the ITS initiative is focused on passenger movement or transportation more generally, freight movement can be enhanced. For example, advanced traveler information systems or incident management systems provide for better system utilization through improvements in real time information and the management of recurring and non-recurring types of delay. While passenger transportation clearly benefits from such ITS initiatives, trucking—both long distance shipments through metropolitan areas and local runs handling pick up and deliveries, also benefit from improved network utilization.

Advanced technology through the expanded use of ITS is widely regarded, both within government and by the private sector, as perhaps the most cost-effective strategy to improve both trade transport efficiency and security.

Question 5. What can we do to promote better regional freight planning and how do we ensure that planning agencies take a comprehensive, intermodal approach to infrastructure planning and development? In particular, when it comes to freight, how do we bring the private sector into the public planning process?

Response. Traditionally, the metropolitan planning process has primarily focused on the movement of passengers, with the movement of freight generally treated as secondary. The general public typically views freight as a necessary evil, with people complaining about waiting at rail crossings or sharing roads with trucks and public agencies complaining about the damage trucks cause to a region's roadways. While existing Federal regulations stipulate that freight is to be considered in local transportation planning, relatively few regions have successfully implemented freight projects through traditional planning approaches.

Development of a better regional freight planning process requires both a mutual understanding of public and private sector perspectives and outreach by State and local transportation planners to the freight industry. Freight operators generally believe that the transportation planning process is too slow to address their short-term, bottom-line needs, and therefore not worth their time and effort. Local transportation planners can help overcome this perception by soliciting the involvement of local freight operators in planning operational changes as part of Congestion Management System (CMS) initiatives. They can also do so through timely implementation of small, non-controversial improvements like turning radii or signal timing at key intersections identified by local freight operators.

In addition, there is a need to provide strategic data, analysis, and information for decisionmakers in both the public and private sectors. In this regard, the work of the Freight Analysis Framework (FAF) serves as a bridge between the two groups. The private sector, which may be unwilling to share detailed commodity information or operational strategies, can use the FAF to highlight the need for increased focus on freight, while the public sector can use the FAF to understand the growth of freight movements and its potential impact on both the local economy and its infrastructure. Maps generated using the FAF have been very useful in re-

directing the discussion from an "Us versus Them" mentality to a "We" based on a shared perception of the need to improve freight productivity.

RESPONSES BY JEFFREY N. SHANE TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. Mr. Shane, in your testimony you mention a project involving the monitoring of containers from overseas as they travel to, and in, the United States.

I assume that this relates to putting electronic devices which can be tracked by satellite onto sealed containers coming into the U.S. either by water, rail, or on trucks. These devices could be placed on the containers overseas or in other countries, or at entry into the United States after inspection of the contents. Under this approach a container packed anywhere in the world and certified safe at that point can be tracked and delivered to a consignee in the U.S. with assurance it has not been tampered with enroute.

The objective is to have a "real-time solution" that can be monitored in the appropriate marine, rail, or other intermodal terminal. At first, this approach could be integrated into an overall regional approach where marine and rail terminals are interconnected and where appropriate governmental agencies such as Customs can also be connected. As other regions come on line this could expand to national coverage. These devices could be built into the locking device and could also indicate whether the container was opened prior to intended delivery.

From a security standpoint the idea is, if an emergency situation arises, that law enforcement would be able to obtain a history of how containers were moved within the U.S., or to be able to locate a particular container in the U.S. In addition, this information could be very useful to the shipper and the intended recipient if there were unexpected delays.

Would you explain your views on this approach? What would be the cost and lead time necessary to implement this concept to all containers entering or leaving the U.S.?

Response. DOT has co-chaired with U.S. Customs two significant efforts to address the vulnerability posed by marine containers and other freight, also pulling together the expertise of other governmental and private sector stakeholders. Most notably have been our joint efforts on the Container Working Group (CWG) and Operation Safe Commerce (OSC), two important efforts that support the President's National Strategy for Homeland Security.

The Container Working Group has been an ongoing effort since December 2001. The working group explored the problem of improving container security through solutions offered by business practices, security technology, information technology, and international activities. They produced a report with a number of recommendations in March, and they continue to pursue these recommendations. Key to these efforts will be the continued development of Intelligent Transportation Systems, the International Trade Data System, the U.S. Customs Automated Commercial Environment (ACE) System, and the implementation of G–7/WCO standardized messages and data sets.

Operation Safe Commerce will complement the CWG by testing technology or process solutions offered by the private sector to improve supply chain security. OSC was initiated by a test of off-the-shelf technology to seal, track, and monitor a single container shipped from Slovakia to New Hampshire This is the test I mentioned during my testimony. It would be premature to assume, however, that this approach is the best answer since we haven't yet embarked upon the more comprehensive set of OSC tests that we hope to fund in the coming months.

We intend to continue rapid progress on both the CWG and OSC, and wherever possible, encourage multi-use systems that improve service quality for the transportation system as well as security and safety.

The costs for developing and implementing a secure container regime have yet to be determined given that we must first test what does or doesn't work in real operating environments. By encouraging the private sector to test out solution sets for container security through the OSC initiative, we will be able to identify what in fact works and what is cost effective to the government and the industry. Accordingly, the lead-time must be viewed as a series of incremental steps over a period of time as we incorporate security proven solutions into the world fleet of over 14 million containers in active use today.

Question 2. Since 9/11 there have been numerous studies and articles that have been written on the lack of knowledge we have on the contents and travel paths of goods in our country. Do you see this as a problem that needs to be rectified?

What can be done to make sure, at the very least, hazardous materials are being tracked?

Response. Judicious application of emerging technology for certain high-risk hazardous materials, including technology designed to track and monitor shipments, can be an important security tool. Indeed, we have encouraged hazardous materials shippers and transporters to investigate the use of tracking or monitoring systems for enhancing hazardous materials transportation security.

In a Security Advisory published in the Federal Register on February 14, 2002, DOT's Research and Special Programs Administration (RSPA) identified a number of actions that persons involved in the transportation of hazardous materials could take to enhance security and recommended actions commensurate with the level of threat posed by the specific hazardous material being transported. To improve en route security, RSPA recommended that shippers and carriers consider utilizing advanced technology to track or protect shipments en route to their destinations. Such tracking technology could include satellite tracking or surveillance systems or could be as simple as frequent checks with drivers by cell phone to ensure everything is in order.

In a May 2, 2002 NPRM RSPA proposed that shippers and carriers develop and implement security plans for certain high-risk shipments of hazardous materials. The security plan would be based on a risk assessment performed by the shipper or carrier to identify security risks and develop appropriate measures to reduce or eliminate risk. As proposed, a security plan must include measures to improve en route security, and such measures could include shipment tracking or monitoring systems. In addition, we proposed revisions to current shipping documentation requirements to assist law enforcement personnel to promptly ascertain the legitimacy of hazardous materials shipments during routine or random roadside inspections and to identify suspicious or questionable situations where additional investigation may be necessary.

On July 16, 2002, RSPA and DOT's Federal Motor Carrier Safety Administration (FMCSA) issued a joint ANPRM inviting comments on the feasibility of specific security enhancements and the potential costs and benefits of deploying such enhancements. Security measures being considered include: escorts, vehicle tracking and monitoring systems, remote vehicle shut-offs, direct short-range communications, and notifications to State and local authorities.

Finally, DOT has also undertaken an operational evaluation of cutting-edge communications and tracking technology, electronic seals, and biometric identification to evaluate their potential for enhancing security.

If we find tracking or other methods to be effective, we will consider initiating appropriate regulatory actions.

Question 3. Has the Department undertaken, or do you know of any studies that could be provided to the committee that discuss the benefits of improving rail corridors to freight movement?

Response. There has been growing interest in the possibility of alleviating regional transportation problems by improving rail corridors and eliminating critical rail bottlenecks.

- AASHTO has prepared a "Freight Bottom Line" report that considers the national implications of such an approach and finds that the benefits of public sector investment in rail corridors could be substantial. The report should be available from AASHTO soon.
- The city of Chicago, all the major railroads and several other groups are developing a plan to alleviate rail congestion in Chicago while also reducing highway congestion due to blocked grade crossings. This study is expected to identify a number of critical projects that will establish several high volume corridors through Chicago.
- The Mid-Atlantic Rail Operations Study identified a $6.2 billion program of public and private investments to address choke points limiting the capacity of the rail system between Virginia and New York.
- The State of Virginia has done a study of the potential for upgrading the rail lines that parallel I–81 to alleviate the need to rebuild and expand that highway that is now very congested with trucks. In cooperation with the Federal Railroad Administration and the State of Tennessee, that study is being expanded to consider marketing issues so as to better estimate the service requirements and diversion potential from a rail improvement program.

Question 4. We have heard that the Department does not have sufficient personnel to effectively handle important issues of the freight community. I would be willing to work with DOT on this important matter. How can Congress assist the Department in ensuring that the mission and personnel of DOT are suited not only to providing mobility to the general public but to the freight community as well?

Response. The Department is committed to ensuring that freight has a "voice" in policy deliberations, legislative initiatives, and in resource commitments. Congress can further assist the Department in effectively handling issues important to the freight community by acting on the Administration's request to establish an Under Secretary of Transportation Policy position as part of an overall restructuring of the Department's policy apparatus. Within this new and elevated structure, we would be able to combine and enhance resources to ensure that freight issues are accorded their rightful attention and visibility, and are addressed on an even par with passenger issues.

STATEMENT OF JAYETTA HECKER, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, GENERAL ACCOUNTING OFFICE

Mr. Chairmen and members: We are pleased to be here today to discuss challenges in defining the Federal role with respect to freight transportation issues. There are concerns that the projected increases in freight tonnage for all transportation modes will place pressures on the marine, aviation, and highway transportation systems. As a result, there is growing awareness of the need to view various transportation modes, and freight movement in particular, from an integrated standpoint, particularly for the purposes of developing and implementing a Federal investment strategy and considering alternative funding approaches. An intermodal perspective appears especially important as the Nation reacts to the increased security needs for transportation networks and as it plans for better, more efficient transportation for the future. At your request, we have done work focusing on the marine component of the national transportation system.

My testimony today, which is based on our report[1] that is being issued today, addresses three topics: (1) the Federal funding approaches used for the marine transportation system as compared with the aviation and highway systems, (2) the amount of customs duties on imported goods shipped through the marine, aviation, and highway systems, and (3) a framework to assist the Congress as it considers future Federal investment decisions. Our recently completed work on marine transportation is based on our analysis of data collected from 15 Federal agencies that expended revenue on the various transportation systems and/or collected funds from users of the systems during fiscal years 1999 through 2001. We also collected data from the U.S. Customs Service on the amount of duty collected on commodities imported by the various transportation modes. We applied the estimates developed by the U.S. Census Bureau on the percent of collections attributable to water, sea, and land transportation modes to total customs duties collected by the U.S. Customs Service during fiscal years 1999 through 2001. To develop a framework to assist the Congress in making decisions about the Federal role in financing the marine transportation system, we built on prior GAO work on Federal investment approaches and managerial best practices and interviewed U.S. Army Corps of Engineers and Department of Transportation officials. See appendix I for a more detailed explanation of our scope and methodology.

In summary:

- The Federal approach for funding the marine transportation system relies heavily on general revenues, while the approach for funding the aviation and highway systems relies almost exclusively on collections from users of the systems. During fiscal years 1999 through 2001, funding for about 80 percent of the average $3.9 billion expended each year on the marine transportation system came from the U.S. Treasury's general fund. During the same period, nearly all of the $10 billion in Federal funds expended each year for the aviation system and the $25 billion in Federal funds expended each year for the highway system came from revenues generated by users of those two systems.
- During fiscal years 1999 through 2001, customs duties on imported goods transported through the transportation systems averaged $15 billion each year for the marine transportation system, $4 billion each year for the aviation system, and $900 million each year for the highway system. Customs duties are taxes on the value of imported goods and have traditionally been viewed as revenues to be used for the support of the general activities of the Federal Government. Unlike the collections based on the use of the highway and aviation systems, customs duties are paid by the importers of the taxed goods. Revenues from these duties are deposited into the U.S. Treasury's general fund, and the majority of these revenues are used for the general support of Federal activities. To help finance improvements to the

[1]U.S. General Accounting Office, Marine Transportation: Federal Financing and a Framework for Infrastructure Investments, GAO–02–1033 (Washington, DC.: Sept. 9, 2002).

marine transportation system, some maritime stakeholders, such as port authorities, have suggested earmarking a portion of revenues generated from customs duties. Some customs duties are currently earmarked for specific purposes, such as agriculture and food programs. However, in that case, a portion of the duties on imports must be used to encourage the export and the domestic consumption of farm products and to reestablish farmers' purchasing power—that is, for assisting markets that are arguably adversely affected by the importation of goods. Further earmarking of customs duties for new spending would have significant budget ramifications in an already constrained Federal budget environment.

- Diverse industry stakeholders believe that substantial new investments in the maritime infrastructure may be required from public and private sources because of an aging infrastructure, changes in the shipping industry, and increased concerns about security.[2] A systematic framework would be helpful to decisionmakers as they consider the Federal Government's purpose and role in providing funding for the system and as they develop a sound investment approach to guide Federal participation. In examining Federal investment approaches across many national activities, we have identified four key components of such a framework—establishing national goals, defining the Federal role, determining appropriate funding tools, and evaluating performance—could potentially be applied to all transportation systems.
- The first component—establishing national goals for the system—requires an in-depth understanding of the needs of the system and the relationship of the system to other transportation modes. For example, the efficient movement of freight often involves using several different transportation modes, making investment decisions, and developing coherent freight policies would logically need to occur while focusing on the entire transportation system rather than a single mode.
- The second component—clearly defining the Federal role relative to other stakeholders—is important to help facilitate the planning and implementation of improvements across modes and to better ensure that Federal participation supplements and enhances participation by others, rather than simply replacing their participation.
- A third component—determining the funding tools and other approaches that will maximize the impact of any Federal investment—is important to help expand the capacity to leverage funding resources and to promote shared responsibilities. For example, in the $2.4 billion Alameda Corridor Program, State and local stakeholders had both a financial incentive to relieve congestion and the commitment and ability to bring financial resources to bear.
- The final component ensures that a process is in place for evaluating performance and accountability periodically so that defined goals, roles, and approaches can be reexamined and modified, as necessary.

Background

The nation's surface transportation systems facilitate mobility through an extensive network of infrastructure and operators, as well as through the vehicles and vessels that permit passengers and freight to move within the system. Maintaining the systems is critical to sustaining America's economic growth. This is especially important given that projected increases in freight tonnage will likely place pressures on these systems. According to the Federal Highway Administration, domestic and international freight tonnage across all surface modes will increase 41 percent, from 14.4 billion tons in 1998 to 20.3 billion tons in 2010. According to the forecasts, by 2010, 15.6 billion tons are projected to move by truck, a 44 percent increase; 3 billion tons by rail, a 32 percent increase; and 1.5 billion tons by water, a 27 percent increase.[3] Some freight may be moved by more than one mode before reaching its destination, such as moving by ship for one segment of the trip, then by truck to its final destination.

Over 95 percent of the U.S. overseas freight tonnage is shipped by sea. The United States accounts for 1 billion metric tons, or nearly 20 percent of the world's oceanborne trade. As the world's leading maritime trading nation, the United States depends on a vast marine transportation system. In addition to the economic role it plays, the system also has an important role in national defense; serves as an alternative transportation mode to roads and rails; and provides recreational value through boating, fishing, and cruises.

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[2]We did not systematically evaluate the claims regarding new infrastructure investments. Recent work has recognized the as yet undefined financial requirements for enhancing the security of ports. See U.S. General Accounting Office, Port Security: Nation Faces Formidable Challenges in Making New Initiatives Successful, GAO–02–993T (Washington, DC.: Aug. 5, 2002).

[3]The Federal Highway Administration's maritime freight projections do not include international trade of bulk products and some inland domestic bulk shipments.

Traditionally, Federal participation in the maritime industry has been directed mainly at projects related to "waterside" issues, such as keeping navigation channels open by dredging, icebreaking, or improving the system of locks and dams; maintaining navigational aids such as lighthouses or radio systems; and monitoring the movement of ships in and out of the nation's coastal waters. Federal participation has generally not extended to "landside" projects related to ports' capabilities, such as building terminals or piers and purchasing cranes or other equipment to unload cargo.[4]

These traditional areas of Federal assistance are under pressure, according to a congressionally mandated report issued by the Department of Transportation in 1999,[5] which cites calls to modernize aging structures and dredge channels to new depths to accommodate larger ships. Since this report, and in the aftermath of September 11, the funding focus has further expanded to include greater emphasis on port security. Many of the security improvements will require costly outlays for infrastructure, technology, and personnel. For example, when the Congress recently made $92.3 million in Federal funding available for port security as part of a supplemental appropriations bill,[6] the Transportation Security Administration received grant applications totaling almost $700 million.[7]

With growing system demands and increased security concerns, some stakeholders have suggested a different source of funding for the marine transportation system. For example, U.S. public port authorities have advocated increased Federal funding for harbor dredging. Currently, funding for such maintenance is derived from a fee on passengers and the value of imported and domestic cargo loaded and unloaded in U.S. ports. Ports and shippers would like to see funding for maintenance dredging come from the general fund instead, and there was legislation introduced in 1999 to do so.[8] Regarding funding for security, ports are seeking substantial Federal assistance to enhance security in the aftermath of the events of September 11. In other work we have conducted on port security,[9] port and private-sector officials have said that they believe combating terrorism is the Federal Government's responsibility and that, if additional security is needed, the Federal Government should provide or pay for it.

Federal Approach to Financing the Marine Transportation System as Compared with the Aviation and Highway Systems

Unlike the funding approach used for the aviation and highway transportation systems, which are primarily funded by collections from users of the systems, the commercial marine transportation system relies heavily on general tax revenue. For all three transportation systems, most of the revenue collected from users of the systems was deposited into trust fund accounts. Figure 1 summarizes the expenditure and assessment comparisons across the three transportation systems.

During fiscal years 1999 through 2001, Federal agencies expended an average of $3.9 billion each year on the marine transportation system with about 80 percent of the funding coming from the general revenues. During the same period, Federal agencies expended an average of $10 billion each year on the aviation system and $25 billion each year on the highway system. The vast majority of the funding for these expenditures came from trust fund accounts. (See app. II.):

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[4]One exception has been intermodal connections, such as rail or highway connections. The Federal Government has traditionally participated in funding such projects.

[5]U.S. Department of Transportation, An Assessment of the U.S. Marine Transportation System: A Report to Congress (Washington, DC.: September 1999). GAO did not verify the accuracy of the information contained in this report.

[6]Although $93.3 million was made available in the supplemental appropriations bill, $1 million was authorized for administrative expenses. As of June 17, 2002, 77 grants for 144 ports security projects were awarded.

[7]The Transportation Security Administration, the Coast Guard, and the Maritime Administration reviewed applications under the Port Security Grants Program, which is based on the seaport security provisions contained in the Department of Defense and Emergency Supplemental Appropriations for Recovery from and Response to Terrorist Attacks on the United States Act of 2002 (Pub. L. No. 107–117, H.R. Conference Report 107–350). An additional $105 million was appropriated for the Port Security Grant Program as part of another supplemental appropriation act passed August 2, 2002 (Pub. L. No. 107–206).

[8]H.R. 1260 was introduced, but not enacted, in the 106th Congress to repeal the Harbor Maintenance Tax and return to funding the costs of operating and maintaining Federal navigation channels from general revenues.

[9]U.S. General Accounting office, Port Security: Nation Faces Formidable Challenges in Making New Initiatives Successful, GAO–02–993T (Washington, DC.: Aug. 5, 2002).

Federal agencies collected revenue from assessments on users of all three transportation systems during fiscal years 1999 through 2001.[10] Collections from assessments on system users during this period amounted to an average of $1 billion each year from marine transportation system users, $11 billion each year from aviation system users, and $34 billion each year from highway system users. Most of the collections for the three systems were deposited into trust funds that support the marine, aviation, and highway transportation systems.[11] (See app. III.) Trust funds that support the marine transportation system include the Harbor Maintenance Trust Fund and the Inland Waterways Trust Fund. Trust funds that support the aviation and highway transportation systems include the Airport and Airway Trust Fund and the Highway Trust Fund.

Comparison by Transportation Modes of the Amount of Customs Duties Collected

The Federal Government assesses customs duties on goods imported into the United States and the majority of these collections are deposited into the U.S. Treasury's general fund to be used for the support of Federal activities. As can be seen in figure 2, the amounts from customs duties levied on imported goods carried through the marine transportation system are more than triple the combined amounts collected from customs duties levied on the goods carried through the aviation and highway systems. During fiscal years 1999 through 2001, customs duties on imported goods shipped through the transportation systems averaged $15.2 billion each year for the marine transportation system, $3.7 billion for the aviation system, and $928 million for the highway system. (See app. IV for details on customs duty collections by year.):

Some maritime stakeholders, particularly port owners and operators, have proposed using a portion of the customs duties for infrastructure improvements to the marine transportation system. They point out that the marine transportation system is generating billions of dollars in revenue, and some of these funds should be returned to maintain and enhance the system. However, unlike transportation excise taxes, customs duties are taxes on the value of imported goods paid by importers and ultimately their consumers—not on the users of the system—and have traditionally been viewed as revenues to be used for the support of the general activities of the Federal Government.

Notwithstanding the general trend, a portion of revenues from customs duties are currently earmarked for agriculture and food programs, migratory bird conservation, aquatic resources, and reforestation.[12] It should be noted, however, that in these cases, some relationship exists between the goods being taxed and the uses for which the taxes are earmarked. Designating a portion of the remaining customs fees for maritime uses would not represent a new source of capital for the Federal Government, but rather it would be a draw on the general fund of the U.S. Treasury. This could lead to additional deficit financing, unless other spending were cut or taxes were increased.

Systematic Framework Could Help Guide Decisions When Making Investment Choices for the Marine Transportation System

Some maritime industry stakeholders have suggested that substantial new investments in the maritime infrastructure by Federal, State, and local governments and by the private sector may be required because of an aging infrastructure, changes

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[10]Such assessments include both user fees and excise taxes. User fees are charged to users for goods or services provided by, or activities regulated by, the Federal Government. User fees generally apply to activities that provide benefits to identifiable recipients and are normally related to the cost of the goods or services provided. They may be paid into the general fund or, under specific statutory authority, may be made available to an agency carrying out the activity. User fees may also be collected through a tax such as an excise tax. Since these collections result from the government's sovereign powers, the proceeds are generally recorded as budget receipts, not as offsetting collections. Excise taxes can also be dedicated to specific programs and agencies.

[11]Collections are deposited into the U.S. Treasury and can be used for the general support of Federal activities or may be earmarked by law for specific purposes and credited to a trust fund. A Federal trust fund is an accounting mechanism used to link earmarked receipts with the expenditures of those receipts. It is designated in law as a "trust" fund.

[12]Under Section 612c of Title 7, 30 percent of the gross receipts from customs duties are designated for agricultural and food programs. Pursuant to 16 U.S.C. 3912, all duties on guns and ammunitions are credited to the Migratory Bird Conservation Fund and pursuant to 26 U.S.C. 9504, duties on fishing tackle and yachts and pleasure craft are credited to the Sports Fish Restoration Account of the Aquatic Resources Trust Fund. In addition, tariffs from wood and certain wood products are credited to the Reforestation Trust Fund up to a total of $30 million (16 U.S.C. 1606(a)).

in the shipping industry, and increased concerns about security.[13] These growing and varied demands for increased investments in the maritime transportation system heighten the need for a clear understanding about the Federal Government's purpose and role in providing funding for the system and for a sound investment approach to guide Federal participation. In examining Federal investment approaches across many national activities, we have found that issues such as these are best addressed through a systematic framework. As shown in figure 2, this framework has the following four components that potentially could be applied to all transportation systems:

- Set national goals for the system. These goals, which would establish what Federal participation in the system is designed to accomplish, should be specific and measurable.
- Define clearly what the Federal role should be relative to other stakeholders. This step is important to help ensure that Federal participation supplements and enhances participation by others, rather than simply replacing their participation.
- Determine which funding tools and other approaches, such as alternatives to investment in new infrastructure, will maximize the impact of any Federal investment. This step can help expand the capacity to leverage funding resources and promote shared responsibilities.
- Ensure that a process is in place for evaluating performance periodically so that defined goals, roles, and approaches can be reexamined and modified, as necessary.

Establish National Goals to Guide Federal Participation

An initial decision for Congress when evaluating Federal investments concerns the goals of the marine transportation system. Clearly defined national goals can serve as a basis for guiding Federal participation by charting a clear direction, establishing priorities among competing issues, specifying the desired results, and laying the foundation for such other decisions as determining how assistance will be provided. At the Federal level, measuring results for Federal programs has been a longstanding objective of the Congress. The Government Performance and Results Act of 1993[14] has become the primary legislative framework through which agencies are required to set strategic and annual goals that are based on national goals, measure performance, and report on the degree to which goals are met and on what actions are needed to achieve or modify goals that have not been met. Establishing clear goals and performance measures for the marine transportation system is critical to ensuring both a successful and a fiscally responsible effort.

Before national goals for the system can be established, however, an in-depth understanding of the relationship of the system to other transportation modes is required. Transportation experts highlight the need to view the system in the context of the entire transportation system in addressing congestion, mobility, and other challenges and, ultimately, investment decisions. For example, congestion challenges often occur where modes connect or should connect, such as ports where freight is transferred from one mode to another. The connections require coordination of more than one mode of transportation and cooperation among multiple transportation providers and planners. A systemwide approach to transportation planning and funding, as opposed to focus on a single mode or type of travel, could improve the focus on outcomes related to customer or community needs.

Meaningful goal setting also requires a comprehensive understanding of the scope and extent of issues and priorities facing the marine transportation system. However, there are clear signs that certain key issues and priorities are not yet understood well enough to establish meaningful goals for the system. For example, a comprehensive analysis of the issues and problems facing the marine transportation system has not yet been completed.[15] In setting goals for investment decisions, lead-

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[13]We did not systematically evaluate these claims regarding new infrastructure investments. Recent work has recognized the as yet undefined financial requirements for enhancing the security of ports. See U.S. General Accounting Office, Port Security: Nation Faces Formidable Challenges in Making New Initiatives Successful, GAO–02–993T (Washington, DC.: Aug. 5, 2002).

[14]Pub. L. No. 103–62.

[15]The 1999 marine transportation system report identified a number of issues and problems facing the marine transportation system. These included increased dredging requirements to accommodate larger container ships, aging and limited capacity of lock and dam systems on inland waterways, and congestion due to ineffective intermodal connections. In January 2000, the Secretary of Transportation chartered the Marine Transportation System National Advisory Council to help implement the recommendations contained in a report issued by the Department of Transportation entitled An Assessment of the U.S. Marine Transportation System: A Report to Congress. An interagency committee was also established to facilitate implementation of the rec-

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ing organizations usually perform comprehensive needs assessments to obtain a clear understanding of the extent and scope of their issues, problems, and needs and, ultimately, to identify resources needed. These assessments should be results-oriented in that they determine what is needed to obtain specific outcomes rather than what is needed to maintain or expand existing capital stock.[16] Developing such information is important for ensuring that goals are framed in an adequate context. The call by many ports for Federal assistance in dredging channels or harbors to 50 feet is an example. Dredging to 50 feet allows a port to accommodate the largest of the container ships currently being constructed and placed in service. However, developing the capacity to serve such ships is no guarantee that companies with such ships will actually choose to use a port. Every port's desire to be competitive by having a 50-foot channel could thus lead to a situation in which the Nation as a whole has an overcapacity for accommodating larger ships. The result, at least for the excess capacity, would signal an inefficient use of Federal resources that might have been put to better use in other ways.

Define the Federal Role Relative to Other Stakeholders

Establishing the roles of the Federal, State, and local governments and private entities will help to ensure that goals can be achieved. The Federal Government is only one of many stakeholders in the marine transportation system. While these various stakeholders may all be able to share a general vision of the system, they are likely to diverge in the priorities and emphasis they place on specific goals. For example, the Federal Government, with its national point of view, is in a much different position than a local port intensely involved in head-to-head competition with other ports for the business of shipping companies or other businesses. For a port, its own infrastructure is paramount, while the Federal Government's perspective is focused on the national and broader public interest.

Since there are so many stakeholders involved with the marine transportation system, achieving national goals for the system hinges on the ability of the Federal Government to forge effective partnerships with nonFederal entities. Decision makers have to balance national goals with the unique needs and interests of all non-Federal stakeholders in order to leverage the resources and capabilities that reside within State and local governments and the private sector. Future partnering among key maritime stakeholders may take on a different form as transportation planners begin focusing across transportation modes in making investment decisions instead of making investment decisions for each mode separately. The Alameda Corridor Program in the Los Angeles area provides an example of how effective partnering allowed the capabilities of the various stakeholders to be more fully utilized. Called the Alameda Corridor because of the street it parallels, the program created a 20-mile, $2.4 billion railroad express line connecting the ports of Los Angeles and Long Beach to the transcontinental rail network east of downtown Los Angeles. The express line eliminates approximately 200 street-level railroad crossings, relieving congestion and improving freight mobility for cargo. This project made substantial use of local stakeholders' ability to raise funds. While the Federal Government participated in the cost, its share was only about 20 percent of the total cost, most of which was in the form of a loan rather than a grant.

Just as partnerships offer opportunities, they also pose risks based upon the different interests reflected by each stakeholder. While gaining the opportunity to leverage the resources and capabilities of partners, each of these nonFederal entities has goals and priorities that are independent of the Federal Government. For the Federal Government, there is concern that State and local governments may not share the same priorities for use of the Federal funds. This may result in non-Federal entities replacing or "supplanting" their previous levels of commitment in areas with new Federal resources. For example, in the area of port security, there is a significant funding need at the local level for overtime pay for police and security guards. Given the degree of need, if more Federal funding was made available, local interests might push to apply Federal funding in this way, thereby transferring a previously local function to the Federal arena. In moving toward Federal coverage of basic public services, the Congress and Federal officials would be substantially expanding the Federal role.

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ommendations in the report. Recognizing the need to thoroughly analyze the issues and problems facing the marine transportation system, the interagency committee is in the process of seeking contract support for a comprehensive analysis assessing the future needs and funding of the marine transportation system.

[16]U.S. General Accounting Office, U.S. Infrastructure: Funding Trends and Federal Agencies' Investment Estimates, GAO–01–986T (Washington, DC.: July 23, 2001).

Develop Funding Tools and Other Approaches That Maximize the Federal Return

When evaluating Federal investments, a careful choice of the approaches and funding tools that would best leverage Federal funds in meeting identified goals should be made. A well-designed funding approach can help encourage investment by other stakeholders and maximize the application of limited Federal dollars. An important step in selecting the appropriate approach is to effectively harness the financial capabilities of local, State, and private stakeholders. The Alameda Corridor Program is a good example. In this program, State and local stakeholders had both a financial incentive to relieve congestion and the commitment and ability to bring financial resources to bear. Some other ports may not have the same level of financial incentives or capabilities to undertake projects largely on their own. For example, in studying the extent to which Florida ports were able to implement a set of security requirements imposed by the State, we found that some ports were able to draw on more financial resources than others, based on such factors as size, economic climate, and funding base.[17] While such information would be valuable in crafting Federal assistance, it currently is largely unavailable. Relatively little is known about the extent of State, local, and private-sector funding resources across the country.

The Federal Government has a variety of funding tools potentially available for use such as grants, direct loans, loan guarantees, tax expenditures, and user fees. Through cost sharing and other arrangements, the Federal Government can use these approaches to help ensure that Federal funds supplement—and not supplant—funds from other stakeholders. For example, an effective use of funding tools, with appropriate nonFederal matches and incentives, can be valuable in implementing a national strategy to support Federal port investments, without putting the government in the position of choosing winners or losers.

Federal approaches can take other forms besides those that relate specifically to making funding available. These following approaches allow increased output without making major capital investments:

- Demand management. Demand management is designed to reduce travel at the most congested times and on the most congested routes. One demand management strategy involves requiring users to pay more to use congested parts of the system during such periods, with the idea that the charge will provide an incentive for some users to shift their use to a less congested time or to less congested routes or transportation modes. On inland waterways, for example, congestion pricing for locks-—that is, charging a toll during congested periods to reflect the additional cost of delay that a vessel imposes on other vessels—might be a way to space out demand on the system. Many economists generally believe that such surcharges or tolls enhance economic efficiency by making operators take into account the external costs they impose on others in deciding when, where, and how to travel.
- Technology improvements. Instead of making extensive modifications to infrastructure such as locks and dams, it may be possible to apply Federal investments to technology that makes the existing system more efficient. For example, technological improvements may be able to help barges on the inland waterways navigate locks in inclement weather, thereby reducing delays on the inland waterway system.
- Maintenance and rehabilitation. Enhancing capacity of existing infrastructure through increased maintenance and rehabilitation is an important supplement to, and sometimes a substitute for, building new infrastructure. Maintenance and rehabilitation can improve the speed and reliability of passenger and freight travel, thereby optimizing capital investments.

Management and operation improvements. Better management and operation of existing infrastructure may allow the existing transportation system to accommodate additional travel without having to add new infrastructure. For example, the U.S. Army Corps of Engineers is investigating the possibility of automating the operation of locks and dams on the inland waterways to reduce congestion at bottlenecks.

Examining Outcomes to Determine the Effectiveness of Investments

Regardless of the tools selected, results should be evaluated and lessons learned should be incorporated into the decisionmaking process. Evaluating the effectiveness of existing or proposed Federal investment programs could provide decisionmakers with valuable information for determining whether intended benefits have been achieved and whether goals, responsibilities, and approaches should be modified.

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[17]U.S. General Accounting Office, Port Security: Nation Faces Formidable Challenges in Making New Initiatives Successful, GAO–02–993T (Washington, DC.: Aug. 5, 2002).

Such evaluations are also useful for better ensuring accountability and providing incentives for achieving results.

Leading organizations that we have studied have stressed the importance of developing performance measures and linking investment decisions and their expected outcomes to overall strategic goals and objectives.[18] Hypothetically, for example, one goal for the marine transportation system might be to increase throughput (that is, the volume of cargo) that can be transported through a particular lock and dam system on the nation's inland waterways. A performance measure to gauge the results of an investment for this goal might be the increased use (such as number of barges passing through per hour) that results from this investment and the economic benefits associated with that increase.

In summary, Mr. Chairmen, the projected increases in freight tonnage will likely place pressures on the nation's surface transportation systems. Maintaining these systems is critical to sustaining America's economic growth. Therefore, there is a need to view various transportation modes from an integrated standpoint, particularly for the purposes of developing and implementing a Federal investment strategy and alternative funding approaches. In such an effort, the framework of goals, roles, tools, and evaluation can be particularly helpful—not only for marine transportation funding, but for other modes as well.

Mr. Chairmen, this concludes my testimony. I will be happy to respond to any questions you or other members may have.

APPENDIX I: SCOPE AND METHODOLOGY

To determine the amount of Federal expenditures to support the commercial marine,[19] aviation, and highway transportation systems and the amount of collections from Federal assessments on the users of these systems for fiscal years 1999, 2000, and 2001, we reviewed prior GAO reports and other relevant documents, and interviewed officials from the Office of Management and Budget and various industry representatives. On the basis of this determination, we contacted 15 Federal agencies and asked them to provide information on the expenditures[20] and collections[21] that were specific to the transportation systems, relying on each agency to identify expenditures and collections related to activities that support the transportation systems. In addition, we also received data from the U.S. Customs Service on the amount of duty collected on commodities imported by the transportation modes. The U.S. Customs Service provided estimates, developed by the U.S. Census Bureau, on the percent of collections that were attributable to water, sea, and land transportation modes. We applied these percentages to the total customs duties collected for fiscal years 1999, 2000, and 2001 provided by the U.S. Customs Service to compute the amount of total customs duties collected by the marine, aviation, and highway transportation systems each year.

We performed limited reasonableness tests on the data by comparing the data with the actual trust fund outlays contained in the budget of the U.S. Government for fiscal years 2001, 2002, and 2003. Although we had each agency validate the data provided, we did not verify agency expenditures and collections.

To identify initial considerations that could help the Congress in addressing whether to change the scope or nature of Federal investments in the marine transportation system, we conducted a review of prior GAO reports and other relevant studies to identify managerial best practices in establishing strategic plans and Federal investment approaches. We also interviewed U.S. Army Corps of Engineers and Department of Transportation officials to obtain information on the current state of the commercial marine transportation system, the ability of the system to keep pace with growing demand, and activities that are under way to assess the condition and capacity of the infrastructure. Our work was carried out from January 2002 to September 2002 in accordance with generally accepted government auditing standards.

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[18]U.S. General Accounting Office, Executive Guide: Leading Practices in Capital Decision-Making, GAO/AIMD–99–32 (Washington, DC.: Dec. 1998).

[19]Noncommercial activities, to include Coast Guard missions such as search and rescue and drug and migrant interdiction, as well as recreational activities, were excluded from our review as our focus was on the commercial marine transportation system.

[20]For the purposes of this report, expenditures are outlays to pay Federal obligations identified by the agency for each fiscal year to support these systems, but may include payments for obligations incurred in previous fiscal years.

[21]Assessment collections are fees and taxes paid by users of a system that were identified by the agencies and may include revenues credited to Federal funds, offsetting collections, and offsetting revenue.

APPENDIX II: EXPENDITURES FOR THE MARINE, AVIATION, AND HIGHWAY TRANSPORTATION SYSTEMS BY SOURCE OF FUNDS (FISCAL YEARS 1999–2001)

Federal agencies spent an average of $3.9 billion annually on the marine transportation system, $10 billion annually on the aviation system, and $25 billion annually on the highway system. Whereas the primary source of funding for the marine transportation system is general tax revenues, the vast majority of Federal funding invested in both the aviation and highway systems came from assessments on users of the systems. During the 3-year period, general revenues were the funding source for 80 percent of the expenditures for the marine transportation system. In contrast, assessments on system users were the funding source for 88 percent of the amount spent on the aviation system and nearly 100 percent of the amount spent on the highway system.

Table 1: Total Expenditures for the Marine, Aviation, and Highway Transportation Systems Summarized by the Source of Funds (Fiscal Years 1999—2001)

dollars in millions

Sources of funds	1999	2000	2001	Average
Marine Transportation System				
General revenues	$3,250	$2,994	$3,117	$3,120
Revenue from system users[1]	467	902	876	748
Total Marine Transportation System	$3,717	$3,896	$3,993	$3,868
Aviation Transportation System				
General revenues	$969	$1,007	$1,070	$1,015
Revenue from system users[1]	8,410	9,438	9,963	9,270
Total Aviation Transportation System	$9,379	$10,445	$11,033	$10,285
Highway Transportation System				
General revenues	$90	$68	$116	$91
Revenue from system users[1]	22,730	25,031	27,231	24,997
Total Highway Transportation System	$22,820	$25,099	$27,347	$25,088

Note: Figures are nominal and have not been adjusted for inflation.
[1]Includes trust fund and reimbursable agency accounts.
Source: GAO analysis of data provided by agencies that expended funds

APPENDIX III: DISTRIBUTION OF AMOUNTS COLLECTED FROM USERS OF THE TRANSPORTATION SYSTEMS (FISCAL YEARS 1999–2001)

Federal agencies collected an average of $1 billion annually from users of the marine transportation system, $11.1 billion annually from users of the aviation system, and $33.7 billion annually from users of the highway system. For all three transportation systems, most of the collections were deposited into trust fund accounts. During the 3-year period, 85 percent of the amounts collected from marine transportation system users, 94 percent of the amounts collected from aviation system users, and nearly 100 percent of the amounts collected from highway system users were deposited into trust fund accounts.

Table 2: Amounts Collected from Marine, Aviation, and Highway Transportation System Users and Accounts Receiving the Collection (Fiscal Years 1999—2001)

dollars in millions

Source of funds	1999	2000	2001	Average
Marine Transportation System				
General fund	$93	$97	$99	$96
Trust fund accounts	741	857	891	830
Reimbursable agency acounts	41	51	54	49
Total Marine Transportation System	$875	$1,005	$1,044	$975
Aviation Transportation System				
General fund	$421	$437	$466	$441
Trust fund accounts	11,663	9,860	9,581	10,368

Table 2: Amounts Collected from Marine, Aviation, and Highway Transportation System Users and Accounts Receiving the Collection (Fiscal Years 1999—2001)—Continued

dollars in millions

Source of funds	1999	2000	2001	Average
Reimbursable agency acounts	236	255	265	252
Total Aviation Transportation System	$12,320	$10,552	$10,312	$11,061
Highway Transportation System				
General revenues	$1	$2	$2	$2
Trust fund accounts	32,255	35,134	33,683	33,691
Reimbursable agency acounts	24	24	22	23
Total Highway Transportation System	$32,280	$35,160	$33,707	$33,716

Note: Figures are nominal and have not been adjusted for inflation.
Source: GAO analysis of data provided by agencies that expended funds

Appendix IV: Amount Collected From Customs Duties on Commodities Transported on the Transportation Systems (Fiscal Years 1999–2001)

Unlike the fees and taxes on users that are earmarked to support the transportation systems, customs duties are not an assessment on the system; rather, duties are assessed on imported goods transported by the systems. The majority of customs duties collected are deposited in the U.S. Treasury's general fund for the general support of Federal activities.[22] On average, the Customs Service reported $19.8 billion collected annually for commodities imported by the transportation modes, with nearly 80 percent collected from the marine system.

Table 3: Amount of Customs Duties Collected for Commodities Transported on the Marine, Aviation, and Highway Transportation Systems, Fiscal Years 1999 through 2001

dollars in millions

Transportation System	1999		2000		2001	Percent	Average Amount
	Amount	Percent	Amount	Percent	Amount		
Marine	$14,310	75	$15,624	76	$15,637	79	$15,190
Aviation	3,577	19	4,053	20	3,371	17	3,667
Highway[1]	1,168	6	880	4	735	4	928
Total custom duties collected	$19,055	.....	$20,557	.....	$19,743	.....	$19,785

Note: Figures are nominal and have not been adjusted for inflation.
[1]Includes amounts collected by rail.
Source: GAO computations based on data provided by the U.S. Customs Service.

Responses by JayEtta Hecker to Additional Questions from Senator Reid

Question. In your statement, you emphasize the importance of a more system-wide approach to Federal transportation programs-and in particular, focus on promoting intermodal approaches to meeting the rapidly growing requirements for freight infrastructure. You also proposed use of a framework to assist in refining Federal transportation policies focusing on national goals, defining roles of the many public and private stakeholders, selecting appropriate government tools to best leverage Federal resources, and evaluating performance of programs and policies. Can you discuss how this framework might assist the Congress in defining and developing a coherent national freight policy-and challenges and options that should be considered during the forthcoming reauthorization of the Transportation Equity Act for the 21st Century (TEA–21)?

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[22]Under Section 612 of Title 7, about 30 percent of the gross receipts from customs duties are designated for agricultural and food programs. In addition, pursuant to 16 U.S.C. 3912, all duties on guns and ammunitions go to the Migratory Bird Conservation Fund and pursuant to 26 U.S.C. 9504, duties on fishing tackle and yachts and pleasure craft go to the Sports Fish Restoration account of the Aquatic Resources Trust Fund. Also, tariffs from wood and certain wood products are transferred to the Reforestation Trust Fund up to a total of $30 million (16 U.S.C. 1606(a)).

Response. Moving toward a coherent national freight policy requires solutions that cut across modes and better prepare the Nation for the ever-expanding growth of international trade. Responding to that challenge requires evaluating the performance of existing legislation and programs in promoting an efficient intermodal freight transportation industry, establishing the promotion of an efficient intermodal freight industry as a national goal, defining the Federal role relative to other stakeholders, and developing funding tools and other approaches that maximize the return on the Federal investment. An elaboration of each component of this framework follows:

Evaluation of Performance of Existing Legislative Framework and Programs in Promoting an Efficient Intermodal Freight Transportation Industry

Evaluating the results of Federal investment programs and incorporating lessons learned into the decisionmaking process could provide decisionmakers with valuable information for determining whether intended benefits have been achieved and whether goals, responsibilities, and approaches should be modified. Such evaluations are also useful for better ensuring accountability and providing incentives for achieving results. For example, one goal for the marine transportation system might be to increase throughput (the volume of cargo) that can be transported through a particular lock and dam system on the nation's inland waterways. A performance measure to gauge the results of an investment for this goal might be the increased capacity that results from this investment and the economic benefits associated with that increase. Assessing progress in achieving this goal is, therefore, dependent on carrying out analyses of accurate and complete data.

Establishing Promotion of an Efficient Intermodal Freight Industry as a National Goal to Guide Federal Participation

There appears to be substantial consensus that promoting an efficient intermodal freight industry should be a central national goal for reauthorization of the core transportation legislation. The challenge is how to make such language more integral to the future structure and performance of transportation programs. One shift would be to consider articulation of a national goal related to freight/intermodal transportation in performance terms—and to structure revised or new programs around specific performance goals.

Clearly, in setting national goals and defining outcomes, the explicit focus would be on a system-wide, rather than mode-specific approach to transportation planning and funding and could include a focus on outcomes that users—both freight and passengers, both intercity and local—desire from the transportation system.[1] The key for achieving the goals, regardless of how detailed, is to align the goal with the roles of the various stakeholders and the funding approaches selected. For example, a performance oriented funding system could be developed in which the Federal Government would first define certain national interests of the transportation system—such as identifying freight corridors of importance to the national economy—then set national performance standards for those systems that States and localities must meet. Federal funds would be distributed to those entities that are addressing national interests and established standards. Any Federal funds remaining after meeting the performance standards could then be used for whatever transportation purpose the State or locality deems most appropriate to achieve State or local mobility goals.

Another feature of performance goals could include a focus on congestion, which is increasingly affecting travel times and the reliability of transportation systems. In the aggregate, congestion results in thousands of hours of delay every day, which can translate into costs such as lost productivity and increased fuel consumption. In addition, a decrease in travel reliability imposes costs on the traveler in terms of raising the cost of moving goods resulting in higher prices for consumers. While there is some evidence that freight transportation costs related to managing business operations have decreased as a percentage of gross national product (indicating that producers and manufacturers adjust to transportation supply by switching modes or altering delivery schedules to avoid delays and resulting cost increases), these adaptations by businesses represent economic inefficiencies that can be very costly. Increasing congestion can cause businesses to avoid a substantial number of trips that might result in a corresponding loss of the benefits of those trips.

National goals for the transportation system could also recognize that the concept of capacity is broader than just the physical characteristics of the transportation network (e.g., the number of lane-miles of road or locks on a waterway). The capac-

[1]U.S. General Accounting Office, *Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge*, GAO–02–775, (Washington, DC: Aug. 2002).

ity of transportation systems is also determined by how well they are managed and operated. Evidence has mounted that congestion on highways was in part due to poor management of traffic flows on the connectors between highways and poor management in clearing roads that are blocked due to accidents, inclement weather, or construction. For example, in the 75 metropolitan areas studied by the Texas Transportation Institute, 54 percent of annual vehicle delays in 2000 were due to incidents such as breakdowns or crashes. In addition, the Oak Ridge National Laboratory reported that, nationwide, significant delays are caused by work zones on highways; poorly timed traffic signals; and snow, ice, and fog.[2]

Another dimension of sound and efficient transportation systems that could be defined in national goals is the recognition of full life-cycle costs and benefits of various transportation programs, and building that concept into system-wide transportation planning and funding. Cost-benefit frameworks that transportation agencies currently use to evaluate various transportation projects could be more comprehensive in considering a wider array of social and economic costs and benefits, recognizing transportation systems' links to each other and to other social and financial systems. A model worthy of exploration is the Federal Transit Administration New Starts Program, where projects compete nationally, and are all scored not only for their projected transportation benefits but also for their effectiveness in assuring provisions are made to cover the long term operational costs of the system.

Defining the Federal Role Relative to Other Stakeholders

A central challenge of developing and refining national transportation policies and programs, particularly relative to freight transportation, is the intersection of public and private interests. A specific role issue surrounding development and refinement of a national freight transportation policy is the Federal vs. the State and local role in selecting and prioritizing freight projects. The structure of the core highway and transit programs since passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) is to delegate decisionmaking and project prioritization to States and metropolitan planning organizations (MPOs). Because control of transportation investment decisions has been delegated to State and local governments, freight projects funded through programs such as the Congestion Mitigation and Air Quality Program (CMAQ), the National Highway System (NHS), and the Surface Transportation Program (STP) have to be identified as priorities within the State and MPO planning processes. In contrast, Federal discretionary grant programs such as the National Corridor Planning and Development and Coordinated Border Infrastructure programs (Borders and Corridors programs) provides funds over and above the annual State highway apportionment. Therefore, to address the role issues, congressional action could be guided by assessment of the relative strengths and weaknesses of programs that require freight projects to be identified as priorities within the State and MPO-led planning processes (CMAQ, NHS, and STP) relative to the experience with programs funded with resources over and above the regular formula allocations to the States (Borders and Corridors programs).

The diverse proposals put forth by various freight interests range from expanding eligibility and funding of any or all of these existing programs to numerous proposals for new freight set-aside programs. Thus, a central decision point for the Congress in defining a national freight policy is determination of the extent to which incentives can be refined sufficiently to enable local transportation planning to reflect national interests and priorities for intermodal freight needs or whether a directly federally administered program holds greater promise to efficiently meet the critical needs of this key segment of the transportation industry.

Developing Funding Tools and Other Approaches That Maximize the Return on the Federal Investment

Our recent mobility report on strategies for enhancing mobility identified the need for using a full range of tools to achieve desired mobility outcomes, providing more financing options, and developing additional revenue sources.[3] While new construction may hold some promise to ease congestion in certain bottlenecks, it is not always a viable solution due to cost, land, regulatory, or administrative constraints. Thus, balanced attention and priority needs to be given to using noncapital alternatives to meet capital investment needs. In December 1998, GAO reported that leading private sector and public organizations consider just such alternatives in

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[2]S.M. Chin, O. Franzede, D.L. Greene, H.L. Hwang, and R. Gibson, *Temporary Losses of Capacity Study and Impacts on Performance,* Report No. ORNL/TM–2002/3 (Oak Ridge, TN: Oak Ridge National Laboratory, May 2002).

[3]U.S. General Accounting Office, *Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge,* GAO–02–775, (Washington, DC: Aug. 2002).

their capital decisionmaking process.[4] These alternatives can include (1) improving the management and operation of the existing system by increasing corrective and preventative maintenance and rehabilitation and (2) managing or reducing travel demand through pricing incentives. For example, capacity can be enhanced by performing needed maintenance on existing transportation systems to improve the speed and reliability of passenger as well as freight travel. In addition, investing in Intelligent Transportation Systems—technologies that enhance the safety, efficiency, and effectiveness of the transportation network—can serve as another way of increasing capacity and mobility without making major capital investments.[5] Finally, instituting tolls or fees during peak travel times may lead people to schedule recreational trips or move freight during less congested times or by alternate routes.

Regarding financing, the current system of financing surface and maritime transportation projects limits options for addressing mobility challenges. Separate funding for each mode at the Federal, State, and local level can make it difficult to consider possible efficient and effective ways for enhancing mobility. Providing more flexibility in funding across modes could help address this limitation. Transportation experts have also expressed concern that "earmarking" or designation by the Congress of Federal funds for particular transportation projects bypasses traditional planning processes used to identify the highest priority projects, thus potentially limiting transportation agencies' options for addressing the most severe mobility challenges. Bypassing transportation planning processes can also result in logical connections or interconnections between projects being overlooked.

The public sector could expand support for alternative financing mechanisms to access new sources of capital and stimulate additional investment in surface and maritime transportation infrastructure. These mechanisms include both newly emerging and existing financing techniques such as providing credit assistance to State and local governments for capital projects and using tax policy to provide incentives to the private sector for investing in surface and maritime transportation infrastructure. However, these mechanisms currently provide only a small portion of the total funding that is needed for capital investment and are not, by themselves, a major strategy for addressing mobility challenges. Furthermore some of these mechanisms, such as Grant Anticipation Revenue Vehicles, could create difficulties for State and local agencies to address future transportation problems, because agencies would be reliant on future Federal revenues to repay the bonds.[6]

Finally, a key issue is how Federal revenues are raised and what level of funding is targeted. New or increased taxes or other fees imposed on the freight sector, while never an attractive option, could also help fund mobility improvements. For example, one way to raise revenue for funding mobility improvements would be to increase taxes on heavy trucks that move freight. According to FHWA, heavy trucks (weighing over 55,000 pounds) cause a disproportionate amount of damage to the nation's highways and have not paid a corresponding share for the cost of pavement damage they cause.

Better aligning sources of revenues or user fees with actual use and damage, including contributions to congestion and pollution, hold promise to not only provide a source of revenue, but to promote more efficient use of congested infrastructure. Congestion is in part due to inefficient pricing of the infrastructure because users—whether they are drivers on a highway or barge operators moving through a lock—do not pay the full costs they impose on the system and on other users for their use of the system. If travelers and freight carriers had to pay a higher cost for using transportation systems during peak periods to reflect the full costs they impose, they would have an incentive to avoid or reschedule some trips and to load vehicles more fully, resulting in less congestion.

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[4]U.S. General Accounting Office, *Executive Guide: Leading Practices in Capital Decision-Making,* GAO/AIMD–99–32, (Washington, DC: Dec. 1998).

[5]Intelligent transportation systems include technologies that improve traffic flow by adjusting traffic flow on highways; facilitating traffic flow at toll plazas; alerting emergency management services to the locations of crashes; increasing the efficiency of transit fare payment systems; and other actions.

[6]U.S. General Accounting Office, *Transportation Infrastructure: Alternative Financing Mechanisms for Surface Transportation*, GAO–02–1126T, (Washington, DC: Sept. 25, 2002). In addition, a broad review of the performance of Innovative Finance alternatives has recently been released by a FHWA contractor. See *Performance Review of U.S. DOT Innovative Finance Initiatives,* Cambridge Systematics, Inc., July 2002.

RESPONSES OF JAYETTA HECKER TO ADDITIONAL QUESTIONS FROM SENATOR REID AND SENATOR JEFFORDS

Question 1. Freight transportation is expected to double in the next 20 years. This increase in freight traffic will occur at the same time that congestion on our roads is already at levels many of us consider unacceptable. Clearly, capacity issues have to be at the top of our list as we begin to reauthorize our surface transportation programs. However, in addition to building new physical capacity, we will need to seek ways to squeeze more out of our existing transportation infrastructure through intelligent transportation systems, better operations, and perhaps a more efficient mix of transportation choices. Please give your thoughts on what we can do when we reauthorize Transportation Equity Act for the 21st Century (TEA–21) to get the most efficient use out of our transportation infrastructure.

Response. Our recent work on surface and maritime transportation mobility provides insight on several strategies that offer promise for enhancing the efficiency of the transportation infrastructure and addressing mobility challenges, especially growing congestion.[7] We developed these strategies based upon expert opinion drawn from two panels of surface and maritime transportation experts that we convened in April 2002. These strategies include:

Strategy 1: Encourage the development of transportation planning and funding systems that focus on the entire surface and maritime transportation system rather than on specific modes or types of travel to achieve desired mobility outcomes. Some examples of alternative planning and funding systems include the following:

- Performance-oriented funding system. The Federal Government would define certain national interests of the transportation system, set national performance standards for those systems, and distribute Federal funds to entities that address national interests and meet the performance standards.
- Federal financial reward-based system. Federal support would reward those States or localities that apply Federal money to gain efficiencies in their transportation systems, or tie transportation projects to land use and other local policies to achieve community and environmental goals, as well as mobility goals.
- System with different Federal matching criteria for different types of expenditures that might reflect Federal priorities. For example, if infrastructure preservation became a higher national priority than building new capacity, matching requirements could be changed to a 50 percent Federal share for building new physical capacity and an 80 percent Federal share for preservation.
- System in which State and local governments pay for a larger share of transportation projects, which might provide them with incentives to invest in more cost-effective projects. Reducing the Federal match for projects in all modes may give States and localities more fiscal responsibility for projects they are planning. If cost savings resulted, these entities might have more funds available to address other mobility challenges. Making Federal matching requirements equal for all modes may avoid creating incentives to pursue projects in one mode that might be less effective than projects in other modes.

Strategy 2: Use a full range of techniques to achieve desired mobility outcomes. The techniques that offer promise for achieving more efficient use of the transportation infrastructure are as follows:

- Increase infrastructure maintenance and rehabilitation. An emphasis on enhancing capacity from existing infrastructure through increased corrective and preventive maintenance and rehabilitation is an important supplement to, and sometimes a substitute for, building new infrastructure. Maintaining and rehabilitating transportation systems can improve the speed and reliability of passenger and freight travel, thereby optimizing capital investments.
- Improve management and operations. Better management and operation of existing surface and maritime transportation infrastructure is another technique for enhancing mobility because it may allow the existing transportation system to accommodate additional travel without having to add new infrastructure. For example, the Texas Transportation Institute reported that coordinating traffic signal timing with changing traffic conditions could improve flow on congested roadways. Shifting the focus of transportation planning from building capital facilities to an "operations mindset" may require a cultural shift in many transportation institutions, particularly in the public sector, so that the organizational structure, hier-

[7]See U.S. General Accounting Office, *Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge,* GAO–02–775 (Washington, DC: Aug. 30, 2002) and U.S. General Accounting Office, *Surface and Maritime Transportation: Challenges and Strategies for Enhancing Mobility,* GAO–02–1132T (Washington, DC: Sept. 30, 2002).

archy, and rewards and incentives are all focused on improving transportation management and operations.[8]

- Increase investment in technology. Increasing public sector investment in Intelligent Transportation System (ITS) technologies that are designed to enhance the safety, efficiency, and effectiveness of the transportation network, can serve as a way of increasing capacity and mobility without making major capital investments. ITS includes technologies that improve traffic flow by adjusting signals, facilitating traffic flow at toll plazas, alerting emergency management services to the locations of crashes, increasing the efficiency of transit fare payment systems, and other actions. Other technological improvements include increasing information available to users of the transportation system to help people avoid congested areas and to improve customer satisfaction with the system.
- Use demand management techniques. Another approach to reducing congestion without making major capital investments is to use demand management techniques to reduce the number of vehicles traveling at the most congested times and on the most congested routes. One type of demand management for travel on public roads is to make greater use of pricing incentives. In particular, some economists have proposed using congestion pricing that involves charging surcharges or tolls to drivers who choose to travel during peak periods when their use of the roads increases congestion. These surcharges might help reduce congestion by providing incentives for travelers to share rides, use transit, travel at less congested (generally off-peak) times and on less congested routes, or make other adjustments. The surcharges may also lead businesses to move freight during less congested times or by alternate routes. At the same time, congestion pricing generates more revenues that can be targeted to alleviating congestion in those specific corridors. In addition to pricing incentives, other demand management techniques that encourage ride-sharing through carpools and vanpools may also be useful in reducing congestion. We note, however, that demand management techniques on roads, particularly those involving pricing, often provoke strong political opposition and raise equity issues that arise from the potentially regressive nature of these charges (i.e., the surcharges constitute a larger portion of the earnings of lower income households and therefore impose a greater financial burden on them).

Strategy 3: Provide more options for financing mobility improvements and consider additional sources of revenue. There are three potential elements to this strategy, as follows:

- Increase funding flexibility. The current system of financing surface and maritime transportation projects limits options for addressing mobility challenges. For example, separate funding for each mode at the Federal, State, and local level can make it difficult to consider possible efficient and effective ways for enhancing mobility. Providing more flexibility in funding across modes could help address this limitation.
- Expand support for alternative financing mechanisms. The public sector could also expand its financial support for alternative financing mechanisms to access new sources of capital and stimulate additional investment in surface and maritime transportation infrastructure. These mechanisms include both newly emerging and existing financing techniques such as providing credit assistance to State and local governments for capital projects and using tax policy to provide incentives to the private sector for investing in surface and maritime transportation infrastructure.[9] These mechanisms currently provide a small portion of the total funding that is needed for capital investment and some of them could create future funding difficulties for State and local agencies because they involve greater borrowing from the private sector.
- Consider new revenue sources. A possible future shortage of revenues may limit efforts to address mobility challenges, according to many of the panelists that we consulted. For example, some panelists said that because of the increasing use of alternative fuels, revenues from the gas tax are expected to decrease, possibly limiting funds available to finance future transportation projects. One method of raising revenue is for counties and other regional authorities to impose sales taxes for funding transportation projects. A number of counties have already passed such taxes and more are being considered nationwide. However, several panelists expressed concerns that this method might not be the best option for addressing mobility challenges because (1) moving away from transportation user charges to sales taxes that are not directly tied to the use of transportation systems weakens the

[8]Joseph M. Sussman, "Transitions in the World of Transportation: A Systems View," *Transportation Quarterly* 56 (2002): 21–22.

[9]See U.S. General Accounting Office, *Transportation Infrastructure: Alternative Financing Mechanisms for Surface Transportation*, GAO1–02–1126T (Washington, DC: Sept. 25, 2002).

ties between transportation planning and finance and (2) counties and other taxing authorities may be able to bypass traditional State and metropolitan planning processes because sales taxes provide them with their owns funding sources for transportation.

New or increased taxes or other fees imposed on the freight sector could also help fund mobility improvements, for example, by increasing taxes on freight trucking. The Joint Committee on Taxation estimated that raising the ceiling on the tax paid by heavy vehicles to $1,900 could generate about $100 million per year.[10] Another revenue raising method would be to dedicate more of the revenues from taxes on alternative fuels, such as gasohol, to the Highway Trust Fund rather than to Treasury's general fund, as currently happens. However, this would decrease the amount of funds available for other Federal programs. Finally, pricing strategies, mentioned earlier in this statement as a technique to reduce congestion, are also possible additional sources of revenue for transportation purposes.

Question 2. We clearly have significant freight transportation needs across our Nation. How do we determine what our freight priorities should be? Do we have sufficient information to determine which freight corridors, border crossings, ports, intermodal facilities, and connectors should be our top funding priorities? Where is our freight infrastructure least efficient and where is the growth expected to occur?

Response. GAO has not performed work in this area. Therefore, we are unable to directly address your questions concerning the nation's freight priorities. We believe, however, that the Federal programs established in core transportation legislation should be evaluated to determine the extent to which these programs are enhancing freight transportation. As such, we are currently working with your staffs to undertake such work.

It would be prudent to evaluate the results of Federal programs to determine if programs are enhancing freight transportation. There appears to be substantial consensus that the reliability and effectiveness of the nation's freight transportation system is being constrained because of increasing demand and capacity limitations. Projected increases in the volume of freight being transported over the nation's transportation infrastructure and changes in the freight industry, such as just-in-time delivery and e-commerce, are placing new demands on the transportation system by requiring more freight to be shipped more frequently over the system. Furthermore, capacity and mobility limitations of the existing infrastructure-such as the need for deeper harbor channels to accommodate bigger ships, terminal capacity/expansion limitations, congestion on intermodal connectors, and aging and limited low-capacity locks on our nation's rivers-could potentially pose threats to our ability to move goods efficiently. While system stakeholders have maintained that demand and capacity limitations have not received the attention necessary to meet projected needs, these issues have not been evaluated on a system-wide basis.

Although the Intermodal Surface Transportation Efficiency Act (ISTEA) and TEA–21 allowed transportation planners to consider freight transportation requirements when developing transportation plans and making investment decisions, freight carriers and users have questioned whether the mandate set forth in core transportation legislation has been successful. Because control of transportation investment decisions has been delegated to State and local governments, freight projects funded through most of the programs have to be identified as priorities within the State and metropolitan planning organization (MPO) planning processes. States and MPOs, however, must weigh the need for freight transportation projects against priorities for other transportation projects. Furthermore, freight systems are global in scope whereas the perspective of State and local planners is limited to the area over which they have jurisdiction.

In our recent report on maritime finance,[11] we provide a framework for national infrastructure investment. The first component of this framework calls for evaluating results and incorporating lessons learned into the decisionmaking process. We are currently working with your staffs to evaluate many of these freight transportation issues.

Question 3. The Borders and Corridors programs have not worked very well. One improvement we should consider is to revise this program to encourage public-private partnerships through a greater emphasis on innovative finance and other creative incentives. How else can we improve the Borders and Corridors programs to target the highest priority freight corridors and intermodal facilities?

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[10]See U.S. General Accounting Office, *Highway Financing: Factors Affecting Highway Trust Fund Revenues*, GAO–02–667T (Washington, DC: May 9, 2002).

[11]U.S. General Accounting Office, *Marine Transportation: Federal Financing and a Framework for Infrastructure Investments*, GAO–02–1033, (Washington, DC: Sept. 9, 2002).

Response. In your question, you raised concern that the Borders and Corridors programs have not worked well and inquired about approaches (other than innovative finance and incentives) that might improve the programs. Absent an evaluation of the programs, we are not able to take a position on whether the programs have been successful in advancing freight projects. We can, however, provide information on noncapital alternatives to meet capital investment needs based on our recent work on surface and maritime transportation mobility.[12]

According to a report issued by the Federal Highway Administration (FHWA),[13] since States and MPOs must balance competing priorities for scarce transportation funding, the project prioritization process established in ISTEA and TEA–21 may serve to detract focus from freight projects within the State and MPO decision-making process. A common complaint of freight carriers and users of the system is that freight issues cannot compete with other politically popular projects, such as passenger projects. The Borders and Corridors programs, established in TEA–21, addressed this difficulty by providing funds over and above the annual State highway apportionment.

The FHWA report also notes that although the programs have been a good source of funding for freight projects, the programs have purportedly been oversubscribed and much of the program funds have been earmarked for non-freight projects. The apparent demand for funds under these programs suggests that there is a need for such programs. As previously noted, we are not able to take a position on whether the programs have been successful. We can, however, provide strategies that could be considered when developing the legislative reauthorization package.

In our recent mobility report on strategies for enhancing mobility, we identified the need for using a full range of tools to achieve desired program outcomes. While new construction may hold some promise to ease congestion in certain bottlenecks, it is not always a viable solution due to cost, land, regulatory, or administrative constraints. Therefore, noncapital alternatives to meet capital investment needs should also be considered. These alternatives can include improving the management and operation of the existing system through corrective and preventative maintenance and rehabilitation and/or managing or reducing travel demand through pricing incentives. Another alternative we proposed in our mobility report involves instituting tolls or fees during peak travel times which may lead people to schedule recreational trips or move freight during less congested times or be alternate routes.

Question 4: One way to squeeze more capacity out of existing infrastructure is through more rapid deployment of Intelligent Transportation Systems and an increased focus on the operations and management of regional transportation systems. How much potential do Intelligent Transportation System initiatives have for improving the efficiency of freight operations and what can we do to promote the development of a freight-friendly ITS infrastructure?

Response. We have not done any recent work to evaluate Intelligent Transportation Systems (ITS) initiatives or to identify strategies for promoting "freight-friendly" ITS infrastructure. As noted in our response to question 1, however, our recent work on strategies for addressing mobility provides information about Intelligent Transportation Systems (ITS). The Department of Transportation's ITS program applies proven and emerging technologies-drawn from computer hardware and software systems, telecommunications, navigation, and other systems-to surface transportation. In fiscal year 2001, nearly 50 percent of FHWA's $387.2 million research and technology budget was allocated to intelligent transportation systems.[14] A number of intelligent transportation systems offer promise for improving the efficiency of freight transportation. For example, highway-rail intersection systems are being developed to coordinate traffic signal operations and train movement and notify drivers of approaching trains using in-vehicle warning systems. Also, commercial vehicle intelligent transportation systems are being developed that will apply technologies to improve the safety and productivity of commercial vehicles and drivers, reduce commercial vehicles' operations costs, and facilitate regulatory processes for the trucking industry and government agencies.

Question 5. What can we do to promote better regional freight planning and how do we ensure that planning agencies take a comprehensive, intermodal approach to infrastructure planning and development? In particular, when it comes to freight, how do we bring the private sector into the public planning process?

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[12]U.S. General Accounting Office, *Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge*, GAO–02–775, (Washington, DC: Aug. 30, 2002).

[13]Federal Highway Administration, *Freight Financing Options for National Freight Productivity*, (Washington, DC: Apr. 2001).

[14]U.S. General Accounting Office, *Highway Research: Systematic Selection and Evaluation Processes Needed for Research Program*, GAO–02–573 (Washington, DC: May 24, 2002).

Response. GAO has not reviewed the freight planning process. We are therefore unable to proffer suggestions on how the process can be improved. At this time, we are planning to undertake work that would allow us to more fully address this question.

We can provide the following observations based on our recent work on surface and maritime transportation mobility and expert panels we convened to discuss major transportation issues:

- Planning with a regional focus. Experts participating in a conference we sponsored on June 14, 2001 to discuss major transportation issues raised concerns about integrating freight needs into transportation planning and investment decisions.[15] Conference speakers supported more planning with a regional focus-with participation by Federal, State, and local entities-to make better use of Federal transportation assistance.
- Modal limitations. Experts participating in a conference we sponsored on January 26, 1999 noted that freight stakeholders must become full partners in making transportation policy so that surface transportation investments are linked to freight needs.[16] Facilitating freight users' and suppliers' involvement in transportation policy will enhance the nation's ability to move freight seamlessly across different transportation systems. In addition, manufacturers and freight companies regard the Department of Transportation's "stovepipe" organization as a major obstacle to working with the Federal Government. They find it difficult to discuss intermodal projects or emerging issues with a single DOT agency that is responsible only for highway or maritime issues.
- Knowledge/expertise. The January 26, 1999 conference participants also noted that the public sector must better understand the needs and problems of moving freight nationally and regionally. State transportation departments and MPOs, however, may not have sufficient expertise, or in some cases, authority to effectively identify and implement mobility improvements across modes or types of travel.[17]
- Research. The January 26, 1999 participants noted that Federal policymakers should renew their commitment to funding nationally important research. While TEA–21 substantially increased States' research funding, it considerably reduced funds for Federal research. State research programs focus on short-term practical problems whereas Federal research focuses on long-term and high-risk research, intermodal problems, and transportation policies.
- Best practices. In our recently issued mobility report, experts offered the Alameda Corridor as an example of successful cooperation and coordination of freight needs. The Alameda Corridor is designed to improve cargo movement from California's ports of Los Angeles and Long Beach to the rest of the country. Its planning, financing, and building required cooperation among private railroads, the local port authorities, the cities of Los Angeles and Long Beach, community groups along the corridor, the State of California, and the Federal Government.

Question 6 (from Senator Jeffords). I have a hypothesis that if more was done to provide strategic investment in rail infrastructure, we could reduce congestion on our highways and improve the quality air we breathe. For instance, in Chicago, it is my understanding that a majority of the truck traffic in the metro area is a result of cargo being off loaded from one rail line and being shipped to another part of town to be loaded on another train to continue its journey. If funding were made available for improving rail-to-rail connections in the Chicago area, what kind of effect would consolidating rail yards and rail lines in the Chicago area have on truck traffic on the highway system?

Response. GAO has not conducted work on rail-to-rail connections in the Chicago area and therefore, we are unable to comment on the effect consolidating rail yards and lines in the Chicago area would have on truck traffic.

STATEMENT OF KATIE DUSENBERRY, CHAIRMAN, ARIZONA DEPARTMENT OF TRANSPORTATION BOARD

Good morning Mr. Chairman and members of the committee. Thank you for the opportunity to present to you today the views of the Arizona Department of Trans-

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[15]U.S. General Accounting Office, *Physical Infrastructure: Crosscutting Issues Planning Conference Report*, GAO–02–139, (Washington, DC: Oct. 1, 2001).

[16]U.S. General Accounting Office, *Surface Transportation: Moving into the 21st Century*, GAO/RCED–99–176, (Washington, DC: May 1, 1999).

[17]U.S. General Accounting Office, *Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge*, GAO–02–775 (Washington, DC: Aug. 30, 2002).

portation Board regarding the Hoover Dam Bypass Project and the impact on commercial trucking.

For the record, my name is Katie Dusenberry, and I am the chairman of the Arizona Department of Transportation Board. The Board is responsible for a variety of transportation activities prescribed by Arizona statute.

Introduction

Over the past 10 years, there has been a significant growth in freight due to improvements in manufacturing processes and new technologies. This growth, while important for economic vitality, stresses our trade gateways and corridors. U.S. DOT has estimated that freight traffic will double over the next 20 years making the condition of these trade corridors even more critical. Our economic growth and ability to maintain a competitive edge in international markets depends on the condition and capacity of these trade corridors to accommodate the ever increasing freight traffic.

History

U.S. Highway 93 is part of the major transportation network in the western United States and is the primary, direct north-south connecting highway linking two major metropolitan cities, Phoenix, Arizona and Las Vegas, Nevada, in two of the fastest growing States in the United States. U.S. 93 is one of the highway segments that makes up the route from Mexico City, Mexico to Edmonton, Canada known as the CANAMEX Corridor. This corridor was formally designated as a high-priority trade corridor by the National Highway System Designation Act of 1995. The Corridor runs from Mexico City to I–19 in Nogales to Tucson, I–10 from Tucson to Phoenix, US 93 in the vicinity of Phoenix to the Nevada Border, US 93 from Arizona to Las Vegas and I–15 from Las Vegas through Montana to Edmonton, Canada.

The CANAMEX Corridor represents an opportunity for economic development that facilitates trade and encourages economic growth throughout the region. The interest in developing this Corridor is to facilitate transportation distribution, commerce and tourism. A preliminary study of the potential positive economic impact if the CANAMEX Corridor is fully developed suggests over a 30 year period:

- Economic development (value added) of $1.2 billion;
- Economic efficiencies of $509 million;
- Approximately 1,900 new permanent jobs.

These figures reflect completion of a number of projects within the Corridor including the Hoover Dam Bypass project.

Prior to the terrorist attacks on 9/11/01, the direct route for all traffic, including commercial trucks, to reach either Arizona or Nevada was a road across the top of Hoover Dam consisting of two lanes of traffic, one in each direction. The approach from Arizona to the Hoover Dam consists of approximately 1.2 miles of roadway and from Nevada, 2.2 miles of roadway. On the approach to Hoover Dam from both Arizona and Nevada, steep grades, hairpin turns, and inadequate sight distance are encountered by freight and passenger traffic reducing speeds to between 8 to 18 MPH. Commercial trucks are often too large to pass each other on the extreme hairpin curves and must come to a complete stop. On both the Arizona and Nevada approaches, the grades are greater than 6 percent. The existing 6.3 miles north and south of the Dam requires an average of 16.5 minutes to cross due to the nature of the road and the traffic on the Dam itself. To remedy the inadequacy of this route, the Federal Highway Administration (FHWA) in cooperation with the States of Arizona and Nevada and other affected Federal and State agencies has taken a leadership role in developing plans to construct a new bridge to cross the Colorado River in the vicinity of Hoover Dam. This bridge is entirely on Federal property and therefore should be largely a Federal financial responsibility.

Since 9/11/01, the road across the Hoover Dam has been closed to commercial trucking and over 2,100 trucks per day are now detoured to other highways. Commercial truck traffic must now route through Laughlin, an additional 23 miles or I–40 an additional 70 miles, adding dozens of travel miles to each trip. This creates a negative financial impact of $30 million per year, based on only the additional mileage, which is ultimately passed on to the consumer. The detours currently being used by commercial trucks are not designed to handle this traffic volume and weight. The Hoover Dam crossing is the only major highway in the Nation with ongoing restrictions as a result of the terrorist attack.

Purpose of Project

The purpose of the project, a joint effort among Arizona, Nevada and the Federal Government is to significantly reduce traffic on the road atop the Hoover Dam and will accomplish the following objectives:

- Remove a major bottleneck to interstate and international commerce and travel by reducing traffic congestion and accidents in this segment of the major commercial route.
- Separate tourist and commercial traffic to reduce congestion.
- Improve efficiency and reduce cost to the shippers of freight by reducing travel time.
- Replace an inadequate federally owned highway river crossing, first constructed over 60 years ago, with a new bridge that meets current roadway design criteria and improves both vehicle and truck capacity on U.S. 93 in the area of the Dam.
- Minimize the potential for pedestrian—vehicle accidents on the Dam crest and on the Nevada and Arizona approaches.
- Protect the Hoover Dam, visitors, employees, equipment, and power generation capabilities and Colorado River waters while enhancing the visitors' experience at Hoover Dam.

The FHWA recommended the Sugarloaf alignment as the best location to construct the bridge. This location is approximately 1,500 feet downstream from Hoover Dam. This site requires constructing 2.2 miles of highway approach in Nevada and approximately 1.2 miles of highway approach in Arizona and a 2,000-foot long bridge.

Travel Times

The current travel time across the top of the Hoover Dam averages 16.5 minutes up to 60 minutes during peak hours. The proposed bypass bridge and approaches would reduce the travel time to only 6 minutes.

When accidents occur on and near the Dam, significant traffic backups of over ten to 15 miles result. Since there are no alternative routes to which traffic can shift, this results in delays ranging from two to 5 hours for motorists. There have been incidents of up to 18 hours delay.

Accident Statistics

The number of tourists traveling to the Lake Mead Recreational Area and Hoover Dam was 1.03 million in 1997 and was projected to increase to 1.6 million in 1999. Since 1964 more than 500 accidents have occurred in the 3.4 mile stretch of highway on or near the Hoover Dam. Commercial trucks were involved in 96 of these accidents. Forty-three accidents between 1985 and 1991 involved one or more personal injuries, including two fatalities. In each accident, the cause was partially attributable to sharp curves, narrow highway widths, insufficient shoulder widths, poor sight distance and slow travel speeds. Especially in regards to freight traffic, the previous configuration of putting trucks across the Hoover Dam with two-lane traffic, steep approaches, sharp curves at the entrances and heavy pedestrian traffic, the Hoover Dam was a serious accident location.

One mile of the Hoover Dam road reflects a much higher accident rate than the three-mile adjoining segments. The half-mile segments of US 93 approaching the Dam have an accident rate of 3.97 per million vehicle miles traveled. That rate is over three times the Nevada average of 1.15 per million vehicle miles traveled for rural principal arterial routes.

Traffic on the road across the Hoover Dam was 5,500 vehicles per day in 1993 and currently is 11,500 vehicles per day. 18 percent to 20 percent was truck traffic prior to 9/11/01. Future traffic is projected to be 21,000 in 2017 and 26,000 in 2027. As the average annual daily traffic across the Dam continues to increase, the number of accidents is increasing accordingly as congestion on the Dam also increases.

Security

Since Hoover Dam holds the waters of Lake Mead, the largest water reservoir in the Nation, the U.S. Department of Interior has identified the Hoover Dam Bypass Project as its No. 1 national security priority. The massive Dam provides vital flood control for more than a quarter million people living in the Colorado River region and generates four billion kilowatt-hours of energy for 1.3 million people in the tri-State regions of California, Arizona and Nevada.

Project Status

- Hoover Dam Bypass Project received its record of decision for project approval in April 2001. The Environmental Impact Statement has been finalized.

• This project is the No. 1 priority of the States of Arizona and Nevada. Only an additional $108 million is needed to ensure full funding for this project.
• The design is over 95 percent complete for the Arizona approach. Nevada's approach is 60 percent complete. The bridge design is 30 percent complete.

Funding

	Current
Nevada & Arizona State funds	$40,000,000
Federal Funds previously committed	$86,000,000
Additional Federal Funding needed	$108,000,000
Total Project Budget	$234,000,000

We are requesting $108 million to complete the Hoover Dam Bypass Project. Because there are no complex interchanges and only one small area of roadway on either side of the bridge to construct, we are confident that the bridge as designed will be completed within the entire project budget of $234 million dollars. The bridge's design ensures that it will accommodate anticipated traffic volumes including increased freight that will be generated due to the north-south trade from Mexico to Canada well into the future.

GARVEE Bonds/Innovative Financing

Because of the great need to construct the Hoover Dam Bypass, Grant Anticipation Revenue Vehicles (GARVEEs) are being considered as a mechanism to provide immediate funds to complete the construction of the Hoover Dam Bypass through the issuing of bonds. Even though bond financing incurs interest and other debt-related costs, delaying the project would create greater costs such as inflation, lost driver time, freight delays, and wasted fuel. Both Arizona and Nevada are interested in pursuing this as an option to allow construction to begin immediately, while allowing Federal funding to occur over time. This allows for completion of the Hoover Dam Bypass by mid 2007 and thereby, providing a safe and efficient route for commercial trucking.

Conclusion

Mr. Chairman and members of the committee, we urge you to consider providing an additional $108 million dollars to fully fund the Hoover Dam Bypass. The bypass project is vital to the efficient movement of commercial freight and will substantially reduce the additional miles and travel times that commercial trucks are currently experiencing. This project is also a critical part of the development of the CANAMEX Corridor which runs from Mexico to Canada and will provide economic growth and safer transportation by increasing commercial freight, commerce and tourism.

STATEMENT OF MICHAEL W. WICKHAM, CHAIRMAN AND CEO, ROADWAY CORPORATION, FOR THE AMERICAN TRUCKING ASSOCIATIONS, INC.

Chairmen Reid and Breaux, Senators Inhofe and Smith, members of the subcommittees, thank you for the opportunity to express the trucking industry's perspectives regarding freight transportation. I am Michael Wickham, Chairman of the Board and Chief Executive Officer of Roadway Corporation. Roadway is headquartered in Akron, OH. The company was founded in 1930, and today we are one of the Nation's leading providers of less-than-truckload (LTL) freight transportation services. Roadway provides seamless service between all 50 States, Canada, Mexico, and Puerto Rico, with international freight services for 140 countries. We have subsidiaries in Canada and Mexico, and we operate 379 terminals throughout North America. Roadway employs more than 26,000 people. Roadway's Mexican and Canadian operations connect our neighbors with 96 percent of the U.S. population through seamless cross-border operations and services. In addition, Roadway ships over three billion pounds of truckload freight annually. Through Roadway Air, our company provides time-definite air freight delivery services.

I am appearing before the subcommittees today on behalf of the American Trucking Associations, Inc. (ATA) and Roadway Corporation. ATA is the national trade association of the trucking industry. We are a federation of affiliated State trucking associations, conferences, and other organizations that together include more than 37,000 motor-carrier members, representing every type and class of motor carrier in the country. We represent an industry that employs nearly ten million people, providing one out of every 14 civilian jobs. While we are a highly diverse industry,

we all agree that a good highway system is crucial to our Nation's economy, to the safety of all drivers, and to our bottom line. This includes the more than 3 million truck drivers who travel over 400 billion miles per year to deliver to Americans 86 percent of their transported food, clothing, finished products, raw materials, and other items.[1]

American industrial and commercial enterprises are able to compete more effectively in the global marketplace due to the benefits of safe and efficient trucking. Truck transportation is the most flexible mode for freight shipment, providing door-to-door service to every city, manufacturing plant, warehouse, retail store and home in the country. For many people and businesses located in towns and cities across the United States, trucking services are the only available means to ship goods. Trucks are the only providers of goods to 75 percent of American communities. Five percent of the Nation's GDP is created by truck transportation. Actions that affect the trucking industry's ability to move its annual 8.9 billion tons of freight have significant consequences for the ability of every American to do their job well and to enjoy a high quality of life.

BUILDING ON SUCCESS: MAKING OUR NATION'S HIGHWAYS SAFER FOR ALL MOTORISTS

Having spent my entire career in the trucking industry, I am most proud of the fact that we continue to improve our safety record, year after year, mile after mile. Safety must be paramount in our consideration of future reauthorization programs and policies. ATA takes safety concerns very seriously. Our industry has strongly promoted many safety improvements that have made trucking safer today than it has ever been in the past. Between 1985 and 2000, the fatal accident rate involving trucks has fallen 44 percent. Furthermore, research by the AAA Foundation, and a study done by the University of Michigan at the request of the USDOT, found that in about three-quarters of accidents involving a passenger vehicle and a truck, the actions of the truck driver were not a factor leading to the accident.[2]In fact, today's truck driver is the safest driver—passenger or commercial—in our Nation's recorded history.

Even though the trucking industry is taking proactive steps to improve our safety record, ATA is very concerned about America's overall highway safety experience. Each year, more than 40,000 people lose their lives as a result of a traffic accident. This is an unacceptable loss of life and an economic tragedy. As Secretary of Transportation Norman Mineta announced earlier this year, the economic impact of motor vehicle crashes is over $230 billion per year. This represents an annual economic loss of $820 for every American. Investing additional resources in projects and programs that improve highway safety produces more than human benefits; it has positive economic consequences as well. However, we should also spend our money wisely, directing precious resources toward those activities that will produce the greatest safety benefit, based on sound scientific evaluation of the causes of crashes and appropriate remedies.

It is clear that truck safety has improved over the last 20 years. An interesting question, however, is "What has caused the improvement?" This is a tough question to answer for both industry and government officials. It's fairly clear that some programs that have been implemented in the last 10 to 20 years have contributed to the overall positive picture. The industry-supported Federal-State truck safety inspection grant program (known as the Motor Carrier Safety Assistance Program or MCSAP) has had an impact by improving trucks' condition; the Commercial Driver's License (CDL) program has contributed by raising the bar for driver entry into the industry; and the implementation of voluntary drug testing by the industry and a mandatory Federal drug and alcohol testing program have also contributed in a positive way. It is very likely that the increase in seat belt use by truck drivers and other motorists have also had a positive impact. Many other industry and government initiatives are likely to have had some benefit as well. The point here, however, is that we still need to have a better understanding of what has worked and why. Additionally, we still do not understand thoroughly how and why truck crashes occur.

Section 224 of the Motor Carrier Safety Improvement Act of 1999 (MCSIA, P.L. 106–159) required the Secretary of Transportation to conduct a comprehensive study to determine the causes of, and contributing factors to, crashes involving large trucks and buses. The primary purpose of this study requirement was to have a

[1]87.3 percent by revenue. American Trucking Associations, *U.S. Freight Transportation Forecast to 2013*, 2002.

[2]"Driver-Related Factors in Crashes Between Large Trucks and Passenger Vehicles," Federal Highway Administration, April 1999; "Identifying Unsafe Driver Actions that Lead to Fatal Car-Truck Crashes," AAA Foundation, April 2002.

comprehensive analysis and report that would yield information to help FMCSA and the States identify activities and safety measures that would likely lead to significant reductions in the frequency, severity and rate per mile traveled of crashes involving large trucks and buses. ATA fully supported this study concept during the truck safety debate in 1999 that resulted in the passage of MCSIA.

FMCSA initiated this study in 2000 with the assistance of the National Highway Traffic Safety Administration (NHTSA), and the State agencies involved in commercial vehicle safety efforts. The study will not be complete until the end of 2003 at the earliest. However, a FMCSA official recently confirmed that preliminary information suggests that driver actions—both passenger and commercial—appear to be a more significant factor in accident causation than previously thought, and that enforcement resources may have to be redirected to reflect these findings.[3]

Other studies and data confirm these preliminary findings.[4] Congress and the U.S. DOT have traditionally taken different approaches to improving traffic safety versus truck safety. NHTSA's traffic safety programs have included education and outreach, traffic enforcement programs aimed at changing driver behavior, and crash data analysis. FMCSA's truck safety programs, on the other hand, have focused on increasing the number of regulatory requirements on drivers and carriers, enforced through on-road safety inspections and facility compliance audits. Since so much of truck safety is rooted in overall traffic safety, Congress should seriously consider much more of a traffic safety approach to improving truck safety.

Earlier this year, ATA's President and CEO, William Canary, challenged our State and Federal partners to seriously address one of the most pervasive and dangerous violations of the law that drivers encounter every day—speeding. FMCSA reports that speeding (exceeding the speed limit or driving too fast for conditions) was a contributing factor in 22 percent of fatal crashes involving a truck in 2000. Since the majority of fatal truck crashes are multi-vehicle crashes involving one or more passenger vehicles, this 22 percent figure includes speeding on the part of the truck driver, or speeding on the part of the other driver, or speeding by both parties. Also, according to a recent FMCSA study, driving at an unsafe speed was the second most frequent unsafe driving act committed by passenger vehicles in the vicinity of large trucks. Following too closely was the most frequently cited unsafe driving act by motorists.

Additionally, NHTSA reports that speeding was a contributing factor in 29 percent of all fatal crashes in 2000. This means that more than 12,000 people lost their lives in 2000 in part due to speed-related crashes. This is simply unacceptable. The time has come to combat excessive speeding. There are four words that every motorist and every commercial vehicle driver needs to remember when they buckle up and take the wheel of their vehicle: *Safe Speeds Save Lives!*

The Section 402 Highway Safety Grant Program administered by the NHTSA supports many outreach and enforcement programs, including the priority programs to encourage the proper use of occupant protection devices and reduce drug and alcohol impaired driving. While these programs clearly deserve a high priority for NHTSA, ATA is concerned that strong, visible speed enforcement may not be getting the focus, attention and funding it deserves by NHTSA.

Additionally, the Motor Carrier Safety Assistance Program (MCSAP) administered by FMCSA focuses on priority truck and bus safety initiatives that, for the most part, do not address speeding truck and bus drivers, or other motorists. The MCSAP program, a generally successful truck and bus safety inspection program, is simply not putting enough emphasis on traffic enforcement activities. Strong speed enforcement aimed at commercial vehicle drivers, as well as other motorists with which commercial drivers share the road, needs to take on a much greater role in the MCSAP program. In fact, there is currently an artificial constraint that keeps the amount of speed enforcement activity in the MCSAP program small. FMCSA's regulations require that all speed enforcement stops (as well as all other types of traffic enforcement stops) of trucks include an appropriate North American Standard Inspection of the truck or the driver, or both, for the activity to be eligible for MCSAP funding. This inspection requirement, found at 49 C.F.R. 350.111, is unnecessary and unwarranted. Additionally, since speeding and other unsafe driving behaviors of non-commercial drivers play an even greater role in truck-involved crashes than do the actions of the commercial driver, the MCSAP program must include traffic enforcement efforts aimed at unsafe motorist behavior.

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[3]"FMCSA Crash Data Analyst Says Study May Alter Inspections," *Transport Topics*, Aug. 26, 2002, p. 2.

[4]"Driver-Related Factors in Crashes Between Large Trucks and Passenger Vehicles," Federal Highway Administration, April 1999; "Identifying Unsafe Driver Actions that Lead to Fatal Car-Truck Crashes," AAA Foundation, April 2002.

ATA recommends that Congress authorize additional funding for the Section 402 Highway Safety Grant Program administered by NHTSA, and the MCSAP truck safety grant program administered by FMCSA, specifically for increased traffic and speed enforcement efforts in the upcoming highway reauthorization. ATA further recommends that Congress make it clear in legislative language that MCSAP funding may be used for State speed enforcement efforts aimed at both commercial and non-commercial drivers, and that speed enforcement activities aimed at commercial drivers do not have to be linked to a North American Standard Inspection. Additional funding, additional emphasis, and greater Federal leadership is needed on this issue to reduce the speed of all drivers on our highways and to save lives.

ATA is also a firm believer in the life-saving benefits of seat belts. ATA recommends that Congress continue to support and fully fund the occupant protection programs of NHTSA, including the ongoing 'Click It or Ticket' grant program.

IMPROVING THE SAFETY AND EFFICIENCY OF INTERMODAL EQUIPMENT

Mr. Chairman, while we try to cooperate with our intermodal partners in many areas, and will do so during this reauthorization cycle, there is one area on which we disagree, and I am afraid that the footdragging by Federal agencies and by many in the rail and ocean carrier industries to work with us to resolve the "roadability" issue is having serious safety and economic impacts. Since the advent of containerized shipping in the 1970's, a serious safety loophole has crept into the Federal Motor Carrier Safety Regulations (F.M.C.S.R.s).

As containerized intermodal freight has evolved over the decades, the Federal safety regulations have not kept pace. As a result, 750,000 intermodal chassis are operating in a safety loophole. These frame-like trailers are used exclusively to haul intermodal containers, and are interchanged between steamship lines, railroads, and motor carriers. The chassis are also classified as commercial motor vehicles by the USDOT. However, they evade USDOT safety oversight.

The F.M.C.S.R.s fundamentally assume that motor carriers have daily management control over all commercial motor vehicles they take onto public roadways. Based on that assumption, the regulations read, "Every motor carrier shall systematically inspect, repair, and maintain . . . all motor vehicles subject to its control."[5]

USDOT's interpretation of *systematic maintenance* is,". . . *a regular or scheduled program to keep vehicles in a safe operating condition*."[6]It explains that the agency does not specify maintenance intervals, leaving that decision to motor carriers, based on fleet and vehicle considerations. So how does USDOT know if a motor carrier is failing to "keep vehicles in a safe operating condition?" When roadside safety inspections, typically conducted by State police, drive a motor carrier's SAFESTAT (violation) numbers above a certain threshold, the agency and State police send an envoy to the motor carrier's place of business to audit the maintenance and employee training records, inspect the carrier's equipment, etc.

While railroads and foreign-owned steamship lines (collectively called "providers") own or lease the intermodal chassis,[7] and control its daily disposition, they claim not to be motor carriers, thus not technically responsible for the condition of their equipment under Federal safety regulations. However, they do affix the annual inspection sticker on their equipment, which constitutes an act of certification that the equipment was inspected in detail at least once a year. Providers conduct the annual inspection pursuant to the F.M.C.S.R.s, but many do not conduct systematic maintenance on the same equipment, which is likewise mandated by the F.M.C.S.R.s. In fact, providers are generally unaware of the existence of the Federal systematic maintenance requirement. This explains the poor condition of intermodal chassis and points to USDOT's failure to close their own regulatory loophole to hold the controlling party accountable for the safety compliance of their own chassis.

SAFESTAT is the USDOT's computer analysis of their data base containing motor-carriers' accumulated violations. They use it to judge how safely a motor carrier maintains the commercial vehicles under its control. By contrast, it is impossible to assess providers' adequacy in performing systematic maintenance because USDOT resists including them in the SAFESTAT program. Ironically, USDOT says the reason it has not moved forward to close the intermodal equipment safety loophole is because they do not have the data to indicate a problem with the providers' chassis!

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[5]49 CFR Part 396.3. Inspection, repair, and maintenance

[6]*Regulatory Guidance to the Federal Motor Carrier Safety Regulations,* at 49 CFR 396.3; emphasis added.

[7]While this is the general practice, some ports have different arrangements.

A new study[8] conducted jointly by the Federal Motor Carrier Safety Administration and the University of Maryland at College Park provides support to ATA's position on the Roadability issue. This study looked at 11 sectors of the trucking industry, one of which was intermodal operations. Researchers used nine safety performance measurements and other data managed by the USDOT to analyze the safety performance of each sector. One significant finding is that intermodal trucking operations were found to be average or better-than-average in six of the nine measurements. However, in the two measurements relating to vehicle condition, and the one relating to accidents, the intermodal sector ranked poorly. Specifically, among the 11 sectors, intermodal operations ranked last for vehicle safety condition, second-to-last (tenth) for accumulating vehicle out-of-service violations, and ninth for reportable accidents. Thus, the latest research findings from FMCSA confirm what intermodal trucking executives have been saying for years (that the equipment controlled by steamship lines and railroads, and subsequently provided to motor carriers for brief periods of time, are not maintained by those controlling parties as required by the Federal Motor Carrier Safety Regulations.

In summarizing the roadability issue, providers claim they are not motor carriers, thus they are not responsible for maintenance of their chassis. Providers say the motor carriers are responsible. The motor carriers point out that they do not control the providers' equipment; they neither own it, lease it, control its maintenance treatment, conduct annual or periodic inspections on it, nor do they control its daily disposition. The regulations reasonably require truckers to maintain only the equipment they actually control. In the meantime, USDOT has acknowledged that it has jurisdiction over the issue, but has failed to place safety responsibility. That places the 750,000 chassis squarely in a safety loophole, which the USDOT has yet to close.

Enforcement needs to be redirected from the motor carriers, who are powerless to include interchanged intermodal equipment in their periodic maintenance programs, and placed on the parties who decide every day whether to repair a chassis, or hand it off to a motor carrier without the benefit of this USDOT-mandated maintenance benefit. Therefore, ATA is recommending that Congress pass legislation which forces the USDOT to equitably enforce laws designed to ensure the safe condition of all regulated equipment, including intermodal chassis.

THE NATIONAL HIGHWAY SYSTEM: THE BACKBONE OF AMERICA'S FREIGHT TRANSPORTATION SYSTEM

Trucks move 67 percent of freight tonnage, 86 percent measured by value.[9] This is freight that moves by truck alone; it does not touch another mode. Truck freight is a vital component of America's economy. Trucks are the only providers of goods to 75 percent of American communities. For every $20 spent on freight transportation, $17 will accrue to trucks.[10] This pre-eminence is likely to grow. According to the Federal Highway Administration (FHWA) the demand for freight transportation services will increase by 87 percent by 2020.[11] The trucking industry will be asked to transport nearly 2.7 billion more tons of freight in 2014 than we carry today.[12] This increase of 2.7 billion tons alone is more than 500 million tons greater than the total volume of freight that the railroads will carry in 2014 (See Appendix A). To accommodate this higher demand level, the number of trucks will increase over the next 12 years by 31 percent, adding 1.9 million more trucks to the road, over 157,000 trucks each year. The largest increase, 58 percent, will be among smaller trucks, which tend to operate mostly in urban areas and are not subject to competition from other modes. Overall, truck vehicle miles traveled (VMT) will increase by 36 percent, or 60 billion miles, by 2013.[13] Thus, more trucks will be traveling more miles on a highway system that will see very little capacity expansion over the next dozen years.

This is not a sustainable trend, and it should not be allowed to continue. While the growth in truck demand is inevitable, limiting highway capacity growth is not.

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[8]Motor-Carrier Industry Profile Study Evaluating Safety Performance by Motor Carrier Industry Segment: by Thomas P. Keane of the Federal Motor Carrier Safety Administration (USDOT); Dr. Thomas Corsi of the University of Maryland, College Park, and Kristine N. Braaten of Econometrics, inc, April 1, 2002. This study was published in the *Proceedings of the International Truck and Bus Safety Research and Policy Symposium* on April 3–5, 2002 in Knoxville, TN, an event hosted by the Center for Transportation Research at the University of Tennessee.

[9]American Trucking Associations, *U.S. Freight Transportation Forecast to 2013*, 2001.

[10]Ibid.

[11]Federal Highway Administration, *National Freight Trends/Issues, System Flows, and Policy Implications,* 2000.

[12]Based on unpublished data from ATA's Economics and Statistics Group.

[13]American Trucking Associations, *U.S. Freight Transportation Forecast to 2013*, 2001.

Congress has the ability to ensure that the growth in highway capacity matches the growth in vehicle travel.

The intermodal movement of freight can play an important role and should be encouraged. Roadway relies heavily on the railroads for a large portion of our long-distance movements. Last year, one-quarter of my company's delivery miles were on a train. This saved Roadway nearly 24,000,000 gallons in fuel use. However, we believe that we have reached the limit of our railroad utilization potential.

The ability of rail intermodal transportation to slow the growth of truck traffic is limited by market forces beyond the control of Congress, the States and, to some extent, the modes themselves. Today, just 1.2 percent of freight moves in a rail intermodal shipment.[14] Despite anticipated growth in this sector that will exceed trucking growth, by 2014 rail intermodal shipments will capture just 1.5 percent of the freight market, while trucking's market share, as measured by tonnage, will expand to 69 percent.[15]

It is not constructive to assume that the business logistics trends of the past half-century which have made trucks the dominant mover of freight will somehow reverse themselves, and that our Nation's reliance on trucks will subside. Congress should focus its attention and resources where they are needed most and will pay the greatest dividends for our country—on improving the efficiency of the highway system and the productivity of the trucking industry. Although the past two reauthorization acts developed and promoted by these subcommittees have been instrumental in revitalizing Federal surface transportation policy, there is still a distance to go, with some longstanding obstacles and some new challenges to face.

One of these challenges is basic highway infrastructure. At a time when many stakeholders, including those appearing at this hearing, have legitimate concerns about the future of intermodal connectivity, alternative transportation, and transportation enhancements, there often is a loss of focus on the original purpose of Federal involvement in surface transportation: namely, to help the States build and maintain a national system of highways. As the subcommittees consider their reauthorization proposals, it is imperative to review whether this goal is still being met. According to the Department of Transportation's 1999 Conditions and Performance report, even with the high levels of funding authorized by the Transportation Equity Act for the 21st Century (TEA–21), there is still a shortfall in Federal funding of over $25 billion each year just to maintain current conditions on our highways and bridges. While it is inconceivable under current economic conditions to consider completely eliminating the shortfall during this upcoming reauthorization cycle, serious thought must be given to reducing the shortfall.

As America's economy becomes even more dependent on trucks, so too will the economy be affected by the impacts of congestion on the trucking industry's ability to meet shippers' needs. While manufacturers and distributors demand ever more speed and reliability from the trucking industry, our ability to meet those demands are being challenged by growing highway congestion.

For businesses whose livelihoods depend on road transportation, these costs are particularly heavy. No industry is as negatively affected by congestion as trucking. It used to be possible for truckers to schedule their deliveries through congested urban areas at off-peak times. However, increasingly, such times do not exist. Current congestion levels are now compelling revisions to the language of congestion itself. It is no longer proper to discuss the "rush hour," when it lasts for 3 hours, twice a day. On the Interstate System, for example, more than half of peak-hour travel on urban Interstates occurs under congested conditions.[16] Under such circumstances, it is becoming almost nonsensical to employ terms such as "peak" and "non-peak." In years past, it was possible to schedule deliveries outside of the rush hour window; increasingly, that is no longer possible.

Our highway capacity was perhaps adequate for our Nation's economic and social functioning a generation ago, but today it is increasingly stressed. Over the past 30 years, the nation's population has risen by 32 percent, truck registrations have risen by 45 percent, truck vehicle-miles traveled (VMT) has risen by 145 percent, but road mileage has only increased by 6 percent.[17] This has led to unprecedented levels of congestion across the country.

Through new innovations such as just-in-time delivery, the trucking industry has played a vital role in improving U.S. productivity. This would have been difficult, if not impossible, to achieve without an efficient network of good roads that connect

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[14]Ibid.

[15]Based on unpublished data from ATA's Economics and Statistics Group.

[16]Federal Highway Administration and Federal Transit Administration, *1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, May 2, 2000.

[17]Federal Highway Administration, *Highway Statistics,* 1999.

markets, centers of industry, and multi-modal transportation facilities. These productivity improvements let U.S. industry sell more goods and services at lower prices, both at home and abroad. As a result, more people can be employed at higher wages. Since salary increases are firmly tied to the increase in the amount of goods and services each worker produces, living standards are improved. In addition, these real wage increases result in elevated tax revenues. However, if congestion cannot be effectively managed, it will be difficult for industries to meet these foreign and domestic challenges. The resulting productivity losses will take a severe human toll as stiff competition from abroad wipes out existing jobs and reduces the ability of our economy to create new jobs for a rapidly expanding population.

The National Highway System (NHS), which carries 75 percent of the Nation's truck traffic, is the backbone of the trucking industry. Yet it is also critical to the efficient movement of rail, waterborne and air freight. No matter how efficient these other modes become on an individual basis, their speed and reliability will ultimately be limited by the efficiency of the trucks that they rely on for part of their intermodal movements.

Unfortunately, the performance of the NHS has deteriorated to the point where nearly half of urban Interstate miles are congested during peak periods. Forty percent of travel on urban NHS routes takes place under such congested conditions that even a minor incident can cause severe traffic flow disruptions and extensive queuing.[18] Average annual investment requirements just to maintain conditions on NHS highways and bridges were $26.8 billion in 1997.[19] The actual capital outlay was $22.5 billion, a $4.3 billion, or 19.1 percent shortfall. This was despite the fact that the 160,000-mile NHS carries 40 percent of all traffic and 75 percent of truck traffic.[20] Continued funding shortfalls will only harm road and bridge conditions, further exacerbating congestion levels. We urge Congress to reevaluate the current distribution of Federal highway funds during the next reauthorization period and consider whether a greater emphasis should be placed on the NHS.

We are also extremely concerned about the condition of the Nation's bridges. According to a recent study by The Road Information Program (TRIP), approximately one in four of the country's major, heavily traveled bridges is deficient and in need of repair or replacement.[21] However, some States have conditions that are much worse than the national average indicates. Thirty-four percent of bridges that are 20 feet or longer in Louisiana are either structurally deficient or functionally obsolete. Oklahoma has the highest percentage of deficient bridges in the country. Approximately one-third of the State's bridges 20 feet or longer are in need of immediate repair or replacement because of deterioration or because they no longer meet current design standards. However, the worst news is reserved for Oregon, where more than 350 bridges will have to be replaced in the near future and several major truck routes, including sections of the State's Interstate Highway System, have been load-posted. Additional Federal funds must be dedicated to the Bridge Program to prevent this type of situation from permeating throughout the country.

Perhaps nowhere are the effects of many years of neglect and under-funding of the NHS more pronounced than with the situation facing NHS intermodal connectors. In its report to Congress,[22] the U.S. Department of Transportation found that connectors to ports were found to have twice the percentage of mileage with pavement deficiencies when compared to non-Interstate NHS routes. Furthermore, DOT found significant physical and geometric deficiencies that made it difficult for trucks to move safely and efficiently between the NHS and intermodal terminals. DOT identified 616 intermodal freight terminals in the United States. This includes 253 truck-and-port terminals, 203 truck-and-rail terminals, and 99 truck-and-air terminals.

It is useful to understand just how important these intermodal intersections are to the U.S. economy. Any product that is produced in the United States must access the global marketplace in the most cost-efficient manner possible. The producer or manufacturer is the party that decides how to receive or ship freight. They make their decisions based on many factors, including just-in-time delivery factors, reliability of delivery times, security, freight value-to-weight ratios, and cost. Shippers also avail themselves of the inherent virtues of each mode of freight carriage. The

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[18]Federal Highway Administration and Federal Transit Administration, *1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, May 2, 2000.

[19]Ibid.

[20]Ibid.

[21]"Showing Their Age: The Nation's Bridges at 40." The Road Information Program, May 2002.

[22]*NHS Intermodal Freight Connectors, A Report to Congress;* Prepared by the U.S. Department of Transportation, July 2000.

only way they can take advantage of these efficiencies and values is if the interfacing mechanisms that join the different freight modes is adequate for the transfer. Many times, this is not the case.

Improving intermodal connections also benefits communities, surrounding ports, railheads, and other Intermodal transfer facilities. In many situations, improving connectors will separate commercial vehicles from surface traffic that passes through congested neighborhoods. Often, these neighborhoods are clean-air non-attainment areas, and improved intermodal connectors would likely produce more efficient trucking operations, which will in turn result in fewer emissions.

ATA encourages Congress to set aside funding for improvement of intermodal connectors and to make innovative financing options more available for addressing connector deficiencies. This should include lowering the threshold for TIFIA funding eligibility. We further urge Congress to make changes to the State and metropolitan planning processes to ensure that projects which benefit freight on a regional and national scale receive greater consideration. Project selection should be determined by the U.S. DOT in cooperation with the freight community, State DOTs and other stakeholders.

It is important to keep in mind, however, that as critical as improving intermodal connections is, if the overall highway system is allowed to deteriorate, investing in connectors will be for nought. The 2,000 miles of connector roads will only be as efficient as the 160,000 miles of NHS highways that bind intermodal terminals and other points of loading and offloading together.

Congress should also consider more creative ways of financing highway improvements and adding highway capacity. New innovative techniques would allow States to leverage existing funds. In addition, we support the spending down of the current cash balance in the Highway Trust Fund (HTF) to fiscally responsible levels; crediting the Highway Account with gasohol tax revenues that currently go into the General Fund; ending the gasohol subsidy or crediting the HTF from the General Fund for the cost of the subsidy; crediting interest on HTF balances; and eliminating fuel tax evasion.

Some have suggested that fuel taxes should be increased to pay for growing demand. For nearly 50 years, the trucking industry has supported the concept of a user-supported system. However, the relationship between those who provide financial support for the system and those who determine how the money is spent must be a two-way street. Over our objections, Congress has continuously expanded highway program eligibility to include projects that provide few or no benefits to highway users (e.g. bicycle paths, light rail). Therefore, we cannot and will not invest additional moneys in a highway program whose value to our industry is slowly diminishing. Furthermore, any discussion about trucks paying additional fees to meet their full cost responsibility must be preceded by an acknowledgment that our industry has been prohibited by the Federal Government from operating our safest, most pavement-friendly vehicles, and that such prohibition is an obstacle to the industry's ability to meet our full cost responsibility.

ATA applauds the efforts of Senators Ernest Hollings and John McCain to eliminate the TEA 21 toll pilot program. ATA is opposed to any attempts to toll existing non-toll highways. However, we would not oppose toll financing that delivered an economic benefit to the trucking industry and did not restrict our use of existing roads. For example, we believe that Congress should consider supporting the construction of truck-only highways. While we will evaluate each project on its merit, any congressional proposal should include all of the following constraints:

- The project should add capacity;
- Use of the lanes should be voluntary;
- If the highway is tolled, trucks should receive a rebate on Federal and State fuel taxes paid for using the facility;
- The facility should allow for the use of more productive trucks; and
- The facility should have a safe design.

IMPROVING FREIGHT PRODUCTIVITY

An effective approach to saving lives, relieving congestion and improving air quality is to reduce the number of trucks on American roads. Given a fixed amount of freight for America's trucks to move, the only way to reduce the number of trucks is to improve the productivity of the trucks themselves, and of their drivers. This is analogous to carpooling—it increases capacity without increasing the road lane-miles. To improve truck productivity, Federal size and weight regulations must be reformed.

Federal law currently limits States' ability to control size and weight on their own highways. The limits imposed are lower than those mandated by other nations' gov-

ernments, including our northern and southern neighbors, who are major trade partners and business competitors. This creates an economic disadvantage for American businesses and it causes additional costs and administrative problems when it comes to moving international freight, including intermodal containers.

There has been no legislative relief to these laws in 20 years, despite considerable improvements in truck safety and better driver training. Decades of experience and volumes of research indicate that more productive vehicles can be safely operated without a detrimental effect on safety or the condition of highways and bridges.[23]

At the request of Congress, the Transportation Research Board (TRB) recently issued a new report on the impacts of Federal truck size and weight regulations.[24] Among the report's conclusions was that the largely static and inflexible system of Federal regulation that currently exists". . . discourages private-and public-sector innovation aimed at improving highway efficiency and reducing the costs of truck traffic . . . ," including costs related to accidents involving trucks.[25]

In a nutshell, the TRB report concludes that States should be given greater authority, with strong Federal oversight, to make decisions with regard to the size and weight limits of trucks on highways under their jurisdiction. This reflects ATA's own policy. TRB further recommends that Federal regulatory oversight of weight limits should not be extended to the NHS, as H.R. 3132, the Safe Highways and Infrastructure Preservation Act (SHIPA) seeks to do.[26]

There is no doubt that continuing or further restricting current Federal size and weight limits will cost lives. While it would not make sense from a safety or economic standpoint to allow larger or heavier trucks to operate on every highway or in every State, Congress cannot continue to ignore the growing body of evidence that supports the fact that opportunities to prevent accidents through size and weight reform are available. Those States that identify these opportunities should be allowed to take advantage of them.

Allowing the expanded operation of more productive trucks would have two safety benefits. First, carriers would need fewer trucks to haul a given amount of freight, reducing accident exposure. Second, studies have consistently found that certain trucks with greater carrying capacity have a much better safety record than trucks that are in common use today. A study sponsored by the Federal Highway Administration found that the accident rate for longer combination vehicles (LCVs) is half that of other trucks.[27]

A recent Canadian study found that LCVs have an accident rate that is five times lower than the rate for tractor-semitrailers.[28] This study also found that during the 10-year period after LCVs were authorized to operate on a large scale in Alberta Province, the number of registered trucks dropped by 19 percent, even though the economy grew and non-truck vehicle registrations grew by 23 percent. The report concluded that increased truck productivity due to expanded LCV use was the most likely reason for this reduction in truck registrations.

In Nevada last year, just .02 percent of vehicles involved in an accident were triples.[29] Of the more than 36,000 accidents in Montana, including 1,326 accidents involving trucks, just one accident involved a triple. The year before, there were two triples accidents in Montana, in 1999 there was one, and in 1998 there were none.[30] In Colorado, of the 4,226 accidents involving trucks in 2000, just nine involved triples; none of the triples accidents involved a fatality.[31]

This data reflects Roadway Corporation's experience with triple-trailer trucks. Since 1990, Roadway triples have been involved in exactly one fatal accident. That is one fatal accident in over 155 million miles of travel. Last year, there were just five accidents involving Roadway triples, one accident every 2.5 million miles. By comparison, on average, all vehicles nationwide are involved in an accident every 430,000 miles.[32] Triples are by far the safest trucks in our fleet and among the safest vehicles on the highway.

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[23]See for example Transportation Research Board, Truck Weight Limits—Issues and Options, 1990, and New Trucks for Greater Productivity and Less Road Wear, 1990.

[24]Transportation Research Board Special Report 267, Regulation of Weights, Lengths and Widths of Commercial Vehicles, 2002.

[25]Ibid., p. 5–1.

[26]Ibid., p. 5–16.

[27]Scientex. Accident Rates For Longer Combination Vehicles, 1996.

[28]Woodrooffe and Assoc. Longer Combination Vehicle Safety Performance in Alberta 1995 to 1998, March 2001.

[29]Nevada Department of Transportation.

[30]Montana Department of Transportation.

[31]Colorado State Patrol.

[32]"Traffic Safety Facts 2000," National Highway Traffic Safety Administration.

Furthermore, Congress and the States can avoid large investments in pavement maintenance and rehabilitation, as well as capacity expansion, by allowing States to make common-sense changes to their size and weight regulations. Gross weight can increase exponentially and not cause additional pavement damage so long as axle-weight is controlled. This is why, for example, a turnpike double that weighs 126,000 pounds causes half the damage of an 80,000 pound tractor-semitrailer on a ton-mile basis. In addition, if trucks are able to ship the same amount of freight in fewer trucks, the need for capacity expansion could be avoided, fuel use and emissions could be lowered, and costs to American manufacturers and consumers could come down.

The Federal restrictions on States that limit their ability to determine what types of trucks are allowed to operate on State-owned—and controlled highways have no basis in science or logic and can no longer be justified. Our opponents on this issue continually attempt to represent the industry's ultimate goal as unfettered access to the highway system by more productive trucks. Such a position would be completely illogical, and it thoroughly misrepresents the industry's position. It would be foolish for the trucking industry to disregard the infrastructure and safety impacts of putting trucks on highways that they were not meant to handle or in traffic conditions that are unsuitable. Ultimately, the trucking industry itself would pay the price in terms of higher user fees, weight-posted bridges, higher insurance premiums and tighter government regulation. We are not asking Congress to increase truck sizes and weights. We are simply asking Congress to give States the ability to determine the safest and most cost-effective regulatory regime for their own highway systems.

IMPROVING THE FREIGHT PLANNING PROCESS

ATA believes that the current planning process does not effectively address the movement of freight. The Federal Government has effectively devolved its responsibility for ensuring a safe and efficient highway system to State and local governments. While this has allowed planning agencies to address the unique demands of local transportation needs, and to respond more effectively to citizens' concerns, it has also resulted in a parochial system of transportation planning and programming that essentially ignores freight needs. MPOs, for example, may ignore a deficient connector road that links a seaport or rail-head to the Interstate Highway System because the project's benefits are not believed to be as beneficial as other local projects. However, most of the benefits of the project may accrue beyond the geographic scope of the State or local planning agencies' analyses.

We do not blame these agencies for failing to include these far-reaching benefits in their analyses; they simply do not have the resources or expertise necessary to do so. The Federal Government is the only governmental entity with the expertise, resources and standing to identify freight projects of national significance. We urge Congress to give FHWA the necessary tools and direction that allow the agency to ensure that crucial freight bottlenecks are dealt with quickly and effectively.

FREIGHT STAKEHOLDERS: WORKING TOGETHER TO ENSURE FUTURE ECONOMIC COMPETITIVENESS

ATA has joined with representatives of our modal freight partners and our customers in promoting a joint agenda designed to facilitate the efficient movement of freight. A joint statement is attached at Appendix B. The joint statement may be the most extensive united effort by the freight transportation community ever at the Federal level, and this points to both the growing interdependence of freight modes and the seriousness with which we regard Congress' decisions in the next reauthorization bill. In brief, the freight community is requesting additional investment in freight projects, including intermodal connectors, and in border crossings and corridors with significant freight traffic; the creation of a national freight industry advisory group to assist in the freight planning process; additional money for freight research and professional development; creation of new or expanded innovative financing options for funding freight projects; and more emphasis on funding freight projects that reduce congestion and improve air quality under the Congestion Mitigation and Air Quality Improvement (CMAQ) program.

We have also joined with our freight partners to secure additional funding for the Borders and Corridors programs that were created in TEA 21. The Coalition for America's Gateways and Trade Corridors, of which ATA is a founding member, is calling for a significant increase in funding for these crucial programs. We are concerned about the significant earmarking that has undermined the effectiveness of these programs. However, we believe that the original intent of the programs—to ensure that the infrastructure necessary to accommodate current and future freight

needs, due in part to massive trade expansion—is still valid. We strongly urge Congress to extend the Borders and Corridors programs during TEA–21 reauthorization, and to make the programmatic and financial changes that are necessary to ensure the future mobility of America's freight transportation system. In addition, we urge Congress to refrain from expanding the eligibility of the program beyond its current parameters.

IMPROVING THE EFFICIENCY OF NAFTA-RELATED FREIGHT

Trade volumes between the United States and its two North American Free Trade Agreement (NAFTA) partners have reached record levels: For 2000, U.S.-Mexico trade reached $248 billion, while U.S-Canada trade amounted to $408 billion. The growth in NAFTA trade is especially impressive if one considers that in 1993, the year before NAFTA was implemented, U.S.-Mexico trade stood at just $81 billion, while trade with Canada was valued at $211 billion. The movement of imports and exports across our international land borders depends on an efficient and effective transportation system.

Unfortunately, the development of physical and human resources at U.S. international land borders has not kept pace with the growth in NAFTA trade. Congestion at U.S. ports of entry is the norm, and considering the heightened security that will continue into the foreseeable future due to the September 11 attacks, these problems have been compounded. This creates inefficiencies in the movement of cargo among the North American trading partners, straining the present-day capacity of human resources and facilities at U.S. land borders. Because trucks haul more than 80 percent of the U.S.-Mexico freight bill and more than 70 percent of the U.S.-Canada freight bill, they are critical to the success of NAFTA and its attendant economic benefits. Delays result in additional freight transportation costs, and threaten to diminish NAFTA's promise.

Data from a Federal Highway Administration (FHWA) analysis of the seven busiest border crossings (which account for 60 percent of truck crossings) reveal that congestion at these ports of entry cost the industry about 2.6 million hours in delay time per year, at a financial cost of at least $88 million.[33] In addition, trucks waste about 2.6 million gallons of fuel annually, with a resulting environmental impact of 23,000 tons of carbon dioxide and more than 300 tons of nitrous oxides. Congress should ensure that adequate resources are dedicated to the development of infrastructure and human resources along the U.S. borders with Canada and Mexico in order to meet the challenges associated with rapidly increasing trade growth among the three countries.

Some examples of where Federal resources could be applied include:

- Funding for the construction of truck inspection facilities, and for hiring truck inspectors, both at the Federal and State level, to inspect trucks entering the United States from Mexico.
- Construction of ports of entry solely for commercial traffic on the U.S. northern and southern borders.
- Planning and development of quality access roads between ports of entry and the National Highway System.

In addition, ATA has actively supported the funding and development of the Automated Commercial Environment (ACE) and the International Trade Data System (ITDS) to make cross-border movements of cargo, vehicles and drivers more efficient and secure.

We ask the subcommittees to look at technologies under development that can facilitate enforcement efforts while at the same time expedite the movement of freight across our borders. One such system being designed presently by U.S. Customs, with input from the trade community, is the Automated Commercial Environment, or "ACE."

In 1993, along with legislation implementing the NAFTA, Congress passed the Customs Modernization Act, or "Mod Act," establishing a new operating environment for U.S. Customs and the international trade community. Concepts such as "informed compliance," "shared responsibility," and "reasonable care" imposed greater obligations on U.S. Customs to provide improved information concerning the responsibilities and rights of the trade community. At the same time, the legislation mandated U.S. Customs to develop a new automated customs processing system to replace the antiquated and overburdened Automated Customs System (ACS). Nearly 10 years after the passage of the Mod Act, ACE is still in its nascent stage, but it is finally under significant development, and its full deployment is expected with-

[33]"Commercial Vehicle Travel Time and Delay at U.S. Border Crossings," Federal Highway Administration, Office of Freight Management and Operations, June 2002.

in the next three to 4 years. The present head of U.S. Customs, Commissioner Robert Bonner, has recognized the importance of developing such a system to give Customs greater tools to improve its information collection and improve the efficiency with which it processes millions of transactions every year.

Mr. Chairman, it is important that Congress continue to provide adequate funding for the full development and implementation of the ACE system. In order to defend our Nation from potential future terrorist attacks, and at the same time process the legitimate commercial goods so important to our Nation's economy, we must provide our border enforcement agencies the necessary tools and resources to fulfill their duties and responsibilities. It is also critical that no new user fees be imposed for the future development of ACE, especially if the current Merchandise Processing Fee (MPF), which raises about $900 million each year and is slated to end in 2003, is earmarked for some other budgetary purpose. If the MPF is supposed to be for Customs commercial processing, then this fee should be used for nothing but for improving Customs commercial operations.

Mr. Chairman, ATA supports the implementation of NAFTA's trucking provisions in order to improve the efficiency with which cross-border operations take place between the U.S. and Mexico. ATA is also a strong advocate for ensuring that all carriers operating in the U.S.—Canadian, Mexican or U.S. carriers—meet all U.S. safety and environmental standards, as well as all financial operational responsibilities.

Furthermore, implementing NAFTA's trucking provisions would enhance the security of cross-border trucking operations by simplifying the movement of trailers across our common borders. In a report to Congress issued in 1997 by the White House on U.S.-Mexico anti-drug cooperation, the U.S. Customs Service wrote:

The high congestion of truck traffic entering the United States is, in part, a result of restrictions imposed by both the United States and Mexico on crossborder motor carrier operation . . . over 50 percent of commercial trucks enter the United States empty, contributing to border congestion and increasing the inspection burden for border agencies.

NAFTA's trucking provisions allow for carriers throughout North America to improve their ability to make cross-border trucking more efficient, effective, safer, and more secure.

It is also important that we work with our counterparts in Canada and Mexico to improve harmonization of border operations and infrastructure development to establish technology and mechanisms to facilitate and expedite the gathering, sharing, and exchange of information and data to clear cargo and people crossing our land borders efficiently and securely. We must continue to find solutions that improve the processing of the legitimate flows of people and cargo, while simultaneously improving our security through stronger relationships between the trade community and law enforcement agencies at our borders.

ENSURING THE SECURE AND EFFICIENT MOVEMENT OF FREIGHT

In our efforts to protect the country from the terrorist threat, strategic planning for this new type of war must take into account three critical principles with respect to the trucking industry.

First, the timely communication of threat related information is the single most important short-term objective that must be met. In order for trucking companies to properly deploy our security resources and instruct our drivers on the proper steps needed to protect themselves, the public and our customers' goods, we need detailed communications so that we can understand and appreciate the threat, evaluate our company's exposure and act in time to avoid becoming victims of terrorism.

Second, our professional drivers, dispatchers, managers and supervisors are the most critical elements in protecting trucks from becoming the objects of, or the mechanism for, terrorist attacks. Drivers have control of our equipment 90 percent of the time, and therefore they are the most vulnerable to terrorism. We have an obligation to train our 3.2 million professional drivers to recognize terrorist operational acts, report these acts to the proper authorities, and react appropriately. The trucking industry needs Federal help to complete this effort in no more than 3 years.

Third, productivity is the lynchpin of America's global economic competitiveness. In our efforts to conduct our war on terrorism, we must give equal attention to the preservation of our abilities as transportation enterprises to creatively and efficiently move the goods and instruments of commerce where needed, when needed. Any new regulatory framework must adhere to the core principal of "the green light is on" for trucks unless there is a substantial, direct and immediate threat that would justify slowing or restricting commercial flows.

Thank you for the opportunity to offer our thoughts regarding the upcoming reauthorization of the Federal surface transportation legislation. We look forward to working with the subcommittees to improve the safety and mobility of our Nation's freight transportation system.

APPENDIX B

FREIGHT STAKEHOLDERS TEA–21 REAUTHORIZATION AGENDA

1. Protect the integrity of the Highway Trust Fund. Reauthorize the firewalls provided for in TEA–21 to ensure that the funds collected are used for their dedicated purpose and not for deficit reduction.

2. Dedicate funds for NHS highway connectors to intermodal freight facilities. The NHS Intermodal Freight Connectors report that was sent to Congress documents the fact that these road segments are in worse condition and receive less funding than other NHS routes. Targeted investment in these "last mile" segments would reap significant economic benefits compared to the associated costs.

3. Form a national freight industry advisory group pursuant to the Federal Advisory Committee Act to provide industry input to USDOT. The advisory group should be funded and staffed, and it should consist of freight transportation providers from all modes as well as shippers and State and local planning organizations. Despite the best efforts of the agency to function as "One DOT," there is still not enough of a focused voice for freight. An Advisory Group would meet the need for regular and professional interaction between USDOT and the diverse freight industry, and could help identify critical freight bottlenecks in the national freight transportation system.

4. Create a Freight Cooperative Research Program. Increasingly, industry issues are public issues that would benefit from a dedicated, funded research effort led by an industry-based steering/oversight group, such as the one described above, to ensure useful research results to benefit the freight transportation system as a whole. One option would be to dedicate a portion of the States SP&R dollars to freight issues. Freight data issues would fall under this program as well.

5. Expand freight planning expertise at the State and local levels. Given the importance of freight mobility to the national economy, States and MPO's should be provided additional funds for expert staff positions dedicated to freight issues (commensurate to the volumes of freight moving in and through their areas).

6. Develop ways to increase available funds without new user fees and taxes by creating a toolbox of innovative financing options specifically aimed at freight capacity improvements and enhancements. Options could include (1) lowering of the threshold for TIFIA funding eligibility (2) development of tax incentives, and (3) expansion of the State infrastructure banks (SIBs).

7. Significantly increase funds for an expanded corridor/border and gateway program. This would build on the highly popular but under-funded "Corridors and Borders Program" (Sections 1118 and 1119), but adds the important concept of gateways. The funding should be freight specific, and there should be a qualification threshold (based on volumes) so that dollars get directed at high volume corridors/borders/gateways rather than wish-list projects.

8. Streamline environmental permitting for freight projects. Multiple and often duplicative Federal laws and regulations delay environmental review of transportation projects. Language in TEA–21 directing Federal agencies to streamline the review process for highway projects has not been effective and other measures to simplify the review process for all freight projects should be considered.

9. Increase funding and promote use of the Congestion Mitigation and Air Quality Improvement Program for freight projects that reduce congestion and improve air quality. CMAQ was designed to fund projects that will help reduce transportation-related emissions. Although CMAQ has supported some freight projects, it has been used primarily to address passenger needs. CMAQ funding should be dedicated to projects that can be shown to reduce congestion or improve air quality. Total fund-

ing for CMAQ should be increased and the use of CMAQ funds for freight projects should be clarified and strongly encouraged.

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RESPONSES BY MICHAEL W. WICKHAM TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. In your testimony you state that the value of the highway program to your industry is diminishing because of "expanded highway program eligibility to include projects that provide few benefits to highway users." I find that statement astonishing. Do you really believe that highway programs that encourage nontraditional solutions to traffic congestion like HOV lanes, intelligent transportation systems, and transit are of no benefit to highway users? Every person who commutes on transit, takes the train, or shares a ride with a friend, means one less car clogging our roads. No one benefits from transit use more than those of us who drive on our roads every day. Are you saying that because States have the flexibility to spend highway funds on non-construction programs that you do not believe the highway program has value to your industry?

Response. ATA believes strongly in a Federal highway program that is funded by highway users for the benefit of highway users. Highway maintenance and capacity expansion are critical components of a highway program that promotes a safe and efficient surface transportation system. However, as your question suggests, we must also look beyond these traditional methods and seek out more innovative ways of improving the condition and performance of our highways.

You mentioned Intelligent Transportation Systems (ITS), for example. ATA supports eligibility of ITS under the highway program. ITS can be an effective means of communicating system problems, which allows traffic agencies to respond more quickly and gives motorists the information they need to avoid these problems. States, in partnership with the trucking industry, use ITS to more effectively target their truck inspections, improving the efficiency of responsible carriers and enhancing highway safety. In addition, under certain circumstances, HOV lanes can be an effective tool for relieving congestion and improving air quality, and ATA does not oppose their eligibility under the highway program.

However, an increasingly larger share of Federal highway revenues is being used for projects whose effectiveness at curbing congestion and saving lives is questionable. For example, while transit can effectively relieve congestion in some areas, in most of the cities where rail transit systems have recently been established, it will not be an effective strategy for addressing the growing traffic that plagues our urban areas. It is important to recognize that transit demand is very concentrated. One-half of the national ridership is in New York and Chicago and 76 percent is in seven metropolitan areas. In urban areas, transit accounts for just 2–3 percent of all trips. Even if transit ridership were to double in the next 10 years—an ambitious goal since ridership actually declined over the previous decade—because highway use would also rise, transit's share of trips would only grow to 3–3.5 percent. Transit is largely beneficial for commutes to and from work. However, commutes now make up less than 20 percent of all trips, and less than one out of three trips during rush hours are trips between home and work.

According to a study by the Texas Transportation Institute, areas that were more active in adding roadway capacity to respond to increased travel were able to slow the increase of regional traffic congestion. However, not all highway projects need add more traffic lanes or new highways to achieve substantial improvements. According to one study, improving conditions at the 167 worst traffic bottlenecks around the country would reduce travel times by an average of 38 minutes per day, result in 287,000 fewer accidents, including 1,150 fewer fatalities, reduce carbon monoxide emissions by 45 percent, smog-forming emissions by 44 percent and carbon dioxide emissions by 71 percent at those sites. Unfortunately, a lack of resources, in part because of the diversion of highway funds to non-highway projects that are less effective, is preventing States from making these crucial investments.

We have concerns with other eligible activities, such as those under the CMAQ and enhancements programs. While some would argue that these programs divert relatively few resources from the highway program, the impact of this diversion is actually quite large. For example, we find it difficult to understand how it is in the national interest to invest more than twice as much Federal money on bicycle paths than on truck safety programs.

ATA does not oppose using highway user fee revenues for nontraditional programs. We oppose the use of this money on programs that have been shown to be ineffective at reducing congestion and improving highway safety. We believe that in the face of limited resources, the Federal Government should make strategic investments that deliver the most cost-effective results.

Question 2. In your testimony, you argue for reduced Federal restrictions on truck size and weight. You make many safety claims that are refuted by a recent U.S. Department of Transportation study on truck size and weight, which estimated that multi-trailer trucks have an 11 percent higher fatality crash rate than single trailer trucks. While I differ with your conclusions on safety, I will not dwell on that issue here. However, I will ask you to address the conclusion of the Department of Transportation study that allowing bigger trucks on our roads would result in bridge capital costs of over.$50 billion and well over $200 billion in additional costs due to delay from bridge construction and repairs.

Response. It should first be noted that the U.S. DOT's Comprehensive Truck Size and Weight Study to which you refer was roundly criticized by the academic community, State departments of transportation, the trucking industry, and others. In fact, AASHTO passed a resolution (attached) calling on the Department to delay release of the report until its many deficiencies could be addressed; unfortunately, the uncorrected report was released anyway. Therefore, 'we would caution Congress against using the Study as a basis for making policy decisions.

Specifically, to the multi-trailer truck accident rate that appeared in the Study. Some have used this analysis to argue that longer combination vehicles (LCVs) are less safe than single-trailer trucks. In fact, because about 80 percent of the vehicle miles traveled by multi-trailer trucks are by non-LCVs, the statistic cannot be applied to this class of vehicle. Nonetheless, we cannot allow DOT's study to stand unchallenged. Almost all previous evaluations of the multi-trailer trucks that make up the bulk of vehicles that comprise DOT's research found that these vehicles were either as safe or safer than single trailer trucks. The most comprehensive evaluation of the safety of twin trailer trucks to date is a 1986 study by the Transportation Research Board (TRB Special Report. 211). That study concluded that, "overall, twins clearly appear to be about as safe a method of hauling freight as the tractor-semitrailers they replace."

DOT did, in fact, contract with an independent consultant to complete a study on the safety experience of LCVs versus other, more common, trucks (Accident Rates for Longer Combination Vehicles. FHWA, October 1996). This study found that LCVs, including triples and heavy doubles, had an accident rate which was half that of the trucks they would replace. The study also concluded that truck configuration, not highway environment or driver factors, was the reason for this finding.

This statistic is reflected by other research. For example, Alberta Province found that LCVs had the lowest accident rate of all vehicles on their highways, including passenger vehicles. In fact, single-trailer trucks had an accident rate five times higher than LCVs. States have also found that LCVs are extremely safe. In Nevada, for example, triples were involved in just .02 percent of all accidents in 2000; none were fatal.

LCVs have been in operation for more than 50 years. Today, they operate on rural roads in the west, eastern turnpikes and in large urban areas, in nearly half the States. No State has ever rescinded their operating authority, for the simple reason that LCVs contribute to a much safer and a much more efficient highway system.

Regarding the bridge costs cited in the DOT study. Of all the criticisms leveled against the study, those regarding bridge costs were probably the most severe. DOT

assumes that any bridge not rated to carry the loads modeled by the study would automatically be replaced. This simply does not happen in the real world. In practice, States would choose to either replace or strengthen the affected bridges, or to load-post them.

As part of its research, the panel that conducted the most recent TRB truck size and weight study (TRB Special Report 267) obtained from DOT a list of highway structures in California identified by the bridge analysis method used in the study as requiring replacement if a specified type of larger truck were to come into use. Four were selected for analysis. Each of the four structures exceeds the threshold overstress criterion applied in the DOT study under the assumed loading by just a few percent, and therefore the DOT study would assume that all four bridges would have to be replaced given the heavier loads. The four structures were examined by engineers of the State DOT, who reported to the committee that, following its normal practices, the State would not replace, strengthen, or restrict the use of any of the four structures if heavier tractor-semitrailers within the range analyzed in the DOT 2000 study came into use.

This is not to say that increasing the weight of trucks will not produce additional bridge costs, or that some interchanges may not have to be rebuilt to accommodate longer trucks. However, these are one-time investments whose costs pale in comparison with the tremendous savings associated with less pavement damage, less pollution, fewer accidents and greater economic productivity if size and weight laws were reformed.

Question 3. You argue that allowing longer combination vehicles will reduce the number of trucks on our roads. Isn't the real impact likely to be a shift of freight from rails to our already overburdened road infrastructure?

Response. While evaluations of increases in truck productivity all predict some shift of freight from rail to truck, the magnitude of this shift is generally considered to be very low. A 1990 TRB study (TRB Special Report 225) found that under various scenarios where truck productivity increased, rail diversion would range from 2.2 to 6.6 percent, and all scenarios resulted in overall truck VMT reductions. Furthermore, it is very likely that the shift of freight from existing trucks to other, more productive trucks, will result in a net reduction in both the number of trucks on the road and truck miles, even when rail diversion is factored in. For example, the previously referenced Alberta study found that over the 11-year period following the introduction of higher weight trucks to the province, the number of registered trucks dropped by 19 percent, even though non-truck registrations grew by 23 percent and the economy expanded.

The fact is that trucks and trains compete for very little business. Even with a productivity increase that makes truck transportation more attractive to rail shippers, the fact that freight railroads enjoy very large profit margins on most routes means that the railroads simply have to lower their rates slightly to keep this business. Herein lies the real reason for rail opposition to trucking productivity gains. This competition is a positive factor for shippers, who will realize lower shipping costs, and consumers, who will see lower retail prices. The most likely market for truck-rail competition is in the rail intermodal segment. Rail carload shipments are simply too price-sensitive for trucks to compete effectively in this market segment. Even if trucks were somehow able to draw 100 percent of all rail intermodal business, however, this would increase annual truck volumes by less than one-fifth of 1 percent nationwide (Freight Transportation Forecast . . . To 2013, DRI-WEFA, 2001).

According to the FHWA, truck volumes will nearly double by 2020 and trucks' market share will expand from 71 percent in 1998 to 75 percent in 2020. This growth is inevitable, but a doubling of the number of trucks needed to accommodate this growth is not inevitable. Increasing trucking productivity through sensible size and weight reform will slow the growth of trucks and reduce their societal impacts.

RESPONSE BY MICHAEL W. WICKHAM TO ADDITIONAL QUESTION FROM SENATOR JEFFORDS

Question 1. Mr. Hamberger of the Association of American Railroads notes that railroads are three or more times more fuel efficient as trucks. He points out that the :EPA estimates that for every ton-mile, a typical locomotive emits roughly three times fewer nitrogen oxides and particulate matter than the typical truck. He also points out that "rail competitive trucks, which are the heaviest, highest mileage operators among all trucks, do not come close to fully paying for the damage they cause to our highway system."

Response. As noted above, the potential for shifting freight from truck to rail, or vice versa, is extremely limited, and significant growth in truck traffic is inevitable. Therefore, any comparison of modal impacts becomes an academic exercise. Nonetheless, we are pleased to have the opportunity to respond to Mr. Hamberger's statements.

According to new data produced under contract to the FHWA, in 2000, trucks' ton-miles were double that of rail. Therefore, if Mr. Hamberger's statement that trucks produce three times more emissions per ton-mile than railroads is correct, then trucks would have to emit six times more total NOx and PM than railroads. In fact, according to the EPA, trucks' total emissions of NOx and PM were just 2.7 times greater than the total emissions for rail. Therefore, on a ton-mile basis, trucks produce only about 1.35 times as much NOx and PM as locomotives.

However, this does not tell the whole story. When measuring emissions on a ton-mile basis, what is left out is the fact that the commodities hauled by trucks are comprised of a far greater proportion of high-volume, low-weight freight than the commodities hauled by railroads, which haul mostly low-volume, heavier freight. Therefore, expressing trucks' volumes in terms of weight instead of area understates the amount of freight trucks are actually carrying, resulting in a disproportionately high amount of freight being assigned to railroads. This produces an emissions level which favors railroads.

Furthermore, rail moves are almost always more circuitous than truck moves. Therefore, if one considers the environmental impact of shifting freight from truck to rail, the impact of this longer route must be considered. If there is an increase in distance of greater than 35 percent, then the environmental benefits of shifting the freight to rail are wiped out by this factor alone.

Also to be considered is the fact that if there is to be a truck to rail shift, this will likely occur as an intermodal movement. Therefore, the environmental impacts of the truck deliveries on both ends of the rail movement must be considered. These are not inconsequential impacts. The average truck drayage move is roughly 90 to 120 miles long, typically with a significant urban component. The trucks involved are generally older—and therefore more polluting—than the typical trucks involved in long-distance movements.

The issue of whether railroads pollute less than trucks is not that simple, and it should not be automatically assumed that a rail move produces less pollution than a truck move. In fact, FHWA has rejected States' requests for using CMAQ money on freight rail projects because they found that shifting freight from truck to rail would actually have a negative environmental impact.

One other point should be made. Trucks contribute approximately $35 billion in Federal and State highway user fees each year, which are used, in part, to offset the societal costs of the pollution that they produce. The railroads, on the other hand, pay just $170 million in user fees, and these revenues are not tied to societal costs produced by the railroad industry. There is little doubt that these revenues do not approach the health costs associated with pollution emitted by locomotives.

This brings us to the second part of the question, which refers to trucking industry cost allocation. It is interesting that Mr. Hamberger attacks trucks for paying too little for their infrastructure and societal costs when his own industry fails to pay a single penny to compensate for the safety, environmental and congestion societal impacts of rail operations. (NOTE: While the question refers only to infrastructure costs, other societal impacts are now included in cost allocation studies. In addition, while the railroads do pay a tax on diesel, unlike highway user fees, there is no tie between these fees and the costs imposed by the railroads which are borne by the public.)

While the FHWA Cost Allocation Study found that certain trucks do not pay their cost equity, there are several factors that contributed to this conclusion and that must be examined. First, there were several problems with the study which produced erroneous results. This is not to deny that there are trucks in operation which do not pay their fair share. However, it should also be noted that the study found that certain classes of trucks paid more than their fair share. It would be virtually impossible to achieve a perfect balance. While such an effort should be made, it must be recognized that results will always change depending on the assumptions and data used, which are constantly evolving. Therefore, there will always be some vehicles that will be found to not pay their allocated share of the costs.

Mr. Hamberger complains that "rail competitive trucks" do not pay for the damage they do to highways without defining what a rail competitive truck is. Since the railroads and the "safety groups" they associate themselves with regularly criticize triple-trailer trucks, we assume that these are among the class to which Mr. Hamberger refers. However, it is widely recognized that the markets served by triples are generally not rail-competitive.

When looking at the factors which result in a determination that a truck is not paying its cost equity, an objective analysis must lead one to the conclusion that this finding was made because of Federal restrictions on truck size and weight, not despite the restrictions. As the recent TRB study (TRB 267) found,. significant opportunities exist for States to reduce their infrastructure and societal costs if they are given flexibility to reform their size and weight limits. It is the Federal regulatory system that prevents carriers from putting trucks on the road that are more infrastructure-friendly and safer. For example, many States allow the operation of heavier trucks on non-Interstate highways, but are prevented from granting these trucks access to the Interstates by Federal law. If they were to use the Interstates rather than lower-order roads, the infrastructure, safety, congestion and environmental costs resulting from these trucks' operation would be lower, and thus the trucks would come closer to achieving cost equity.

There are two ways to address the cost inequities of certain trucks. Congress and/or the States can increase the taxes imposed on these trucks, thus lowering the competitiveness of critical U.S. industries and increasing consumer prices. Alternatively, Congress can give the States the opportunity to improve their size and weight regulations, thus potentially changing the current vehicle fleet to one that is safer, less polluting, more productive and that produces lower infrastructure costs. The former choice benefits the railroads at the expense of the rest of the Nation. The latter would result in slightly lower railroad profitability, but the overall benefits to the Nation could be very significant.

STATEMENT OF EDWARD R. HAMBERGER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, ASSOCIATION OF AMERICAN RAILROADS

On behalf of the members of the Association of American Railroads (AAR), thank you for this opportunity to discuss key issues relating to our nation's freight transportation capabilities as a result of the remarkable growth of international trade.

Since Colonial times, the growth and vitality of our economy has been closely tied to the development of trade. The railroads' role in the settlement and development of the United States is well known, and yet the efficiency of our ports, international border crossings, and inland transportation systems is just as critical today. We must take steps to insure that our freight transportation system will be able to handle what is certain to be a huge increase in international trade volume in the years ahead. Today, I will focus on ways that our nation can combine the advantages of various transportation modes to reduce costs, save energy, better protect the environment, and increase transportation efficiency—thereby enhancing our productivity and international competitiveness.

INTERNATIONAL TRADE

International trade is becoming the lifeblood of both the world and U.S. economy, and has been a major driving force behind world economic growth over the past decade. From 1990 to 2000, global GDP increased at an average annual rate of 2.0 percent, but the volume of world merchandise trade increased during the same period at an average annual rate of 7 percent—more than three times as much. In the case of the United States, which is the world's single largest exporting and importing nation by a significant margin, GDP over the same period increased at an annual average rate of 3.2 percent, while the volume of merchandise exports increased at an average annual rate of 6.5 percent and imports increased at an annual rate of 8.5 percent.[1]

The importance of international trade relative to U.S. economic output has also risen dramatically. In 1975, U.S. exports plus imports was equal to less than 16 percent of GDP, but by 2000 that figure had risen to more than 26 percent.[2] Manufacturers and agricultural producers in the United States depend upon foreign trade to reach markets for their products, and consumers have enjoyed both a richer variety of products and lower prices as a result of trade opportunities. According to the Office of the U.S. Trade Representative, U.S. exports alone support more than 12 million American jobs, including one in five jobs in the manufacturing sector.[3]

In 2001, the value of U.S. international merchandise trade was $1.9 trillion. According to figures from the Maritime Administration, United States ports handled

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[1] World Trade Organization, International Trade Statistics 2001, Table I.1, p. 19, available at www.wto.org/english/res—e/statis—e/its2001—e/its01—toc—e.htm).

[2]Economic Report of the President, February 2002, p. 253.

[3]Office of U.S. Trade Representative, Benefits of Trade: Information on the Globalization Debate, September 19, 2001 available at www.ustr.gov/new/benefits.html.

over 1.1 billion tons of foreign trade in 2001. The liner sector, consisting mostly of containerized shipments, accounted for 68 percent of the value of this trade.[4] More than 20 million loaded containers were imported or exported through our nation's ports in 2001, with the ports of Los Angeles and Long Beach ranked number 1 and 2, respectively—each handling over 3.3 million loaded containers. Additional intermodal traffic flows across our borders with Canada and Mexico. Our ports and border crossings also handle significant volumes of bulk commodities, including grain, coal, non-metallic minerals, forest products, and petroleum products. Railroads serve U.S. ports on the Atlantic, Pacific, and Gulf coasts and the Great Lakes, and provide through service to and from Canada and Mexico at more than 30 border crossings. Railroads handled approximately 5.2 million international containers in 2000, which represented about one-half of their total intermodal traffic.[5]

U.S. trade with Canada (long our largest trading partner) and Mexico (now our No. 2 trade partner) has grown rapidly following the lowering of trade barriers under the North American Free Trade Agreement of 1993. Together, Canada and Mexico account for approximately one-third of U.S. foreign merchandise trade.[6] The value of this North American trade had increased by 85 percent from 1994 to 2000, before declining slightly in 2001 largely following the September 11 terrorist attack. The freight railroads of Canada, Mexico, and the United States, which form a seamless, integrated network that provides the world's most efficient, lowest-cost rail service, have achieved major increases in their trans-border traffic—up 22 percent by value between Canada and the United States and up 72 percent between Mexico and the United States just from 1997 to 2000.[7]

Our seaports, airports, and land border crossings—the gateways that connect us to the rest of the world through commerce—are clearly critical to the economic well being of our Nation. Moreover, more efficient modern container ships carrying 6,000 or more TEUs[8] are increasingly being used, up from the 4,500-TEU standard that has been dominant up to now. These larger ships will place increasing demands on port and landside facilities.

Existing congestion at these facilities must not be permitted to worsen. Moreover, as the Federal Highway Administration documented in a recent study,[9] funding for intermodal connectors—public roads averaging less than two miles in length that lead to/from major intermodal terminals—has not been adequate under the Transportation Equity Act for the 21st Century (TEA–21) and these critical components of the freight transportation system suffer many deficiencies. According to the FHWA, "States and MPOs often see freight as a low priority when compared with the pressing needs of passenger travel. NHS connectors are "orphans" in the traditional State and MPO planning processes." We must make the investments needed to improve our ability to handle international traffic efficiently, while limiting impacts on surrounding communities in terms of congestion, noise, and air pollution.

GROWING IMPORTANCE OF RAIL INTERMODAL SERVICE

U.S. freight railroads move just about everything—from lumber to vegetables, from coal to orange juice, from grain to automobiles, from chemicals to scrap iron—and connect businesses with each other across the country and with markets overseas. America's freight railroads carry more than 40 percent of the nation's intercity freight (measured in ton-miles); about 70 percent of vehicles from domestic manufacturers; 67 percent of the nation's coal to coal-fired power plants (coal generates more than half the nation's electricity); and massive amounts of grain, chemicals, forest products, ores, and other commodities. They also contribute billions of dollars to the economy through wages, purchases, and taxes.

Intermodal rail freight transport—the movement of cargo in trailers or containers by rail in combination with at least one other mode of transportation—has been the fastest growing major segment of traffic for the U.S. freight railroad industry over the past decade. Indeed, while volumes of non-intermodal rail traffic for 2002 to date are below those of last year for the same period as a result of the weak economy, U.S. rail intermodal traffic through August 2002 is 5.1 percent above the 2001

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[4] See "U.S. Foreign Waterborne Transportation Statistics," U.S. Maritime Administration press release, March 28, 2002, available at www.marad.dot.gov/statistics/usfwts/PR2001/PRDEC2001.htm.

[5]Intermodal Association of North America, Year 2002 Industry Statistics—Overview; American Association of Port Authorities; and Association of American Railroads data and analysis.

[6]U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Statistics Annual Report 2000, BTS01–02, Washington, DC. 2001, p. 161.

[7]AAR analysis of U.S. Bureau of Transportation Statistics transborder trade data.

[8]Twenty-foot equivalent units.

[9]U.S. Federal Highway Administration, NHS Intermodal Freight Connectors, July 2000, p. 4.

level, including increases of between 7.4 percent and 9.4 percent each month from April through August. U.S. intermodal traffic has grown from 3.1 million trailers and containers in 1980 to nearly 9.0 million in 2001. It now accounts for approximately 20 percent of revenue for Class I carriers and is vying for the No. 1 ranking among all rail commodities. Approximately half of U.S. intermodal traffic is either U.S. exports and imports, and intermodal traffic moves throughout the North American rail network.

There are several reasons why intermodal transport has become such a vital part of the U.S. freight transportation mix:

1. Convenience and lower cost

Intermodal combines the door-to-door convenience of trucks with the long-haul efficiency and cost-effectiveness of rail. As a result, railroads, trucking companies, international steamship lines, intermodal marketing companies, and others engage in productive partnerships to combine the best characteristics of all modes.

2. Fuel efficiency

Railroads are the mode of choice in terms of fuel efficiency. According to studies sponsored by the U.S. Department of Transportation (U.S. DOT) and others, railroads are three or more times as fuel efficient as trucks. Fuel efficiency means reduced emissions and reduced dependence on foreign oil.

3. Improved air quality

The Environmental Protection Agency estimates that for every ton-mile, a typical locomotive emits roughly three times fewer nitrogen oxides and particulates than a typical truck. Other studies suggest that locomotives have a much greater environmental advantage relative to trucks, depending upon the pollutant measured.

4. Reduced traffic congestion

An intermodal train can take approximately 280 trucks from the highways. Since a single combination truck requires the same highway capacity as approximately four automobiles, a single intermodal train can mean the equivalent of more than 1,100 fewer cars on the highway. According to the Texas Transportation Institute's (TTI) 2002 Urban Mobility Study, the aggregate cost of highway traffic congestion in just the 75 urban areas the institute studied is $67.4 billion, representing the cost of 3.6 billion hours of extra travel time and 5.7 billion gallons of fuel wasted while sitting in traffic. Since 1982, according to TTI, the cost of congestion has risen by approximately 400 percent in inflation-adjusted terms. Rail intermodal service is a highly effective way to reduce the staggering costs of highway congestion and the associated pressure to build costly new highways.

5. Innovative technology, specialized equipment, and tailored services

Doublestack trains—with specialized rail cars that can accommodate one container atop another—are now in widespread use. RoadRailers look like conventional trailers, but come equipped with both rubber tires and detachable steel wheels so they can ride directly on the rails or on a highway. By using specialized equipment, railroads are targeting midand short-distance hauls, in addition to traditional long-haul markets. Rail service offerings include the use of flat cars in dedicated trains operating on a fixed schedule that are specially designed to quickly load, unload and carry standard, non-reinforced highway trailers without damage to the goods or the trailers themselves.

The market for intermodal freight is extremely competitive, and U.S. freight railroads must continue to make major investments so that they can further enhance their cost efficiency and meet customer service requirements that are continually becoming more stringent.

Railroads are incredibly capital intensive, and each year freight railroads must invest heavily to maintain and improve their infrastructure and equipment, that, together, comprise a national system that is the envy of the world. In 2000, Class I railroads directed 17.8 percent of their revenue to capital expenditures; the comparable figure for the U.S. manufacturing sector as a whole was just 3.7 percent. Indeed, since 1980 when the Staggers Rail Act partially deregulated the rail industry, major U.S. railroads have spent more than $290 billion for this purpose—an average of more than $13 billion per year over this extended period. Much of this spending is either directly attributable to intermodal service (e.g., the construction or expansion of intermodal hubs, raising underpass clearances to allow for doublestack trains) or indirectly related to intermodal traffic (e.g., capacity expansion and enhanced signaling systems to allow faster, more frequent trains of all types throughout the rail network).

In addition to making necessary infrastructure improvements, railroads have responded to customer needs by instituting a series of operational improvements and service initiatives. Some of these initiatives involve the improved use of information technology. For example, most major railroads now offer comprehensive Internet-based car ordering, car tracing, pricing, and billing capabilities. Railroads have also increasingly entered into productive partnerships with other carriers. These alliances expand the focus for a particular railroad beyond the interchange point, encompassing the total movement and providing customers with seamless service—giving rail customers more value for their transportation dollar.

Since the Staggers Act, freight railroads have improved earnings, but as a group they still do not come close to earning their cost of capital. In 2001, the rail industry's cost of capital (as determined by the Surface Transportation Board (STB), an independent regulatory agency within the U.S. DOT) was 10.2 percent, compared with a return on investment (ROI) of 6.9 percent, as determined by the STB. Rail profitability is consistently in the bottom quartile of all industries.

This cannot continue forever, and this fact explains why—notwithstanding the tremendous gains railroads have made in intermodal and other service offerings in recent years, and the massive investments they have made—the future strength and vitality of our nation's rail system requires that earnings be aligned with investment needs.

Especially over the past couple of years, freight railroads have become increasingly constrained in how much capital they can devote to infrastructure. Rail stockholders and outside capital providers are becoming ever more focused on the railroad financial performance, and now increasingly insist that railroads demonstrate a compelling case for further investments. This financial discipline is necessary and appropriate in a market economy, but it discourages railroad investments that would yield significant public benefits (e.g., congestion mitigation, emissions relief, enhanced mobility, enhanced safety, economic efficiency), but only limited direct railroad benefits. As profit-driven private entities, freight railroads simply cannot afford to make investments, including investments in intermodal projects and facilities, that yield primarily public benefits.

Unless this issue is addressed head on, it will worsen in the years ahead as pressure on our nation's freight rail network intensifies. The U.S. DOT expects freight traffic to nearly double in the next 20 years. Rail customers will continue to demand improved service levels. With highway congestion consuming a growing share of our nation's economic output, and with the need to reduce emissions, conserve fuel, and promote safety on the rise, the need for railroads to provide relief will increase.

Surface Transportation Reauthorization

TEA–21 expanded the reliance on an intermodal approach to transportation planning that was the focus of the landmark Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). Today, we are seeing the benefits that can be gained by taking this comprehensive approach.

As planning for the reauthorization of TEA–21 proceeds apace, the AAR is pleased to be an active participant in the Freight Stakeholders Coalition, an organization comprised of diverse freight interests that work cooperatively to promote policies benefiting freight transportation. Besides the AAR, members of the Freight Stakeholders Coalition include the American Association of Port Authorities, the American Trucking Associations, the Coalition for America's Gateways and Trade Corridors, the Intermodal Association of North America, the National Association of Manufacturers, the National Industrial Transportation League, the U.S. Chamber of Commerce, and the World Shipping Council.

The Freight Stakeholders Coalition has unified behind a nine-point agenda designed to promote sound, effective transportation solutions. The agenda includes:

1. Protect the integrity of the Highway Trust Fund

Reauthorization of the firewalls provided for in TEA–21 would ensure that the funds collected in the HTF would be used for dedicated transportation purposes and not for deficit reduction or general government operations.

2. Dedicate funds for National Highway System (NHS) highway connectors to intermodal freight facilities

NHS intermodal freight connectors provide for a broad array of intermodal transport services and options. The FHWA has identified 517 NHS freight terminals (253 ocean and river ports, 203 truck/rail terminals, and 61 pipeline/truck terminals). These 517 freight terminals, augmented by 99 major freight airports, connect to the mainline NHS via more than 1,200 miles of NHS connectors. Typically, connectors are located in older, industrialized and mixed land use areas that are subject to physical constraints and environmental considerations.

TEA–21 directed the FHWA to review the condition of connectors and potential investments to improve their condition. In a June 2000 report to Congress, FHWA found that the connectors have significantly poorer physical and operational characteristics, and are underfunded when compared with all NHS mileage. Such conditions on these "last mile" segments can slow freight movement, damage goods in transit, and decrease efficiency and safety. U.S. DOT estimates show that the cost of improving connectors to an adequate level of service over the 2002–2020 timeframe is $3.5 to $4.0 billion.

3. Establish a national freight industry advisory group to provide input to the U.S. DOT

The advisory group should be funded and staffed, and should consist of freight transportation providers from all modes as well as shippers and State and local planning organizations. There is not a sufficiently focused Federal voice for freight; an advisory group would meet the need for regular and professional interaction between the department and the diverse freight industry, and could help identify critical freight bottlenecks in the national freight transportation system.

4. Create and fund a Freight Cooperative Research Program

More accurate and timely data on freight movements would allow State and local governments to plan transportation infrastructure improvements that more closely match actual transportation needs. To this end, a dedicated, funded research effort led by an industry-based steering/oversight group would allow for the collection and dissemination of more timely, complete, and detailed commodity flow and other types of freight data and better planning tools for freight planning professionals and others.

5. Expand freight planning expertise at the State and local levels

Unfortunately, transportation planning typically focuses almost exclusively on highway and transit projects, with scant attention paid to freight (including freight rail). To address this deficiency, planning organizations should be strongly encouraged to consider freight transportation needs, including railroad projects and intermodal projects, more fully in their planning. Given the importance of freight mobility to the national economy, States and metropolitan planning organization (MPOs) should be provided additional funds for expert staff positions dedicated to freight issues, commensurate to the volumes of freight moving in and through their areas.

6. Develop ways to increase available funds without new user fees and taxes by creating a toolbox of innovative financing options specifically aimed at freight capacity improvements and enhancements

New capital investment in critical freight transportation infrastructure leads to major public benefits including higher productivity, enhanced global competitiveness, and a higher standard of living for our Nation. With freight traffic now forecast to double within the next 20 years, the United States must expand its limited transportation infrastructure dollars by leveraging additional public and private sources of funding. This will require innovative approaches to maximize transportation-related investments.

Two financing options in which freight railroads are most interested are discussed below.

The first option calls for tax incentives and tax exempt financing to companies that make investments in intermodal freight infrastructure. This option would provide targeted income tax benefits (investment tax credits, expensing in lieu of capitalization, accelerated depreciation, and/or tax-exempt financing) to companies for investments made in qualifying assets to improve the efficiency or increase the capacity of the national intermodal freight transportation system. Qualifying assets would include track and roadbed located on intermodal corridors, intermodal transfer facilities, freight handling machinery and equipment at intermodal transfer facilities, and intermodal information infrastructure. Under this option, the tax benefits would accrue to any company that made such investments, not just railroads. Such a program would recognize the huge societal benefits derived from an expansion of intermodal transportation solutions.

The second option calls for allowing the funding of rail infrastructure through the issuance of tax-exempt indebtedness. Under this option, holders of "Qualified Railroad Indebtedness (QRI)" would qualify for an income tax exclusion for interest earned on the QRI. QRI would be any type of indebtedness, regardless of the form, issued to fund the acquisition, construction, improvement, maintenance, or repair of "Qualified Railroad Property" (QRP). QRP, in turn, would be any expenditure for the acquisition or maintenance of depreciable property, such as track, bridges, tunnels, grading, wharves and docks, terminal facilities, signals, computer systems, and

public improvements either used or to be used in the railroad's trade or business. The tax benefits would flow directly to the holders of the indebtedness in the form of income tax exclusion for interest earned, and indirectly to railroads in the form of lower capital costs.

7. Significantly increase funds for an expanded corridor/border and gateway program

This proposal would build on the highly popular but underfunded "Corridors and Borders Program," but adds the important concept of gateways. The funding should be freight specific, and there should be a qualification threshold (based on volumes) so that dollars get directed at high volume corridors/borders/gateways rather than wish-list projects. The AAR is a member of the Coalition for America's Gateways and Trade Corridors, which is leading the effort among freight interests to expand funding for this important program.

8. Streamline environmental permitting for freight projects

Multiple and often duplicative Federal laws and regulations delay environmental review of transportation projects. Language in TEA–21 directing Federal agencies to streamline the review process for highway projects has not been effective. Consequently, other measures to simplify the review process for all freight projects should be considered.

9. Increase funding and promote the use of the Congestion Mitigation and Air Quality Improvement Program (CMAQ) for freight projects that reduce congestion and improve air quality

CMAQ was designed to fund projects that will help reduce transportation-related emissions. Although CMAQ has supported some freight projects, it has been used primarily to address passenger needs. CMAQ funding should be dedicated to projects that can be shown to reduce congestion or improve air quality. Total funding for CMAQ should be increased and the use of CMAQ funds for freight projects should be clarified and strongly encouraged.

In addition to the Freight Stakeholder Coalition proposals outlined above, the railroad industry proposes additional measures which we believe will enhance the ability of our nation's transportation providers to function effectively. Like the proposals from the Freight Stakeholder Coalition, the rail proposals expand further the emphasis on intermodalism that was fundamental to the original TEA–21 legislation. The rail proposals include the following:

1. Increase funding for the Section 130 grade crossing program and clarify that funds can be spent on maintenance activities

The most critical safety problems faced by railroads are collisions at highway-rail grade crossings and incidents involving trespassers on railroad rights-of-way. Both of these problems generally arise from factors that are largely outside of railroad control. In 2001, these two categories accounted for 96 percent of rail-related fatalities.

Due largely to railroads' and others' efforts to close grade crossings and to educate the public about the dangers of grade crossings, in conjunction with the Section 130 Federal grade crossing program, the number of collisions, injuries, and fatalities at highway-rail grade crossings has fallen steadily over the years. From 1980 to 2001, the number of grade crossing collisions was reduced 70 percent, injuries declined by 70 percent, and fatalities were down 49 percent. Despite these impressive declines, far too many grade crossing accidents occur each year.

The Section 130 Program provides Federal funds to States and local governments to eliminate or reduce hazards at highway-rail grade crossings on public highways. Current funding, under a set-aside to the Surface Transportation Program of TEA–21, is approximately $155 million per year. The vast majority of Section 130 funds have been spent on the installation of new active warning devices such as lights and gates, upgrading existing devices, and replacing or improving grade crossing surfaces.

The high cost of current active warning devices—approximately $150,000, on average, per installation—has limited the number of crossings at which they have been installed. Research into improved low-cost grade crossing warning systems is underway, but increased Federal funding for highway-rail crossing hazard abatement would permit additional crossings to be protected immediately.

The Section 130 program is an important element of the HTF. Grade crossing warning devices are highway traffic control devices, there to protect the motoring public, not trains.

Increasing Section 130 funding and clarifying that such funds can be spent on grade crossing maintenance projects would allow additional crossings to be protected and further enhance highway safety.

2. Expand the Railroad Rehabilitation and Improvement Financing (RRIF) Program and remove restrictive program requirements

The Railroad Rehabilitation and Improvement Financing (RRIF) program provides low-interest loans and loan guarantees (not direct Federal grants) to help finance railroad capital investments. As authorized by TEA–21, RRIF authorizes up to $3.5 billion in direct loans and loan guarantees, of which at least $1 billion is reserved for small railroad projects. It is administered by the Federal Railroad Administration. Due largely to an exceedingly long delay in the release of implementing regulations and overly restrictive regulatory requirements (especially lender of last resort and collateral requirements), to date very few RRIF loans have been approved.

Railroads seek a major expansion of the RRIF program, and an easing of regulatory barriers to its use, in order to help railroads of all sizes—both freight and passenger—to continue to provide safe and efficient transportation service. Pending legislation (S. 1530—"RAIL–21", H.R. 2950—"RIDE–21", and S. 1991 "The National Defense Rail Act") would increase to $35 billion the amount of loans and loan guarantees available through the RRIF program. These proposals would also countermand unnecessary existing regulatory barriers pertaining to lender of last resort provisions and collateral requirements.

OPPOSITION TO TRUCK SIZE AND WEIGHT INCREASES

Notwithstanding the broad agreement detailed above among the freight railroads and other transportation modes on many issues relating to our national transportation needs and capabilities, there are some limited areas of disagreement among the modes. One such area concerns truck sizes and weights. Recently, proposals to allow larger and heavier trucks on our nation's highways have been offered. The rail industry strongly opposes these efforts.

Under current Federal law, trucks operating on the 46,000-mile U.S. Interstate Highway System can have a gross vehicle weight of no more than 80,000 pounds, and the use of longer combination vehicles (LCV—a tractor and two or more trailers or semi-trailers longer than 28 feet each) is limited to 14 Western States that allowed such trucks before 1991. These limits were frozen by Congress in the 1991 ISTEA legislation, largely in response to concerns about the safety of longer and heavier trucks. Since then, various interests have proposed that the weight limit be increased (for example, to 97,000 pounds) and that the use of LCVs be permitted on all or parts of the U.S. interstate highway network. Since 1991, all attempts to thaw the Federal freeze have been rejected by Congress.

Increased truck size and weight (TS&W) limits would, according to the U.S. Department of Transportation, have a disastrous effect on freight railroads. Railroad revenues would decline by $2.9 billion to as much as $6.7 billion per year. Contribution to railroad fixed and common costs would fall by $2.1 billion to $3.1 billion per year. As the contribution to fixed costs declined, less funding would be available for current and future investments, and so fewer such investments would be made. The reduction in investment would directly translate into reduced capacity, lower efficiency, degradation of service, a reduced ability to handle freight, and, eventually, further disinvestment. Remaining shippers on the rail network would face higher rates, reduced service, or both. Social costs associated with diversion of rail traffic to truck—more highway accidents, pollution, greenhouse gases, congestion, energy consumption, noise—would rise, and the cycle would continue in a vicious circle. This outcome is certainly not in the best interest of our Nation.

A primary basis for the rail industry's opposition to larger and heavier trucks is the unfair dichotomy between costs paid and costs incurred among the modes. Rail-competitive trucks, which are the heaviest, highest mileage operators among all trucks, do not come close to fully paying for the damage they cause to the highway system. The U.S. DOT's recent comprehensive Highway Cost Allocation Study concluded that combination trucks weighing 80,000 to 100,000 pounds pay an estimated 50 percent of their cost responsibility, and trucks weighing over 100,000 pounds would pay only 40 percent of their cost responsibility. Rail-competitive trucks already underpay by billions of dollars per year, representing an enormous competitive hurdle that railroads must overcome. Liberalizing TS&W limits would only exacerbate the existing inequity.

A committee of the Transportation Research Board (TRB), an arm of the National Research Council, which in turn is part of the National Academy of Sciences, recently released a report on the truck size and weight issue. The report was Special Report 267: Regulation of Weights, Lengths and Widths of Commercial Motor Vehi-

cles. The report recommends an immediate thaw in the TS&W freeze via the introduction of 90,000-pound single trailer trucks and a 50 percent increase in the weight of double trailer combination vehicles (while also boosting the size of the vehicles). These dramatic changes would be followed by further TS&W increases and the authorization of LCVs through "pilot programs" overseen by a proposed new government agency. The TRB report calls for much of the regulatory authority associated with TS&W to be transferred from the Federal Government to the States.

The TRB report has many shortcomings that undermine its usefulness in the debate over TS&W, as detailed in Dr. Gerard McCullough's August 2002 evaluation of the report, undertaken for the AAR and included here as Attachment 1. As Professor McCullough[10] explains, the TRB report starts with the faulty premise that there is widespread "dissatisfaction" with existing TS&W limits, when, in fact, existing limits represent an equilibrium wherein the needs of truckers and truck shippers are balanced against the safety concerns of motorists and the national goal of maintaining a healthy overall freight transportation system. Professor McCullough notes that the TRB report contains no new quantitative analysis. For example, the report is critical of the way previous studies calculated bridge damage costs due to changes in TS&W, but does not provide an estimate of what it views as the correct costs. Instead, the report says that the correct analysis has not been done yet. In other words, the TRB report admits it does not know what the effect would be of a TS&W thaw on bridge costs, but it nevertheless recommends a thaw.

Professor McCullough stresses that an efficient freight market is one in which the users absorb the full marginal costs that they impose. Unfortunately, the TRB offers no specific proposal by which the substantial current truck underpayment for the pavement damage they inflict would be ameliorated. These underpayments would sharply increase as gross vehicle weight increased, making existing inequities even worse. Finally, as the TRB report admits, serious questions exist regarding the safety implications of increasing TS&W limits. Yet the TRB calls for addressing this issue by instituting a "pilot program" that would essentially force unknowing and likely unwilling highway users to participate in an experiment to determine the safety implications of changes in TS&W.

As noted above, increasing the size of trucks without insuring full cost recovery would greatly exacerbate the problems caused by large trucks. It is interesting to note that under a recent proposal by the Reason Foundation, a Los Angeles "free market" think tank, truck-only tollways would be built on highway median strips. Under Reason's proposal, LCVs and heavier trucks would be allowed on the truck tollways, but the roads would be completely user-financed. Railroads are pleased that the Reason proposal explicitly endorses what the railroads have long maintained—that heavy trucks should pay their own way.[11] Every year that goes by means that motorists pay billions of dollars in subsidies, while heavy trucks continue to avoid their cost responsibility.

COMMUTER AND INTERCITY PASSENGER ACCESS

Another important issue that could significantly affect the freight railroads' ability to provide the quality of service that today's freight shippers require to remain competitive in the global marketplace is the increasing demand for both intercity and commuter rail service.

Rail passenger service can play an important role in alleviating highway and airport congestion, decreasing dependence on foreign oil, reducing pollution, and en-

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[11]While a detailed analysis of the Reason proposal is beyond the scope of this testimony, it should be noted that while railroads support the requirement that trucks fully repay the cost of the damage they cause to the highway system, care should be taken to insure that all costs—such as right-of-way acquisition, property taxes, truck staging areas, etc.—be fully recovered. For example, the publicly owned median should not just be given to the private sector motor carrier industry without their having to pay for it. Railroads repaid the Federal Government several times over for the value of the land grants they received from the Federal Government. A 1943 study by the Board of Investigation and Research concluded that the value of compensation provided by railroads to the Federal Government has "fully counter-balanced these aids which were conferred many years ago." A 1977 study by the U.S. Department of Transportation concluded that". . . the Federal Government has been a net beneficiary of its railway aid programs," having been more than fully reimbursed for its land, with interest.

hancing mobility and safety. Freight railroads have demonstrated their willingness to work cooperatively with Congress, Amtrak, commuter railroads, the States, and local jurisdictions to insure that the public's transportation needs can be met in the most efficient possible manner. Currently, freight railroads host commuter operations in cities around the Nation, operate commuter trains under contract to local authorities in several cities, and own 97 percent of the mileage over which Amtrak operates. Moreover, at least 29 cities are proposing to establish new or expanded commuter rail operations, and the U.S. Department of Transportation has designated 11 corridors for the introduction of high speed passenger rail systems across the country.

Freight railroads once provided all of our nation's rail passenger service, but large and growing deficits following World War II led them to exit the business. Existing rail passenger service is supported primarily by the public through Federal, State, or local government programs. While passenger railroading is important to our country, it pales in comparison to the importance of freight railroading. Our privately owned freight railroad system is a vital and strategic national asset—moving more freight, more efficiently, and at lower rates than anywhere else in the world, according to Lou Thompson, the World Bank's Railways Advisor. The safe, efficient, and cost-effective transportation service that freight railroads provide is critical to the domestic efficiency and global competitiveness of our Nation.

Therefore, we must find the most effective way to provide the passenger services that America needs, but without burdening the freight rail system—operationally, financially, or in any other way. Congress should resist calls to legislate mandated passenger access to freight-owned track, as proposed in H.R. 2654 in the current Congress. Access by passenger railroads to facilities owned by private freight railroads must be negotiated on a case-by-case basis by the parties, without government interference.

Freight railroads have developed a series of principles regarding the future of intercity passenger rail service. Our principles call for future rail passenger public policy to acknowledge the extreme capital intensity of railroading and to ensure that railroads' investment needs can be met. Policies which add to freight railroads' already enormous investment burden, such as further saddling them with the support of passenger rail infrastructure needs, or which reduce their ability to provide the quality of service needed by their freight customers, must be avoided. To do otherwise would undercut our nation's freight rail capabilities and be counterproductive in addressing our country's congestion, environmental, safety, and economic concerns.

SECURITY OF OUR NATION'S RAIL NETWORK

Finally, I would like to touch on the issue of security. This issue is relevant to this hearing because of the tension between the free flow of commerce and the assurance that our transportation systems are adequately protected from terrorist threats. Congress should strike a proper balance between protecting our country's transportation assets and its citizens, and providing for the free flow of goods and promoting our international competitiveness.

Following the terrorist attacks on September 11, 2001, railroads took numerous proactive steps to increase the security of our nation's rail network. Railroads immediately began developing a comprehensive Terrorism Risk Analysis and Security Management Plan. The industry formed a security task force composed of railroad representatives with expertise in areas such as operations, legal issues, railroad police activities, hazardous materials transportation, and information technology. Outside consultants with expertise in intelligence and counter-terrorism were retained to provide advice on best practices.

The task force created five Critical Action Teams addressing hazardous materials, operations security, infrastructure, information technology and communications, and military liaison. The task force undertook a comprehensive risk analysis which identified critical assets, vulnerabilities, and threats, and assessed the overall risk to people, national security, and the nation's economy. The task force then identified more than 50 countermeasures. The Terrorism Risk Analysis and Security Management Plan, which is now in effect, utilizes all this information and establishes four different alert levels, with implementation of specific countermeasures dependent on the alert level in effect.

The plan also provides for the establishment of a Railway Alert Network (RAN), a 24-hours-aday, 7-days-a-week communications center operated by the AAR. Through the RAN, railroads share information with the intelligence community. In addition, the RAN provides a means for instituting appropriate alert levels and beginning to take the appropriate countermeasures.

The AAR also operates the Surface Transportation Information Sharing and Analysis Center (ST-ISAC). Presidential Decision Directive 63 called for the creation of private sector ISACs to protect the nation's critical infrastructure from attack. The ST-ISAC, formed at the request of the U.S. DOT, collects, analyzes, and distributes security information from worldwide resources to protect vital information technology systems from attack. The ST-ISAC also operates 24-hours-a-day, 7-days-a-week.

CONCLUSION

Our nation's global economic supremacy is derived in large part from a transportation system that is second-to-none. Freight railroads are an indispensable element of that system. Going forward, we must ensure that our freight transportation capabilities will meet the increasing demands placed upon it. We are confident that the rail industry can play a major role in meeting this challenge. However, our nation's ability to provide transportation alternatives that promote mobility, economic efficiency, and environmental responsibility depends critically on the further development of the intermodal approach initiated by ISTEA and TEA–21 in which the full capabilities of each mode can be fully realized. No less important to freight railroads is the rejection of public policies that would unnecessarily and unfairly restrict their capability to deliver their maximum value to the U.S. economy.

ATTACHMENT 1

[August 2002]

EVALUATION OF TRANSPORTATION RESEARCH BOARD SPECIAL REPORT 267: REGULATION OF WEIGHTS, LENGTHS AND WIDTHS OF COMMERCIAL MOTOR VEHICLES

(By Gerard J. McCullough, Ph.D.)

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EXECUTIVE SUMMARY

The purpose of this memorandum is to provide an evaluation of the Transportation Research Board's (TRB) Special Report 267: Regulation of Weights, Lengths and Widths of Commercial Motor Vehicles (hereafter, "the Report"), which was released on May 16, 2002. The Report was produced by the TRB Committee for the Study of the Regulation of Weights, Lengths and Widths of Commercial Motor Vehicles ("the committee").

The Report contains a series of conclusions and recommendations regarding TS&W regulation in the United States. It concludes that "opportunities exist for improving the efficiency of the highway system through reform of Federal truck size and weight regulations" (p. ES–1) and finds that "changes in truck size and weight regulations . . . offer the greatest potential to improve the functioning of the [highway] system" (p. ES–2). The Report recognizes that "it is essential to examine the safety consequences of size and weight regulation" (p. ES–3), but cautions "it is not possible to predict the outcomes of regulatory changes with high confidence" (p. ES–3).

To facilitate the liberalization of TS&W limits, the Report recommends a revised regulatory regime that would involve Federal supervision of State-set limits with evaluation provided by an independent Commercial Traffic Effects Institute (CTEI). The committee calls for pilot studies to evaluate the consequences of changes in TS&W regulations, and recommends that States be allowed to issue permits for the operation of longer and heavier trucks once the CTEI is established and able to monitor and evaluate their performance.

The Report adopts a too-narrow analytical perspective that significantly limits its usefulness in establishing national transportation policy. The report starts with the questionable assumption that there is widespread dissatisfaction with existing Federal truck size and weight regulations, when, in fact, the current system represents a balancing of the needs of truckers and truck shippers against the needs of motor-

ists and the national goal of maintaining a healthy overall freight transportation system. In addition, it also fails to recognize:

- The need for an analysis of total freight supply and demand, including the role of shipper logistics costs.
- That changes in TS&W limits affect the capacity of the highway freight network and this in turn affects the performance of railroad and other freight networks (and their shippers).
- That the goal of TS&W regulation—after safety—should be to improve the overall efficiency of the national freight market, not just to reduce direct trucking costs.
- That an efficient freight market is one in which the users absorb the full marginal costs that they impose.

There is no analytical basis, either in the Report or in earlier TS&W studies evaluated by the committee, for many of the Report's most important conclusions and recommendations. For example, the committee's recommendations for immediate changes in TS&W (subject to the creation of a CTEI) are not consistent with its own finding that the effects of such changes are uncertain. Nor is there any legal or economic analysis of why an independent CTEI would be more effective, or more appropriate, than the Federal DOT in determining the need for, and evaluating the performance of, TS&W regulations. There is also no analysis from an experimental design perspective of how the committee's pilot studies would demonstrate the effects of changes in TS&W limits, or an explanation of the potentially serious ethical issues a pilot program might entail.

Perhaps most importantly, the Report does not evaluate the effects of changes in TS&W limits on the overall freight transportation market. Unfortunately, this decision causes it to omit certain points which are essential to a thorough evaluation of TS&W regulations. These include:

- Significant diversion of freight tonnage off the rail and barge networks and onto the highway network.
- Significant increases in the social cost—accidents, pollution, greenhouse gases, congestion, energy consumption, and noise—of moving this freight.
- Potential increases in the rates paid by freight shippers who remain on the rail network.
- Potential disinvestment by railroads, reduced intermodal and other service offerings by railroads, and secondary diversion of more freight onto the highway system.

The Report has some strengths. It recognizes the uncertainty that exists regarding the benefits and full costs of changes in TS&W limits; the need to better understand nuisance-related and stress-related costs from mixed auto and truck traffic, and the potential benefit of separating auto and truck.; the potential role of cost-based user fees in managing infrastructure and mitigating negative effects of trucks; and the importance of regulatory institutions and enforcement mechanisms.

Overall, because of its shortcomings, the Report provides extremely limited usefulness to policymakers interested in evaluating TS&W regulations. Previous studies relating to TS&W issues, produced by the U.S. Department of Transportation and other TRB committees, do a more satisfactory job of including all pertinent factors in their analyses.

I. BACKGROUND

The current U.S. truck fleet comprises about 8 million vehicles, about a fourth of which are combination trucks. Most combination trucks are large, with about 70 percent having registered maximum gross vehicle weights (GVW) over 75,000 pounds. The number of trucks on the road is small by comparison to private passenger vehicles, but because on average trucks are driven more frequently, their share of vehicle miles traveled (VMT) is disproportionate to their numbers. However, combination trucks still make up only about 5 percent of total VMT, as shown in Table 1.

Table 1. Total Vehicles and Vehicle Miles Traveled by Vehicle Class (2000)

		Total VMT (millions)	Percent of Total Vehicles	Percent of Total VMT
Autos	137,967,488	1,612,393	61.1 percent	58.6 percent
Pickups/Vans	79,084,979	924,018	35.0 percent	33.6 percent
Buses	746,125	7,601	0.3 percent	0.3 percent
Single Unit Trucks	5,926,030	70,583	2.6 percent	2.6 percent
Combination Trucks	2,096,619	135,208	0.9 percent	4.9 percent

Table 1. Total Vehicles and Vehicle Miles Traveled by Vehicle Class (2000)—Continued

		Total VMT (millions)	Percent of Total Vehicles	Percent of Total VMT
Total	225,821,241	2,749,803	100.0	100.0

Note: Autos category includes motorcycles.
Source: Federal Highway Administration, Highway Statistics 2000, Table VM–1.

Despite their relatively small numbers, trucks have an important and significant impact on the U.S. highway system. Trucks are disproportionately involved in fatal traffic accidents[1] and are a major factor in urban traffic congestion and noise pollution.[2] Trucks also produce significant emissions and because of the their weight, produce much greater wear on pavement than do private passenger vehicles.[3]

Since the creation of the Interstate Highway System, trucking has become an increasingly important component of the U.S. freight market. Trucks now carry about 29 percent of total intercity freight volume in terms of ton-miles in the United States versus the 41 percent carried by railroads. In terms of revenue, trucking is even more significant—intercity trucking now represents 81 percent of all intercity expenditures for freight transportation in the United States, as shown in Table 2

Table 2. Freight Transportation Outlays by Type of Transport—2000

Mode	Millions of dollars	Percent of total
Rail	36,454	9.0 percent
Truck-intercity	328,632	80.7 percent
Water	3,501	0.9 percent
Oil pipeline	9,467	2.3 percent
Air carrier	19,800	4.9 percent
Other	9,111	2.2 percent
Total	407,119	100.0 percent

Source: Eno Transportation Foundation, Inc., Transportation in America 2001.

Existing TS&W Regulation

The dimensions and weights of commercial vehicles are regulated at both the Federal and State levels. Federal laws regulate both maximum permissible gross vehicle weights and maximum axle weights, and the width, length, and number of trailers. A summary of current Federal TS&W regulations is provided in Table 3.

All States have laws governing the weights and dimensions of trucks. All but seven States apply some modification of the Federal regulations on a limited basis through permits, exemptions, and "grandfather rights." Altogether, regulations in the 50 States and the District of Columbia represent over 40 different combinations of single axle, tandem axle, bridge formula, gross vehicle weight, and interstate/non-interstate specifications.[4]

Table 3. Summary of Current Federal Truck Size and Weight Regulations

	Criteria	Applicability	Limit
Weight	Single Axle limit on Interstate System	Interstate System	20,000 lbs.

[1]According to the Federal Motor Carrier Safety Administration, large trucks are involved in 9 percent of fatal accidents and 78 percent the victims in truck-related fatal accidents are occupants of the other vehicles. See Large Truck Crash Profile: The 1998 National Picture, Tables 1 and 4.

[2]The Federal Highway Administration has found that a combination truck imposes the congestion costs equivalent to 2.5 to 15 automobiles, depending upon the highway's grade and speed, the weight-to-power ratio of the truck, and the vehicle length, and that the most common semi-trailer trucks impose more than 30 times as much noise pollution costs as autos. See Federal Highway Administration, 1997 Federal Highway Cost Allocation Study Final Report, August 1997, Table V–26.

[3]Pavement wear increases exponentially with vehicle weight, such that 80,000-pound trucks on urban interstates impose marginal pavement costs per mile that are more than 400 times greater than automobiles. See Federal Highway Administration, 1997 Federal Highway Cost Allocation Study Final Report, August 1997, Table ES–6.

[4] A complete inventory of current State size and weight limits, as well as a thorough discussion of the nature, extent, and present status of grandfather rights is provided in U.S. Department of Transportation, Comprehensive Truck Size and Weight Study, Volume II Issues and Background, 2000, pp II–8—II–24.

Table 3. Summary of Current Federal Truck Size and Weight Regulations—Continued

	Criteria	Applicability	Limit
	Tandem Axle limit on Interstate System	Interstate System	34,000 lbs.
	Total gross vehicle weight	Interstate System	80,000 lbs.
	Gross weight on any group of two or more consecutive axles (bridge formula).	Interstate System	500(LN/(N–1)+12N+36)
Size	Vehicle width	National Network	102 inches
	Semi-trailer length	National Network	48 feet (minimum)
	Twin trailer length	National Network	28 feet (minimum)

Notes: National Network refers to a network of roads designated by the Secretary of Transportation pursuant to the Surface Transportation Assistance Act of 1982. It includes virtually all Interstates and some other highways and totals more than 200,000 miles. For Bridge Formula W = overall gross weight on any group of two or more consecutive axles to the nearest 500 lbs., LN = distance in feet between the extreme of any two or more consecutive axles, and N = number of axles in the group.

Source: U.S. DOT, Comprehensive Truck Size and Weight Study, Volume I Summary Report, p. 3.

Federal TS&W regulation has its origin in the creation of the Interstate Highway System in 1956. The passage of the regulations was motivated by the significant role of the Federal Government in funding 90percent of the construction of the system. The Federal weight limits were originally set at 73,280 pounds, 18,000 pounds, and 32,000 pounds for gross vehicle weight, single axle weight, and tandem axle weight, respectively, but were increased to those shown in Table 3 in 1975.

In 1982, the Federal role in TS&W regulation was increased through the passage of the Surface Transportation Assistance Act (STAA), which required States to adopt Federal weight limits on Interstate highways and allow single 48-foot trailers and twin 28-foot trailers on a "National Network" designated by the Secretary of Transportation in consultation with the States. This network consists of virtually the entire Interstate system plus another 156,000 miles of highways.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) prohibited the States from expanding either the number of routes on which Longer Combination Vehicles (LCVs) could be operated or the maximum weights and dimensions allowed for these vehicles.[5] This regulation has come to be known as the "LCV freeze" and in 1998 it was extended by the Transportation Equity Act for the 21st Century.

The study of TS&W issues by the Federal Government predates its involvement in funding of the highway system. The first major study was completed in 1941 by the Interstate Commerce Commission.[6] A major impetus for these studies has been the claim that higher size and weight limits increase the efficiency of the freight markets. The main findings of previous TS&W studies, especially those that are relevant to conclusions and recommendations in TRB Special Report 267, are reviewed in Appendix A1.

II. OVERVIEW OF TRB SPECIAL REPORT 267

The Transportation Equity Act for the 21st Century (TEA–21) contained a provision specifically requiring the Secretary of Transportation to request that TRB conduct a TS&W study. The charge given in the act is quite general in scope, specifying only". . . a study regarding the weights, lengths, and widths of commercial motor vehicles operating on Federal-aid highways . . ." and that the study provide policy recommendations.[7]

The law requires TRB to consult with the U.S. Department of Transportation, States, the motor carrier industry, freight shippers, highway safety groups, air quality and natural resource management groups, and commercial motor vehicle driver representatives. It requires TRB to consult with "other appropriate entities," although it does not specify what these entities might be. It also requires TRB to consider and evaluate the impact of its recommendations on the economy, the environment, safety, and service to communities.

The Committee for the Study of the Regulation of Weights, Lengths and Widths of Commercial Motor Vehicles was formed in 1998, and its original purpose was to review certain aspects of the U.S. DOT's TS&W study. As it happens, TRB had already begun planning for a TS&W study before TEA–21, and so the committee was

[5]Longer combination vehicles (LCVs) refers to multi-trailer combinations longer than the standard twin 28-foot trailer combination vehicle (the so-called STAA double). The LCVs include seven-axle "Rocky Mountain" doubles, eight-axle "B-Train" doubles, nine-axle "turnpike doubles", and seven-axle tripletrailer combinations.

[6] Interstate Commerce Commission, Federal Regulation of the Sizes and Weight of Motor Vehicles; Letter from the chairman, Interstate Commerce Commission, 77th Congress, 1st Session, House Document No. 354, August 14, 1941.

[7]P.L. 105–178, Section 1213, Subsection (i).

reassigned to this task when the law was passed. The committee consisted of 13 members representing State transportation officials, professional researchers, and academics, overwhelmingly in the field of civil engineering, with a small representation from economics. A summary list of the members and their respective affiliations is provided in Appendix A2.

As part of the process of conducting the study, the committee solicited comments from outside parties on the issue of changes to TS&W regulations. Of the 46 organizations receiving letters, 25 provided comments in response. The full list of organizations contacted is shown in Appendix A3.

The committee's request for comments included the following three specific questions:

1. What revisions to Federal law and regulations regarding commercial vehicle weights, lengths, and widths should the committee consider?
2. What factors should it take into account in evaluating possible revisions?
3. Should the committee recommend revisions to Federal law and regulations?

Responses to the three questions were quite varied. In response to Question 2, four respondents explicitly stated that the committee should not consider the issue of modal competitiveness or the diversion of freight from the railroads in evaluating possible TS&W revisions. Three of these were trucking industry interests.[8] The other was the National Industrial Transportation League.

The basic conclusion in Special Report 267 is that increased TS&W limits have the "greatest potential" to improve highway freight efficiency, but that their full effects (including safety effects) are uncertain and that there is a "substantial probability" that there will be safety ramifications. To facilitate the liberalization of TS&W limits, the Report proposes a revised regulatory regime that would involve Federal supervision of State-set limits with evaluation provided by an independent Commercial Traffic Effects Institute (CTEI). The Report suggests that the States should not be able to begin liberalizing the regulations until the CTEI is established and is able to conduct careful assessments. A full list of the Report's conclusions and recommendations is in Table 4.

Table 4. Conclusions and Recommendations of TRB Special Report 267

Conclusions	Recommendations
1. Opportunities exist for improving the efficiency of the highway system through reform of Federal truck size and weight regulations. Such reform may entail allowing larger trucks to operate.	1. Create a Commercial Traffic Effects Institute
2. Appropriate objectives for Federal truck size and weight regulations are to facilitate safe and efficient freight transportation and interstate commerce, to establish highway design parameters, and to manage consumption of public infrastructure assets.	2. Evaluate the consequences of changes in truck size and weight regulations through pilot studies
3. Changes in truck size and weight regulations made in coordination with complimentary changes in the management of the highway system offer the greatest potential to improve the functioning system.	3. Allow certain immediate changes in Federal regulations
4. The methods used in past studies have not produced satisfactory estimates of the effect of changes in truck weights on bridge costs.	4. Allow certain Longer Combination Vehicles (LCVs)
5. It is not possible to predict the outcomes of regulatory changes with high confidence.	5. Routes and roads to which Federal standards should apply
6. It is essential to examine the safety consequences of size and weight regulation. Research and monitoring needed to understand the relationship of truck characteristics and truck regulations to safety and other highway costs are not being conducted today.	6. Conduct research on enforcement, environment and safety effects, bridge costs, freight markets, driver stress, and dedicated truck infrastructure.
7. Although violations of size and weight regulations may be an expensive problem, monitoring of compliance with the regulations is too unsystematic to allow the costs involved to be estimated.	

[8]The American Trucking Associations, the Distribution & LTL Carriers Association, and the National Automobile Transporters Association.

III. EVALUATION OF TRB SPECIAL REPORT 267 GENERAL OBSERVATIONS

The most detailed analysis in the Report (pp. 2–17 to 2–29) focuses on new probabilistic techniques for assessing bridge costs. The actual analysis of freight market efficiencies—the raison d'Etre for the Report—is limited to a few bullet-points on pages 2–12 and 2–13. There is some discussion on pages 2–36 to 2–39 of the relationship between freight markets and land use—a topic some would regard as very important—but the Report elects not to weigh these effects: "Predicting and evaluating the effect of changes in size and weight regulation on land use would be extremely difficult" (p.2–39).

The Report does recognize the uncertainty that exists regarding TS&W issues. The Executive Summary cautions: "Throughout its work, the committee found that a lack of information about the costs and benefits of truck transportation and the impacts of the size and weight regulations hindered its effort to provide useful policy advice" (p. ES–1). In a more detailed summary of these uncertainties (p. 2–11), the Report concludes that pavement impacts and traffic impacts are well enough understood to facilitate regulatory change, but that there is inadequate knowledge of safety effects, bridge costs, changes in the volume of truck traffic, motorist stress and discomfort, and administrative feasibility. Not all would accept the claim that the infrastructure and traffic effects are well known.[9]

The Report also acknowledges the potential importance of motorist comfort and distress to TS&W. The Report does not devote an extensive amount of time to discussing the issue, but it does acknowledge that research should be conducted to determine whether these effects are "real costs that should be considered in evaluations of highway regulations" (p. 5–18).[10] The Report also mentions the potential benefits to be gained from separating truck and auto traffic by constructing separate highway and bridge facilities for trucks. Road Work, the 1989 Brookings Institution study of the U.S. highway system by Small, Winston, and Evans developed this idea that there may be "diseconomies of scope" that result from combining cars and trucks on the same system."[11] The Report acknowledges that separate truck facilities could help to accommodate the growth in freight demand, though it does not discuss the financing of these facilities.[12]

Finally, the TRB Report recognizes the potential role that cost-based user fees could play in managing the utilization of highways and bridges and mitigating the negative effects of trucks. Though the Report's discussion is mostly limited to cases where the imposition of fees would facilitate the implementation of higher TS&W limits (p. 3–28), the general endorsement of highway pricing is a policy advance. This is coupled with the important recognition that the design of regulatory institutions and enforcement mechanisms as well as standards are important elements of the regulatory process.

A major shortcoming of the Report is that it fails to provide any real analysis of supply and demand in the freight market, even though the explicit aim of the Report is to increase the efficiency of this market. The economic theory upon which the Report is based is uncomplicated: "The regulations have important economic consequences because trucking accounts for four-fifths of expenditures on freight transportation in the United States, and trucking costs are influenced by truck size and weight."

The DOT Comprehensive Truck Size and Weight Study does not necessarily contradict this theory, but it does provide a more thorough picture of the freight market to provide a basis for careful policy decisions. For example, the U.S. DOT study points out in Chapter IV that overall logistics costs—not truck or rail rates—are the

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[9]The committee appears to be less than certain about its knowledge of traffic effects. It recognizes (pp. 236) that the methods used to estimate congestion and pollution costs involve "oversimplified treatment on the complex interactions between trucks and other vehicles in the traffic stream. Changing the traffic volume, dimensions, and acceleration abilities of trucks will change how motorists drive around them, affecting other vehicles' patterns of acceleration and braking." The committee also acknowledges (pp. 233 to 2–34) that the predicted effects on traffic flow depend critically on freight diversion forecasts, (which the Report discounts).

[10]The Report makes the methodological suggestion that the only way to evaluate the economic value of driver stress is to observe changes in traveler behavior where automobile drivers chose different routes to avoid big trucks. To see the limitations of this method, consider a case with which the committee members might be familiar—the installation of Traveler Information Systems on public transportation systems. The economic value of these systems, which let travelers know in real time when the next bus or train is arriving, is not measured solely by the number of travelers who divert from highway to transit. The valuation should include some measure of the usefulness of information provided existing users.

[11]Small, K., Winston, W., and Evans, C., Road Work: A New Highway Pricing & Investment Policy, Washington DC: The Brookings Institution, p. 102.

[12]The Report also acknowledges here that "other modes" (p.5–18) will be part of the solution.

factors that determine freight market decisions. It notes that savings in inventory carrying costs are about equally important as reductions in (truck and rail) transportation costs in increasing the efficiency of freight markets. The U.S. DOT study also spends a considerable amount of time analyzing the impact of TS&W regulations on the freight railroad industry (Volume III, Chapters II, III, IV, XI). These impacts are important because they have direct bearing on the overall efficiency of the freight market.

The notion of freight market efficiency developed in Special Report 267 is too narrow to be useful in a discussion of national transportation policy. The sole focus of the Report is on the movement by truck from Point A to Point B at the lowest direct expense to some motor carriers and shippers. An efficient national freight market is an intermodal system of air, water, highway, rail and shipper activities which take full advantage of linked networks of transport assets. Moreover, (as the TRB itself recognized in Special Report 246[13]) an efficient freight market is one in which the users absorb the full marginal costs that they impose.

Using this metric, Special Report 246 found rail operations to be two-to-five times more efficient than truck operations on a corridor-by-corridor basis. This suggests that higher TS&W limits, which would divert freight from the rail network onto the highway network, would increase social costs and decrease efficiency. One could argue that the reduction in private costs to truckers and truck shippers could partially offset this effect, but a national policy report should make that argument explicitly.

POINT-BY-POINT EVALUATION OF REPORT CONCLUSIONS AND RECOMMENDATIONS

This section provides a point-by-point evaluation of the TRB Report's conclusions and recommendations. A serious shortcoming of the Report is its failure to establish an analytical basis for the recommendations which it makes. There is no analytical justification, for example, either in earlier TS&W studies or the Report itself, for its novel regulatory proposal—Federal "supervision" of State TS&W permitting with oversight provided by an independent Commercial Traffic Effects Institute (CTEI). Nor is there an analysis from an experimental design perspective of how the Report's pilot studies would demonstrate the effects of changes in TS&W. Other recommendations for immediate change that the Report makes appear to be inconsistent with its own finding that the effects of increased TS&W limits are uncertain. The Report does suggest that States should not be able to begin liberalizing the regulations until the CTEI is established and is able to conduct careful assessments.

A. Conclusions of the TRB Report

Conclusion 1: Opportunities exist for improving the efficiency of the highway system through reform of Federal TS&W regulations. Such reform may entail allowing larger trucks to operate.

The proper focus of TS&W policy should not be solely on lowering the private costs of trucking firms and/or some freight shippers, but on minimizing the public costs (infrastructure, safety, pollution, energy consumption, congestion) of truck transportation and ensuring the overall efficiency of the national freight market. An efficient market is one in which the users absorb the full marginal costs that they impose.

It is wrong for the Report to conclude—without a more careful analysis—that there is a direct relationship between increases in TS&W limits and increases in freight market efficiency. The data for such analyses were available to the committee in TRB Special Report 246, in a 1998 DOT-sponsored study by David J. Forkenbrock of the University

of Iowa entitled External Costs of Truck and Rail Freight Transportation, in the DOT's 2000 Comprehensive Truck Size and Weight Study, and in the 2000 Addendum to the 1997 Federal Highway Cost Allocation Study.

According to the 2000 Addendum to the 1997 Federal Highway Cost Allocation Study, heavy trucks in the 75,000–80,000 pound range cover only 80 percent of the infrastructure costs they impose, and heavy trucks in the 80,000–100,000 pound range cover 50 percent.[14] The full marginal social cost of bigger trucks—much of it not recovered—is on the order of $0.20 to $0.70 per mile.[15]

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[13] TRB Special Report 246, Paying Our Way: Estimating Marginal Social Costs of Freight Transportation, 1996, Table ES–1, p. 8.

[14] Federal Highway Administration, 2000 Addendum to the 1997 Federal Highway Cost Allocation Study Final Report, Table 7.

[15] Ibid., Table 13.

Table 5 summarizes the relevant results of the TRB's own Special Report 246, comparing the efficiency of two representative freight movements by rail and by 5-axle tractor semitrailer:

- Case 1 compares the full costs of a grain movement from Walnut Grove, MN to Winona, MN, a distance of about 200 miles. Case 1A summarizes the full costs of a direct truck move using local roads. Case 1B analyzes the truck costs by Interstate. Case 1C is a combined truck/rail movement.
- Case 3 compares the full costs of a container movement from Los Angeles, CA to Chicago, IL, a distance of about 2,000 miles. Case 3A is a truck movement by Interstate. Case 3B involves truck and container railcar.

In both corridors, the rail movements are more energy-efficient and labor-efficient and impose lower social costs. The modes are competitive largely because of public subsidies to trucking and the high valuation that shippers place on the flexibility and speed of the truck mode.

Table 5. Efficiency Comparisons: Truck versus Rail ($)

	Case 1A	Case 1B	Case 1C	Case 3A	Case 3B
Marginal External Cost					
Congestion	8.94	6.25	0.00	295.81	0.75
Accidents	46.04	26.11	9.19	89.43	77.72
Air Pollution	6.54	6.75	1.43	63.65	34.83
Energy Security	3.10	3.63	0.39	16.64	5.36
Noise	2.31	0.00	0.78	20.68	12.65
Marginal cost of public infrastructure	38.63	61.02	0.00	141.47	1.81
Total	105.57	103.77	11.78	627.67	133.12
Less: User fees ($/truckload)	51.16	59.90	0.65	285.14	10.50
Equals: Net subsidy ($/truckload)	54.41	43.87	11.13	342.53	122.62
Carrier's average cost ($/truckload)	454.16	442.73	124.87	2469.06	1049.44

Source: TRB Special Report 246, Tables 4–2, 4–3, and 4–4.

The implication is that the liberalization of TS&W might improve the efficiency of the highway system, but in so doing it would also add external costs (negative impacts on other transportation modes, and increased costs to some transport users) that would not be recovered. Thus, total freight transport efficiency would be harmed.

Conclusion 2: Appropriate objectives for Federal TS&W regulations are to facilitate safe and efficient freight transportation and interstate commerce, to establish highway design parameters, and to manage consumption of public infrastructure assets.

The Report recognizes here that the goal of TS&W regulation is not to improve the efficiency of the "highway system," but to balance the public costs of truck travel against the efficiency of the freight transportation market. However, the committee does not follow its own admonition, because the focus throughout the Report is overwhelmingly on lowering the private costs of trucking.

A more balanced statement of goals is in the DOT's National Freight Transportation Policy Statement (January 1997), which guided the Comprehensive Truck Size and Weight Study. These goals include:

- Ensure a safe transportation system;
- Promote economic growth by removing unwise or unnecessary regulation and through the efficient pricing of publicly financed transportation infrastructure;
- Protect the environment and conserve energy;
- Provide funding and a planning framework that establishes priorities for allocation of Federal resources to cost-effective infrastructure investments that support broad National goals;
- Promote effective and equitable joint utilization of transportation infrastructure for freight and passenger service.

Notice the emphasis on safety, transportation infrastructure (not just highways), environment, and effective and fair use of all of the nation's transportation assets. It is worth noting, also, that when the DOT conducted its Comprehensive Truck Size and Weight Study, direction was provided by a Policy Oversight Group which included officials from FHWA, the Federal Railroad Administration, and the Maritime Administration. In addition, a Multimodal Advisory Group was established to provide technical assistance.

It is surprising that a national panel of transportation experts would view this broad set of goals and multimodal working structure as a "shortcoming" (p. 2–1),

and yet that is the conclusion of the TRB Special Report 267. The Report claims that a fundamental problem with the 2000 study and earlier studies is that "analyses have not started with clear definitions of the objective of regulation" (p. 2–1) which should be "asking how the size and weight regulations can be used as a part of a strategy for increasing the benefits of the highway system" (p. 2–3). What the Report means by "increasing the benefits" is liberalizing the TS&W limits.

Conclusion 3: Changes in TS&W regulations made in coordination with complimentary changes in the management of the highway system offer the greatest potential to improve the functioning of the system.

The Report provides no analytic basis for its conclusion that changes in TS&W have "the greatest potential" to improve the functioning of the freight market or the efficiency of the highway system. There is no analysis of the role of logistics costs, for example, or of the impact of deregulation, computerization, containerization, and advanced communications on freight productivity. Nor is there a complete analysis of the role that prices could play in making highways more efficient.

The Report's failure to consider logistics contrasts with the U.S. DOT's Comprehensive Truck Size and Weight Study, which recognizes that the freight market properly understood is a $600 billion activity (p. IV–12). The DOT study estimates that business logistics costs declined by about $65 billion during the 1980's, but that a large portion of that savings ($30 billion) was attributable to reductions in inventory carrying costs. The other $35 billion of savings was attributed to reductions in transportation costs for all modes including truck, rail, water, pipeline and air.

With respect to the highway system, Special Report 246 concludes that the best way to guarantee improvement for all users of the system would be to charge the right prices. Quoting the earlier committee:

It is desirable that shippers and carriers pay the full social cost of their freight operations—that is, that the special taxes and fees paid by the shipper or carrier for each shipment of freight be enough to offset the cost to the government of the shipment and the external costs that the shipment imposes on others. If the shipper and carrier do pay the full cost of each freight shipment, then they will be more likely to use transportation services responsibly and efficiently.[16]

TRB Special Report 267 also recognizes the potential role that cost-based user fees could play in managing the utilization of the highway system, but the focus is on applying these fees to larger-permit trucks in order to "facilitate" the implementation of higher TS&W limits (p. 3–28). There are technical problems with such a fee scheme that are discussed below under Recommendation 3. The more general problem is that the pricing described in this Report would do little to reduce the truck-related stresses that motorists feel, the safety risks they face, or the cross-subsidies they pay for infrastructure.

Conclusion 4: The methods used in past studies have not produced satisfactory estimates of the effect of changes in truck weights on bridge costs.

In its Comprehensive Truck Size and Weight Study, the U.S. DOT estimates that nationwide legalization of six-axle 97,000-pound single trucks would reduce shipper costs by 5.1 percent, but increase bridge costs by 33.1 percent. Similarly, nationwide operation of LCVs would decrease shipper costs by 11.4 percent, but increase bridge costs by 34.4 percent. Large expenditures for bridges—$53 billion in capital costs and $266 billion in user delay costs—would offset the efficiency gain to truckers and truck shippers.

The reason for this large estimate is that heavier singles and LCVs would overstress bridges beyond their design limits and force them to be replaced. The DOT recognizes that it probably overestimates bridge costs since "some bridges could be strengthened and replacement of bridges on highways with low volumes of the damaging vehicles would not have to be improved at all."[17]

The TRB Report puts considerable emphasis on the fact that a risk-based analysis would reduce the projected cost of bridge replacement.

Very high estimates of bridge costs from liberalized regulations are inconsistent with the experience of jurisdictions—in particular Michigan and Ontario—that have opened their roads to use by trucks much heavier than the Federal weight limits without experiencing costs of the magnitude estimated. Most important, the DOT estimates ignore the great potential for lower-cost methods of maintaining bridge safety that the States are increasingly capable of applying because of the widespread adoption of bridge management systems (p. 2–29).

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[16]TRB Special Report 246, Paying Our Way: Estimating Marginal Social Costs of Freight Transportation, 1996, p. 1.

[17]U.S. Department of Transportation, Comprehensive Truck Size and Weight Study, Volume I Summary Report, 2000, p. ES–20.

The Report recognizes that a proper, risk-based analysis has not yet been conducted. It does not fully acknowledge the difficulties that might be involved in such an analysis or the possibilities for upward revision of the DOT estimates. The Report is skeptical of the DOT's ability to predict regulatory outcomes in markets governed by supply and demand (see Conclusion 5 below), but confident of its ability to predict the behavior of State highway agencies and the legislative committees that fund these agencies.

Also, as the Report notes on p. 2–19, the U.S. DOT study omits fatigue costs attributed to larger vehicles markets which State engineers feel are underestimated. And, as the Report notes on p. 2–21, there are alternative rating systems for judging how much a bridge can be loaded and the choice of the higher rating system would revise the DOT estimate upward. The methods used in the past may not have produced satisfactory estimates, but they have not necessarily produced exaggerated estimates, as the Report claims.

Conclusion 5: It is not possible to predict the outcomes of regulatory changes with high confidence.

It is true that there is uncertainty involved in the prediction of regulatory outcomes. However, economists have made considerable progress in the empirical analysis of various network industries, and these results have been used extensively to improve the regulatory framework and the functioning of the economy. An example which a TRB panel should have been aware of is railroad deregulation in 1980. The regulatory changes accompanying rail deregulation were supported by extensive economic studies before the fact, and have been validated by subsequent analyses. One might point to similar work in most other network industries—airlines, electricity, telecom, gas, water, etc.[18]

It is one thing to conclude, as the Report does (p. 2–6), that a 1986 TRB committee was not able to predict the exact length (53 ft) of the trailers that the trucking industry would adopt in response to a change in statutory language, or (p. 2–6) that a 1970's Canadian study did not anticipate the variety of specialized trucks that would evolve as a result of new provincial weight limits. It is another thing to decide—as the committee apparently does—that it could disregard the work in the Comprehensive Truck Size and Weight Study aimed at forecasting the effects of TS&W changes on the intercity freight markets.

Those effects can be quite striking. The illustrative TS&W scenarios analyzed in the DOT study show that bigger trucks would divert between 4.0 percent and 19.6 percent of annual rail traffic (measured in car-miles) onto the highway system (Table ES–12). This means between 1.02 billion car-miles and 5.0 billion car-miles would be converted into highway trailer-miles each year. It also means a projected loss of railroad contribution to fixed costs ranging from 38.2 percent to 55.8 percent. This is money that would no longer be available to the railroads to cover the fixed costs of their operations and sustain investment.

The problem that the DOT report recognizes is that railroad fixed costs are high, so the losses would have to be recovered (to some extent) in the form of higher prices to remaining rail shippers. In other words, a reduction in costs to some highway shippers must lead to an increase in rates for some rail shippers. In response to trucks cutting rates, railroads in many cases would have to lower their rates to stay competitive or else lose the traffic. Losing traffic means that remaining shippers must bear the burden of providing fixed costs, and so on, and you get a vicious circle. The TRB committee, with a mandate to consider overall economic efficiency, should have recognized this.

Conclusion 6: It is essential to examine the safety consequences of TS&W regulation.

In its Comprehensive Truck Size and Weight Study, the U.S. DOT concludes that safety must be the primary goal of TS&W policy along with "the considerable public concern about mixing larger trucks with passenger cars on our highways."[19]

Collisions between medium to heavy trucks and other, smaller vehicles (principally passenger cars and light trucks and minivans) can be particularly lethal to the occupants of the smaller vehicles, principally because of the difference in weight (mass) between the two vehicles, and for head-on collisions, the high vehicle closing speeds typically involved. In total, collisions with medium to heavy trucks account

[18]Economists involved in these reforms are aware of the mistakes that have been made and of the limitations of such analyses, but no one has concluded that the analysis efforts are irrelevant. For a critical overview of these developments see Michael A. Crew and Paul R. Kleindorfer, "Regulatory Economics: Twenty years of Progress?" pp. 5–22, in a special issue of the Journal of Regulatory Economics, 21(1), January 2002.

[19] US Department of Transportation, Comprehensive Truck Size and Weight Study, p. V–1.

for 22 percent of all passenger car and light truck/van occupant fatalities sustained in collisions with other motor vehicles. (p. V–2)

The DOT study acknowledges that it is difficult to use statistical inference to establish a relationship between TS&W limits and highway safety. Longer combination vehicles account for less than 2 percent of annual truck VMT, while 5-axle single trailers comprise 65.4 percent. It is difficult to develop robust estimates for vehicles larger than the typical vehicle in use. Also, the crash rates for larger vehicles now operating in highly controlled situations may not be transferable to other operating situations. The DOT's approach, therefore, is to focus on the systematic components of truck safety, comparing physical differences in vehicles and equipment, driver performance, and operating environment in standard versus larger trucks.

The TRB Report recognizes the lack of conclusive information about the relationship between truck size and weight and truck safety. It also recognizes that this kind of information is critically important in formulating potential changes to TS&W regulation. The approach that the Report proposes is different from the DOT's and raises serious questions. According to the Report, pilot studies would solve the information problem by facilitating "direct observation of the primary impact of interest" (p. 5–9) which would be frequency and severity of accidents. This amounts to the use of unknowing or unwilling human subjects (motorists) in large-scale (or lengthy) safety experiments.

The most successful past studies of the relative accident rates of trucks of differing dimensions have used data obtained from truck operators that include records of large numbers of trips made by different kinds of trucks operating between the same origins and destinations . . . In pilot studies involving a small number of vehicles, it would not be possible within a reasonable time span to measure small differences in relative accident risks. (pp. 5–9, 5–20)

The pilot studies are endorsed despite the DOT's findings that combination trucks are more susceptible to rollover than conventional trucks and induce greater driver fatigue, as well as repeated substantiation that the public is strongly opposed to longer, heavier trucks and, therefore, would likely not wish to be party to a "pilot study" to examine the safety effects of TS&W changes.[20]

Conclusion 7: Monitoring of compliance with TS&W regulations is too unsystematic to allow the costs (of violations) to be estimated.

This is an important observation, and the report rightly points out the need to better quantify the nature and extent of violations in order to inform the process of TS&W regulation. The Report identifies a number of techniques as being promising for improving enforcement, especially more widespread use of automated, information technology based systems.

B. TRB Report Recommendations

Recommendation 1: Establish an independent Commercial Traffic Effects Institute to monitor and evaluate TS&W changes

The Report stresses that the design of regulatory institutions and enforcement mechanisms, as well as performance standards, are important elements of the TS&W regulatory process. This is an important contribution, but the Report offers no legal, economic or administrative analysis of why a Commercial Traffic Effects Institute (CTEI) would provide more effective regulation than the DOT—especially in an area where there are significant public concerns.

The primary justification for CTEI is that "under present practices Federal size and weight policy has been deadlocked for more than a decade, in spite of general dissatisfaction with the regulation" (p. 5–5). In fact, it is debatable that there is widespread dissatisfaction with the existing TS&W regulations, at least as far as it concerns liberalization, among the general driving public. The Report recognizes that the DOT's recent analysis of TS&W issues was "comprehensive" (p. 5–6), and that the DOT has the authority to regulate truck safety (p. 3–4), but it concludes that the way to end the "deadlock" is to establish a separate agency (p. 5–6).

The CTEI would be an "independent public organization," financed from the Highway Trust Fund, and governed by a congressionally appointed board of Federal, State and industry representatives. The CTEI's professional staff of engineers, statisticians and economists would work on pilot studies and other research funded by government or the private sector. Here is how it might work, according to the Report:

For example, a group of carriers in one industry segment or one region might have a particular interest in having research or a pilot study conducted on a vehicle or operating practice they believed would be of value to them. In such a cir-

[20]Ibid., p. I–22 and V–11.

cumstance, the carriers should be expected to contribute a major portion of the costs of the evaluations. Legislation would be needed to provide the proper legal form for such contributions. (p. 3–5)

The Report predicts that under such arrangements the Institute "would come to be seen by industry, State governments, and others as a means to implement ideas about more efficient highway management and truck regulation" (p. 3–4). This seems accurate, but it is not clear that the public interest would be protected.

Recommendation 2: Evaluate the Consequences of Changes in TS&W Regulations Through Pilot Studies

While the concept of pilot studies is, in principle, not inappropriate for research of this nature, the specific proposal put forth in the TRB report is problematic at best. As described by the Report, the pilot program would expose ordinary travelers to bigger/heavier experimental trucks in traffic if the CTEI determined, based on all available information, that the pilot could be conducted without harm to safety (p. 5–10).

One might consider pharmaceuticals as a model for the evaluation of innovations with the potential to both produce public harm and benefit, but what is proposed here is not really analogous to pharmaceutical regulation. In that industry, it takes about 13 years to develop one new drug, and the process is characterized by systematic, sequential incremental testing of the product for 7–8 years before it is tried on any humans. When human testing begins, extensive tests are initially conducted on healthy human volunteers just to ensure the product does no harm. Critical to the process is extensive monitoring in a controlled environment. Moreover, safety is always first—before a new drug is even tested for efficacy it is tested to ensure that it does no harm to human beings. Clearly, any public policy innovation that could potentially harm the public needs should be examined in a similar risk-averse, safety-based framework.

Nor is it clear that the pilot studies recommended by the committee would establish the "consequences" of TS&W changes. The DOT study recognizes how difficult it is to use statistical inference to establish a relationship between TS&W limits and highway safety. One reason is that the current use of such vehicles is highly controlled so that the results would not generalize to different operating conditions. The same caveat would apply to pilot studies.

Another troublesome aspect of this recommendation is that it gives individual States responsibilities for making decisions that affect the overall efficiency of the national freight network. Increases in TS&W limits lower the per-ton operating costs of long-haul trucks and this has an immediate effect on rail traffic-about one-third of which (on a ton-mile basis) is competitive with long-haul trucks. Because the rail and highway networks are interrelated—and because the rail network has high fixed costs-all shippers are affected.

The Report fails to recognize that there is a difference between the optimal management of highway pavement and bridge structures and optimal regulation of a complex national freight network. It may make sense for the United States to further "devolve" responsibility for the management of pavement and bridge assets to State highway agencies (or regional agencies, or regulated private firms), but it is wrong to confuse the management of infrastructure with the regulation of national freight operations.

Recommendation 3: Authorize the States to participate in a federally supervised permit program allowing for a) six-axle tractor semi-trailers with maximum weight of 90,000 pounds, and b) double-trailer configurations with each trailer up to 33 feet long

The committee has been careful in its recommendations regarding changes to existing TS&W limits. The maximum gross vehicle weight of 90,000 pounds for six axle semitrailers, for example, is just below the threshold estimated to cause negative bridge impacts, according to the DOT study.[21] Because axle weights are not increased, such a limit would (according to the DOT study) not necessarily cause increased pavement damage. However, the current bridge formula would allow 33-foot double-trailer configurations with weights up to 120,000 pounds on a nine-axle vehicle, 115,000 pounds on eight axles, or 110,000 pounds on only seven axles. A seven-axle vehicle at 110,000 pounds may not be as damaging to bridges as a 120,000-lb. nine-axle vehicle of the same length, but it certainly does more pavement damage. Notwithstanding the issue of infrastructure impacts, questions still exist regarding the safety implications of increasing TS&W limits, even in this limited fash-

[21]The 90,000-pound GVW six-axle semitrailer is examined as part of "North American Trade scenario." See U.S. DOT, op. cit., Volume III, Table VI-I.

ion. The TRB report describes the lack of statistically reliable evidence both concerning the relationship between truck weight and accident involvement, and regarding the relationship between truck weight and the probability that an accident will result in a fatality (pp. 2–44 to 2–45).

In addition, the Report recognizes that nuisance-related and stress-related costs from mixed auto and truck traffic should be considered in the evaluation of any TS&W policy. In focus groups conducted as part of the U.S. DOT study, a vast majority of automobile drivers said they opposed changes in TS&W regulations.[22] Truck drivers in the survey groups also questioned the need for change. Truck sizes and weights are a serious issue for the public, and this must be an important consideration in any public policy decision.

The Report recommends that "fees related to costs be adopted to accompany the proposed new size and weight limits" (p. 3–27), but it does not appear that these would cover the marginal costs of pilot programs. The Report does not explicitly endorse the pricing of all truck traffic (which would be logical) but only the pricing of experimental permit trucks to cover their "added costs". The report recognizes (p. 3–28) that the "added costs might be proportional to the volume of permit traffic up to some traffic level but increase at an accelerating rate at higher volumes." As truck traffic increases, in other words, the marginal cost of the permit trucks would be increasing. But this implies that increases in conventional truck traffic would also increase the marginal cost of permit trucks, and vice versa. Under the plan that the report describes, increase in marginal costs of existing trucks would not be covered.

Recommendation 4: Allow the States to conduct pilot studies involving any longer combination vehicles as long as the pilot study is judged safe by the CTEI

In addition to proposing the allowance of the 33-foot doubles described in Recommendation 3, this recommendation suggests that States be allowed to conduct pilot studies with any configuration of LCVs, so long as they are judged safe by CTEI.

The open-ended nature of this aspect of this recommendation raises two important questions:

1. What types of LCVs are likely to be proposed for pilot studies?
2. How broad would the scope of these pilots be?

With regard to the first question, the DOT study indicates that the economics of the industry are such that if longer combination vehicles were allowed to operate nationwide, they would become the dominant configuration, eventually constituting the majority of US truck VMT.[23] In this context, the second question becomes critical.

Here the DOT study concludes that "(e)ven if Federal law did not require States to allow larger or heavier vehicles, some States fear that if neighboring States allow LCVs, they will face irresistible pressure to also allow LCVs to keep their businesses competitive."[24] This raises the possibility that, even within the carefully designed pilot studies advocated by the committee, larger LCVs could eventually dominate the intercity freight market.

A majority of automobile drivers oppose these vehicles. LCVs are less stable than conventional tractor-trailers, and the effects they would have on congestion and pollution are uncertain. LCVs would have a significant effect on the overall viability of railroad operations across their service offerings as described in the discussion under Conclusion 5.

Recommendation 5: Do not extend Federal TS&W regulations to the non-Interstate portion of the National Highway System

The committee reports a recommendation that there is no justification for extending Federal weight regulation to the non-Interstate portion of the National Highway System. There is no discussion of this issue in the body of the Report and the committee's congressional mandate is to analyze the regulations "on Federal-aid highways to which Federal regulations apply on the date of enactment of this Act."[25] The recommendation appears to be aimed at HR3132, the "Safe Highway and Infrastructure Preservation Act", which would extend the current Federal TS&W limits beyond the 44,000 miles Interstate system to the entire National Highway System of nearly 157,000 miles.

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[22] U.S. DOT, Volume II, pp. V–17-V–18.

[23] U.S. DOT, Comprehensive Truck Size and Weight Study, Volume III Scenario Analysis, 2000, pp. IV 32—IV–33.

[24] U.S. DOT, op. cit., Volume I Summary Report, p. 40.

[25] PL 105–178, Section 1213.

The recommendation is not inconsistent with the idea proposed in the Report that there should be a "redefinition" of Federal and State TS&W regulatory responsibilities. The Report describes that redefinition as follows:

The Federal Government would have diminished involvement in defining numerical dimensional limits on the Interstates and other Federal-aid highways, since the States would have more discretion with respect to limits on these roads. However, the Federal Government would take on greater responsibility for ensuring that State rules governing the use of vehicles on Federal-aid highways were contributing to meeting national objectives. (p. 3–21)

The Institute (Recommendation 1) would play a key role here, providing "monitoring, oversight and research" (p. 3–21), and the Federal Government would focus on performance standards: "States could propose solutions to problems, and the Federal Government would have to assess whether the proposals met qualitative objectives" (p. 322).

The Report does not identify these qualitative objectives. It also does not recognize that changes in TS&W limits change the capacity of the highway freight network, and this affects the overall efficiency of the national freight network. Because the rail and highway networks are interrelated, all shippers (and all motorists) are affected. State agencies may well provide optimal management of highway and bridge assets but this does not mean that they can optimally regulate the performance of the national freight network.

Recommendation 6: Specific TS&W topics requiring research include enforcement effectiveness, air quality effects, truck characteristics and crash involvement, risk-based bridge costs, freight market behavior, driver stress, and truck-only facilities

The report makes a good case that there are several key areas in which more information would improve TS&W policy.

The recommendation for more freight transportation market research should consider not only the relationship between truck costs and truck traffic, but should examine the broader context of total logistics costs and shipper preferences across modes. Advanced and well-accepted market research techniques now exist that would, within a carefully designed program of research, allow the estimation of models that quantify shippers' relative valuation of the most important freight service characteristics. These models could then be used to forecast the likely impacts of service changes across the freight industry. This work could build on the DOT (2000) study.

The proposed research into the nuisance costs of mixed auto and truck traffic is also an important recommendation, particularly given that the report rightly points out that these costs may be independent of actual accident rates. But the conclusion that such costs should only be considered in policymaking if they lead to observable changes in driver behavior is wrong. The stress or anxiety associated with driving with large trucks may impose costs on drivers that are real, but for a variety of reasons do not cause changes in behavior. Research into the adoption of advanced information technology in the public

transit sector, for example, has demonstrated that travelers may value useful information for its ability to reduce stress and uncertainty, but may not necessarily change their travel patterns as a result of having access to it. Modern market research techniques could similarly be used to estimate and clarify drivers' valuations concerning the stress associated with truck traffic.

APPENDIX A1. PREVIOUS TS&W STUDIES

DOT (1981) An Investigation of Truck Size and Weight Limits

This study was conducted in response to a congressional directive that the U.S. DOT examine the appropriateness of uniform TS&W standards throughout the United States. It examined the range of benefits and costs to the U.S. economy and society, as well as to specific groups, that would result from alternative changes in TS&W regulations. Five categories of changes were considered, including grandfather clause elimination, barrier elimination, uniformity, rollback to pre-1974 limits, and increases in limits.

The study found that transport cost savings from increased truck productivity could exceed the increase in highway and bridge maintenance costs and increased accident costs that would accompany the introduction of higher TS&W limits. At the same time, however, it found that additional infrastructure investments would be required to accommodate such increases, and that it was uncertain as to whether or not funding would be available for these investments. If these investments were not made, the study found that the negative impacts of TS&W changes could be

much greater. The study estimated that diversion from rail would be small under the specific scenarios examined, but did not attempt to estimate the resulting effect on the railroad industry.

TRB (1986) Special Report 211: Twin Trailer Trucks

The purpose of this study was to examine the potential impact of new rules adopted in the 1982 STAA, with a particular focus on safety. It found that twins were probably less safe than semis, but that little change in accidents should be expected because it was assumed that truck VMT would decline overall. On the other hand, it concluded that twins were expected to produce 90 percent more wear on asphalt pavement and 20 percent more wear on concrete pavement than the semis they would replace. This study did not independently estimate the diversion of freight traffic from rail to trucks using twin trailers, but traffic forecasts used in the study assumed that any such diversion would be very small. This assumption was based on the prediction that LTL carriers would be the primary users of twins, and that rail was not a good substitute for LTL truck service.

TRB (1990) Special Report 227: New Trucks for Greater Productivity and Less Road Wear: An Evaluation of the Turner Proposal

The purpose of this study was to evaluate a proposal to reduce road wear and increase truck productivity. Known as the Turner Proposal, the concept was to increase allowable truck lengths and gross vehicle weights but at the same time decrease allowable axle weights. The study evaluated the impact of "Turner Trucks" in terms of productivity, safety, traffic, bridges and pavement. It examined both nationwide and less-thannationwide adoption scenarios.

For nationwide adoption, it found that that savings to carriers or shippers switching to Turner trucks would average 12 percent of linehaul operating costs, and the aggregate cost savings would be 1.4percent of total truck freight shipping. Approximately 4percent of rail ton-miles would be diverted, causing rail to lose 5percent of its gross revenue. Some of the designs proposed were predicted to have negative safety or traffic effects, but the study predicted that total truck VMT would decrease. The study found that bridge costs would be increased markedly, but that pavement wear would be reduced, such that under nationwide adoption the net effect would be a savings in total infrastructure costs. Under less than nationwide adoption, however, the study found that bridge costs could exceed reductions in pavement costs. Overall, the study found that the Turner proposal would produce benefits and recommended that States consider its adoption under certain circumstances.

DOT (1997) Federal Highway Cost Allocation Study

As part of its role in administering the Federal-aid highway system, the Federal Highway Administration has from time to time undertaken analyses aimed at estimating the costs imposed on the various parts of the system by different classes of vehicles. The total costs of building and maintaining the system are generally known, but the purpose of these studies is to allocate the costs among users. Known as Highway Cost Allocation Studies (HCAS), these analyses are major efforts requiring significant data collection and analysis, and have therefore been relatively infrequent. The most recent was conducted in 1997, the first HCAS since 1982.

The 1997 HCAS provides the most up-to-date estimates available of the relative costs imposed on the system by cars and trucks. A specific objective of the study was to determine how changes in the Federal highway program and the user fees that support it have affected the equity of the user fee structure. The study also estimated the responsibility of different vehicle classes for the external costs associated with highway use, an important addition not included in the 1982 report. In addition to estimating marginal pavement and bridge costs imposed by each class of vehicle, therefore, the study estimated per mile congestion and noise costs. An addendum to the report published in 2000 provided estimates of per mile air pollution costs by vehicle class. The study found that combination trucks with registered weights over 75,000 pounds (about 70 percent of all combination trucks as shown in Table A–1) are not paying their fair share of highway costs. Trucks with registered weights of over 80,000 pounds are on average paying only 50 percent or less of the infrastructure costs they impose.[26]

The study was closely coordinated with the Comprehensive Truck Size and Weight Study then being conducted by the U.S. DOT, in order to provide a con-

[26]Federal Highway Administration, 1997 Federal Highway Cost Allocation Study Summary Report, Table 7.

sistent set of assumptions and methods for estimating the differential impacts on the highway system by vehicle class. The DOT study is described below.

DOT (2000) Comprehensive Truck Size and Weight Study

This study was intended to be a comprehensive examination of the issues related to TS&W regulations and the potential impacts of changing them. The aim of the study was not to promote a specific policy objective, which is noted in the TRB Report.[27] Rather the aim of the study was". . . to develop an information base and set of analytical tools upon which to evaluate alternative TS&W options."[28] The study is comprehensive in many respects. For example, it attempts to make". . . a significant improvement in the analysis of diversion from other modes by explicitly considering inventory and other logistics costs that shippers evaluate in making real-world transportation decisions."[29] The study recognizes the role of TRB in evaluating changes to TS&W regulations, with the assumption being that the TRB committee charged with examining TS&W issues would internalize the results of the DOT study.[30]

APPENDIX A2. LIST OF COMMITTEE MEMBERS AND AFFILIATIONS

Member	Affiliation
James W. Poirot, Chair	Chairman Emeritus CH2M HILL, Mukilteo, WA
Kenneth D. Boyer	Professor, Department of Economics, Michigan State University
Robert G. Dulla	Senior Partner, Sierra Research Inc., Sacramento, CA
Nicholas J. Garber	Professor and Chairman, Department of Civil Engineering, University of Virginia
Thomas D. Gillespie	Research Scientist and Adjunct Professor, University of Michigan
Ezra Hauer	Professor, Department of Civil Engineering, University of Toronto
James H. Kopf	Deputy Executive Director and Chief Engineer, Mississippi Department of Transportation
Sue McNeil	Director, Urban Transportation Center, University of Illinois, Chicago
Eugene E. Ofstead	Assistant Commissioner of Transportation Research and Investment Management, Minnesota Department of Transportation (Retired)
John R. Pearson	Program Director, Council of Deputy Ministers Responsible for Transportation and Highway Safety, Ottawa, Ontario
F. Gerald Rawling	Director of Operations Analysis, Chicago Area Transportation Study
James E. Roberts	Chief Deputy Director, California Department of Transportation, (Retired)
John S. Strong	Professor of Finance and Economics, School of Business Administration, College of William and Mary
C. Michael Walton	Ernest H. Cockrell Centennial Chair in Engineering, Department of Civil Engineering, University of Texas at Austin

Source: Transportation Research Board, TRB Special Report 267.

APPENDIX A3. ORGANIZATIONS CONTACTED BY THE COMMITTEE FOR COMMENTS

Responded	Did Not Respond
American Bus Association	Association of Waste Hazardous Materials Transportation
American Trucking Associations	National Private Truck Council
Distribution & LTL Carriers Association	American Road and Transportation Builders Association
Motor Freight Carriers Association	Associated General Contractors of America
National Automobile Transporters Association	International Brotherhood of Teamsters, AFL–CIO
National Solid Wastes Management Association	JB Hunt Transport
Western Highway Institute	Schneider National Carriers
Owner-Operator Independent Drivers Association, Inc	United Parcel Service
Truck Manufacturers Association	Freightliner Corporation
Truck Trailer Manufacturers Association	Intermodal Association of North America
Federal Express Company	National Small Shipments Traffic Conference
Motor Coach Industries, Inc	Advocates for Highway and Auto Safety

[27]Transportation Research Board, TRB Special Report 267, pp. 2–3.
[28]U.S. Department of Transportation, Comprehensive Truck Size and Weight Study, Volume I Summary Report, 2000, p.4.
[29]U.S. DOT, op. cit., p. 6.
[30]U.S. DOT, op. cit., p. ES–11.

Responded	Did Not Respond
National Industrial Transportation League	Surface Transportation Policy Project
Association of American Railroads	Minnesota Department of Transportation
American Automobile Association	New Jersey Department of Transportation
Coalition Against Bigger Trucks	New York State Department of Transportation
Insurance Institute for Highway Safety	American Association of Port Authorities
Connecticut Department of Transportation	American Assoc. of State Highway and Trans. Officials
Florida Department of Transportation	Commercial Vehicle Safety Alliance
Georgia Department of Transportation	International Bridge, Tunnel and Turnpike Association
Idaho Department of Transportation	National Governors Association
Indiana Department of Transportation.	
Michigan Department of Transportation.	
New York Department of Transportation.	
Texas Department of Transportation.	

Source: Transportation Research Board, TRB Special Report 267, pp. C–21 and C–22.

RESPONSES OF EDWARD R. HAMBERGER TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question. Some of the figures we have seen indicate that much of the growth in freight will be carried on trucks. However, as you mention in your statement, one way to reduce wear and tear and congestion on our roads is to move more people and freight by rail. Since our road infrastructure will be hard pressed to accommodate the expected increase in truck traffic, how can we make rail more competitive and ensure the most efficient division between freight carried by trucks and freight on our rails? Keep in mind that we also will need to move more people by rail in the future, not just freight.

Response. If freight railroads are to continue to provide safe and efficient transportation service that enhances our nation's economic health and global competitiveness, and if they are to play a meaningful future role in relieving congestion, reducing emissions and energy consumption, and improving safety, a number of steps should be taken that remove public policy obstacles and focus public policy choices on rail infrastructure.

First, there should be a more pronounced reliance on public-private financing partnerships for railroad infrastructure improvement projects, especially for projects that provide significant public benefits or meet public needs, such as congestion mitigation, emissions relief, enhanced mobility, and enhanced safety. As outlined in my September 9th testimony, the TEA–21 reauthorization process should include modifications to several transportation infrastructure programs and Federal tax policies to allow freight railroads and other transportation providers to meet vital public transportation needs more efficiently and effectively.

Second, Congress and rail regulators should resist calls to reregulate the rail industry. While it is beyond the scope here to explain in detail why railroad reregulation is such a counterproductive notion, the essential point is that regulatory restrictions that impede railroads' ability to generate sufficient returns would severely compromise their ability both to generate investment funds internally and to attract the outside capital needed to sustain—much less increase—their operations over the long term. Ultimately, if railroads are reregulated, the only realistic alternative to wholesale disinvestment of our nation's rail network would be for the government to step in and subsidize railroads on a massive scale.

Third, a number of Federal laws and regulations that inhibit railroads by treating them less favorably than other modes should be addressed.

For example, under existing truck size and weight limits, rail-competitive trucks cover far less than the costs of the damage they cause to our highways. The shortfall is made up through billions of dollars in subsidies from other highway users to truckers. Equity demands that truckers bear this expense themselves. To make matters worse, various interests have proposed that the existing truck weight limit be increased (for example, to 97,000 pounds) and the use of longer combination vehicles be expanded. Attempts to expand existing truck size and weight limits should be resisted because such expansion would exacerbate existing inequities while severely harming the rail industry. A recent U.S. DOT study found that, depending on the scenario, increased truck sizes and weights would result in a decline in rail revenue of between $2.9 billion and $6.7 billion, a decline in the contribution to railroad fixed costs of between $2.1 billion and $3.1 billion, and a decline in railroad

return on equity of 32 to 46 percent. Such declines would decimate the rail industry's ability to invest in its infrastructure, add significantly to highway wear and tear, increase highway congestion, and diminish highway safety.

Another example of a modal inequity concerns Federal research and development. The "21st Century Truck Initiative" is a public-private research partnership involving many of the nation's largest heavy-duty engine and truck companies and several Federal agencies designed to lead to prototype engines that double existing fuel economy for long-haul trucks and significantly reduce truck emissions. Currently, there is no similar program for locomotives. To correct this inequity, Congress should establish a public-private partnership involving Federal agencies, railroads, and rail suppliers designed to increase the fuel efficiency of, and reduce emissions from, locomotives.

Taxes constitute a third area in which modal inequities hinder railroads. Public policy should ensure that tax laws do not distort market forces by giving one mode a distinct competitive advantage over other modes. Thus, existing tax laws which disadvantage railroads relative to trucks and other modes should be modified.

For example, the 4.3 cents per gallon "deficit reduction" fuel tax paid by railroads but not paid by trucks should be repealed. Likewise, railroad disadvantages created by existing capital recovery provisions should be addressed. Currently, for income tax purposes railroads must capitalize and depreciate, over a period of years, the costs incurred in building their infrastructure. In addition, railroads must capitalize many of the costs of repairing and maintaining their infrastructure. In contrast, the fuel taxes paid by trucking companies (used for both new capital expenditures and highway repair and maintenance) are expenses which can be deducted immediately. This disparity in treatment of infrastructure spending for income tax purposes results in a 9 percentage point penalty for railroads on their capitalized infrastructure investments. It is a significant issue for freight railroads because railroads are enormously capital intensive: in 2000, railroad capital spending was equal to 17.8 percent of revenue, compared with 3.7 percent for U.S. manufacturing as a whole. Railroads also pay hundreds of millions of dollars per year in property taxes on their right-of-way, an expense their trucking competitors do not pay.

Finally, as your question reminds us, freight railroads also face significant and increasing demands for use of their infrastructure for passenger operations. Freight railroads agree that passenger rail can, under the right circumstances, play a role in alleviating highway and airport congestion, decreasing dependence on foreign oil, reducing pollution, and enhancing mobility and safety. However, the importance of passenger railroading to our country pales in comparison to the importance of freight railroading. Therefore, we must find the most effective way to provide the passenger services that America needs, but without burdening the freight rail system—operationally, financially, or in any other way. The goals of reducing pollution and highway congestion can be realized only if we ensure that passenger trains don't interfere with freight service.

To this end, Congress should resist calls to legislate mandated passenger access to freight-owned track. Access by passenger railroads to facilities owned by private freight railroads must be negotiated on a case-by-case basis by the parties, without government interference. For their part, freight railroads will continue to work cooperatively to help passenger railroading succeed where it is practicable, but it is not the responsibility of our nation's privately owned freight railroads to subsidize passenger service. Once policymakers agree on the nature and scope of passenger railroading in this country, they must be willing to commit public funds on a long-term basis commensurate with that determination. To do otherwise would undercut our nation's freight rail capabilities and be counterproductive in addressing our country's congestion, environmental, safety, and economic concerns.

RESPONSE OF EDWARD R. HAMBERGER TO ADDITIONAL QUESTION FROM SENATOR JEFFORDS

Question. Mr. Hamberger, I appreciate your detailed and thorough recommendations regarding TEA21 reauthorization. Would you please expand upon the legislative changes-as opposed to the regulatory changes-you are seeking to the Railroad Rehabilitation and Improvement Financing Program?

Response. AAR is seeking legislative changes to the Railroad Rehabilitation and Improvement Financing (RRIF) program that would ensure that the applicant for a loan or loan guarantee would not have to (1) provide collateral; or (2) demonstrate that it has sought other financial assistance under the program (i.e., lender of last resort provision). S. 1530, the "Railroad Advancement and Infrastructure Law of the 21st Century," or RAIL–21, and a related House measure both include these impor-

tant legislative changes. S. 1530, which has ten Senate cosponsors, is pending in the Senate Committee on Commerce, Science, and Transportation.

STATEMENT OF RICK LARABEE, DIRECTOR OF PORT COMMERCE, PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Chairman Reid and Chairman Breaux, thank you for the invitation to appear before this panel on the matter of intermodal transportation and port access. I am pleased that you chose to conduct a joint hearing of your two committees. After all, the subject is intermodal transportation. Your collective effort demonstrates that it is important to consider how separate modes of transportation operate as a part of a total system. Congress showed great wisdom in acknowledging the role of intermodalism in modern transportation and commerce with the enactment of ISTEA and then TEA–21. Federal policy and support should continue to evolve to foster the productivity and efficiencies that can be achieved through addressing national transportation needs as a system of connecting and complimentary modes.

As a region that has major port facilities and the nation's largest consumer market we especially feel the impact of the economic globalization on a major gateway and its infrastructure. My hope is that this hearing will heighten your interest in the subject, further your understanding of how the efficient movement of intermodal cargo is a matter of national interest, and convince you that improvements in Federal policy and the level of assistance are warranted.

For the record, the Port Authority of New York & New Jersey is a bistate public authority created in 1921 by our States with the consent of Congress. The Port Authority's mission on behalf of the States is to identify and meet the critical transportation infrastructure needs of the bistate region and provide access to the rest of the Nation and to the world. The Port Authority's jurisdiction includes the region's major aviation and marine terminal facilities as well as the PATH commuter transit system, ferry and bus terminals, the interstate tunnels and bridges and other facilities. And appropriate to the subject of this hearing, intermodal transportation was born at Port Newark and, soon after, the first U.S. container port was developed on Newark Bay.

Our operations and projects help move people on air, land and water to the workplace, home and distant places. The region is the most densely populated in the United States and the largest international gateway on the Atlantic. As such, people and freight heavily populate the highways, rail systems and marine terminals as foreign commerce and domestic markets are served in just-in-time fashion. And while you have asked me to focus my remarks on port access I should observe that our region and gateway is as modally diverse as can be, making access and mobility issues that much more complex. Within a one mile radius of our busiest marine terminals is one of the nation's largest air cargo facilities, the northeast corridor rail line serving passengers and freight, interstate highways, and other roads and rail lines in addition to the warehouses, rail yards and businesses that support national and regional commerce. Similar multi-modal views can be seen elsewhere in the bistate area.

Our airports are responsible for roughly 22 percent of all US international cargo, which, combined with domestic cargo, totaled nearly 2.95 million tons in 2000 at a value of $150 billion. The seaport serves 35 percent of the U.S. population and 200 nations. The terminals in New York and New Jersey handled over 3 million container units (as measured in Twenty-foot Equivalent Units) last year and $80 billion of general, bulk and breakbulk cargo moved through the port in 2001. At one container terminal alone over 5,000 trucks go through the gates every day. Our on-dock rail terminal handled 200,000 containers per year and is near capacity. And lest you think that our port is the exclusive gateway for our region's consumers and manufacturers, another 750,000 TEUs arrive in our region via rail from the West Coast. Meanwhile, traveling annually over our bridges and through our tunnels are approximately 250 million vehicles while 2.5 million buses use our two terminals in New York City.

Those statistics attest to the vitality of the trade and economic activity that is at work every day. But it also hints at a major challenge we and other regions face.

That challenge is to make sure that American gateways and freight corridors have the capacity to keep up with the growth in trade and the larger economy. To be clear, this is not a case of build it and they will come. It is a matter of . . . build it because the cargo is coming. In fact it is already here resulting in ever-greater congestion 7 days a week. And whether you are talking about commuter routes, air cargo or port access finding new capacity is a present day issue that will only wors-

en unless actions are taken on a Federal, State and local level to improve efficiencies and expand capacity.

To help you better understand the challenge we face, I would like to paint a present-day intermodal picture for you:

- The New York/New Jersey metropolitan region is a severe nonattainment area for ozone (NOx and VOCs).
- Approximately 87 percent of ocean borne cargo leaves or arrives at the Port of New York-New Jersey in a truck. Almost all of the remainder travel on rail.
- At a growth rate of 4 percent a year, estimates show trade in all types of cargo doubling in our port in little over 10 years. Nationally, trade will double by 2020.
- Demand for consumer goods is driving continued growth in intermodal trade, which is expected to rise at rates exceeding 4 percent annually. In the past recent years actual growth in general cargo at the port has averaged 6 percent. Container traffic is expected to quadruple by 2020.
- Five thousand commercial cargo ships called in the port in 2001.
- While regional population totals are expected to advance slowly at about 0.3 percent per year to 2020, even this modest growth rate will result in an absolute increase of nearly one million people to the population base creating a greater demand for consumer goods and placing further strains on an aging transportation infrastructure.
- Commercial and retail development initiatives along with growing public demand for access to limited waterfront areas are increasing traffic and land pressure on marine terminals, rail yards, and air cargo operations.
- Distribution facilities are migrating to more affordable locations on the region's periphery and in other States further straining our roadway systems and degrading our air quality as trucks must travel greater distances to deliver commodities to consumers in our urban center.
- Our region's highways are at or near capacity. Shortfalls in the rail freight line and yard capacity necessary to accommodate commodity flows are increasing. Competition for capacity on the road and rail systems between commuters and goods movement is fierce.
- Trucks move 90 percent of the region's freight (and 87 percent of the port's intermodal cargo), though they represent about 10 percent of the vehicles on the region's highways and about 7 percent at the Port Authority tunnel and bridge crossings. Freight trains comprise an even smaller proportion of the region's railroad activity, often confined to limited operating times in deference to extensive commuter rail schedules.
- The eight active intermodal rail yards that serve the entire region handle more than 1,000,000 lifts per year and are close to capacity.
- In addition to being among the busiest in the Nation, our airports contend with freight access problems, especially J.F.K. International where trucks and passenger vehicles vie for space on the main access route.

Addressing these challenges will require investing in infrastructure and adjusting policies to foster logistically and environmentally smart solutions for the long term. Partnerships are coming together locally and regionally to support projects and we need a strong Federal partner to accelerate these activities. Such partnerships have proven to be successful, exemplified best by the Alameda Corridor project undertaken by our West Coast friends. The public and private sectors, including Federal and State governments, joined in planning and building the Alameda Corridor. And Federal support was crucial to the project being financially feasible.

It is heartening that the U.S. Department of Transportation-the Federal Highway Administration, Maritime Administration and the Secretary's intermodal staff, in particular-and the freight community have devoted recent years to studying freight and intermodal transportation issues. FHWA maps vividly illustrate what the future holds for our country as international and domestic freight volumes grow at the gateways, borders and along trade corridors. The Maritime Administration's survey of port access problems and recent report of its findings is important work as was the discovery that port access and other intermodal linkages are among the lowest federally funded transportation projects.

The Port Authority, in coordination with the States of New York and New Jersey, is in the process of developing specific recommendations for future legislation. Therefore I will devote the remainder of this statement to some general observations for your consideration. These are in no particular order.

First, we and other ports greatly appreciate the attention that your committees are giving to the maritime transportation system (MTS). For a country that from its earliest days has depended upon maritime transportation to build and sustain a Nation the MTS is the least visible and federally supported transportation system

in the country. That is why we are grateful that that the Bush Administration continued the MTS initiative. Consideration is now being given to identifying MTS infrastructure requirements and it is our hope that the Federal Government will act affirmatively on that information.

Second, congestion and other bottlenecks to efficient transportation can be found throughout the country, but it is especially severe in major gateways and metropolitan areas that are essential elements of the nation's economic infrastructure and security. As such, those areas, including the New York-New Jersey region, deserve special attention. An older and densely developed area like ours, with roadways, ramps and bridges designed for early 20th century conditions have a special challenge to upgrade facilities to standardized lane widths and weight limits that can accommodate the larger and heavier containerized freight movements.

Third, the significant growth in freight movement that is projected for this country will have to be accommodated efficiently or the Nation will suffer the consequences. However, in the Northeast and other heavily traveled areas building new capacity to meet the needs of commerce should not mean that trucking will alone have to bear the brunt of that growth. Clearly trucking will be an essential part of the transport strategy in the decades to come, carrying more and more freight. But in our region trucking and the highways on which they depend are not expected to have the capacity to handle a growing population and the anticipated doubling and tripling of domestic and international cargo. Can many more lanes be added to the region's interstates or to major corridors like I–95, even in the Washington area? And can that be done while maintaining Federal and State clean air objectives? It is evident to us that if we are to avoid debilitating congestion at the port and on the region's highways adjustments will be needed in the modal sharing of intermodal cargo. That leads me to my fourth point.

Even as Congress continues to support the enhancement of highway capacity in the United States your committees should consider how to foster the development of other modes to accommodate increasing demand. Rail certainly is one part of the answer. We are building three new intermodal rail yards at our marine terminals in order to dramatically expand our capacity to move containers on rail. In addition, the Port Authority is working with the railroads and public agencies to identify specific regional rail projects that will improve line and terminal capacity.

Another answer can be found off our shores. We are undertaking a program to encourage intermodal cargo to move by water where possible. That is made possible in part by the costs of congestion, which have made traditionally long distance modes more competitive over shorter hauls. There is tremendous underutilized capacity on the water. And while moving containers on barges can satisfy the market in the Northeast I think that Congress can look into the future and see how fast vessel technology can bring new capacity to intermodal transportation along major corridors. It is not the solution but if examined for its associated capital, energy and environmental costs it can be part of the solution with Federal support.

Fifth, innovations approved by Congress in TEA–21, such as the Congestion Mitigation Air Quality (CMAQ) and National Corridor Planning and Development programs, were very worthwhile policy steps to take. CMAQ helps regions such as ours make sound transportation choices that are consistent with clean air objectives. The corridor program recognized that special conditions in need of special attention exist at the borders and elsewhere. Those innovations were worthwhile directions to take and they could be improved and expanded even further, especially to add to the capacity of major gateways and corridors.

Sixth, while this hearing is concerned with the movement of freight, it is important to note how attention to freight can achieve improvements for passengers. I think especially of projects intended to divert freight from heavily traveled automobile routes to dedicated freight corridors, whether on land or water. Area transportation agencies have intermodal corridor projects in varying stages. Some were authorized for study in TEA–21, such as the New Jersey intermodal corridor and the cross-harbor rail freight tunnel projects. Port Authority staff have undertaken a comprehensive look at how intermodal freight improvements, primarily linkages between existing roads and rail lines, can be strategically planned and implemented to stitch together freight corridors. Already underway is a Port Authority project to link the Howland Hook Marine Terminal on Staten Island to the Chemical Coast Line in New Jersey. That, combined with the improvements that we have made with the State and City at Howland Hook, will bring intermodal rail access to a fast growing area of the port. It is a significant step in improving direct rail service to New York City. Another project, referred to earlier, is the Port Authority's Port Inland Distribution Network (PIDN), which is in the early stages of implementation. PIDN is intended to mitigate against growing congestion at the marine terminals and on the highways by transshipping via railroads and barges those inbound con-

tainers destined for Northeastern locations. The strong level of interest that Northeastern State departments of transportation are showing in PIDN is an indicator of how transportation planners are eager to find alternatives to congested corridors like I–95. An equally strong level of interest on the part of the Federal Government could help such initiatives demonstrate how water transportation can manage part of the freight growth. Flexibility in Federal programs can be a way to support such initiatives.

Lastly, the use of intelligent technology has proven very worthwhile in our region for managing the flow of our busy highways and crossings. Continuing and enhanced Federal support in this area would be welcome including expanding the integrated use of technology to expedite, track and more efficiently manage freight movements in congested metropolitan areas. It could also provide a double benefit of added security for cargo shipments.

Senators, the Port Authority of New York and New Jersey and other agencies of the region know we must dramatically strengthen intermodal service options. My department's twenty-year goal is to reduce port reliance on trucking from 87 percent of modal market share to 57 percent by strongly growing water borne and rail market shares. Our capital plan reflects this with its support for dock and near dock rail extensions, port terminal highway improvements and PIDN developments. To do so we need to improve connections to local intermodal service facilities at or near the port with connector highway improvements as contemplated by the NJDOT International Intermodal Corridor Program and its portway element. New York City and New York State are taking a similar tact with plans for rail access, car float and intermodal rail improvements in the City and Long Island.

In closing I should note that a lot of good work is being done by organizations represented at this hearing and others who are not here. The American Association of Port Authorities, the American Trucking Association, the Association of American Railroads, and the Coalition for America's Gateways and Corridors have joined with others in the freight community to develop a common platform to address freight mobility in future Federal policy. The Coastwise Coalition has worked to identify the potential for the maritime sector to accommodate some of the future demand for freight transportation. I think your committees can benefit greatly by the thoughtful attention that has been given to these issues by my counterparts in government and the private sector. Federal freight transportation policy is still in its adolescent stage, which means there is great opportunity for improvement to meet the challenges I have described.

Thank you again for inviting the Port Authority to participate in this hearing. I welcome any questions you may have.

RESPONSES BY RICK LARRABEE TO ADDITIONAL WRITTEN QUESTIONS FROM SENATOR REID

*Question 1.*Mr. Larrabee, you argue in your testimony that at the same time Congress continues to support the enhancement of highway capacity, we should consider how to foster the development of other modes to accommodate increasing demand. What specific steps do you recommend Congress take to lighten the load on our highways and ensure that other modes share more equally in moving freight through our nation?

Response. The points below will suggest ways that Federal programs can enhance the ability of waterborne systems to serve as an alternative to highway use recognizing that water transportation is the nation's least used mode. One of the reasons why water (and rail) modes do not handle larger volumes of domestic freight is that Federal policy has done such a good job in developing and expanding our interstate road system—understandably so—but it has not paid enough attention to the contributions that non-highway modes can make. The highway focus has worked well over the years but costly capacity constraints, resulting from the strong and continuing growth in commercial truck vehicle miles traveled (VMT), have become a glaring issue. Other modes should be examined for their potential to relieve truck volume related pressures. Federal policy has not been focused on the overall benefits to the highway program that could result from greater Federal support to alternative modal development such as less highway congestion, less wear and tear on the infrastructure, less pressure to add new highway capacity, as well as the general quality of life improvements (i.e.—safety, security, and environmental). ISTEA, through the creation of the Congestion Mitigation Air Quality (CMAQ) program, allowed funding of intermodal freight programs that advanced its "clean air" policy purpose. CMAQ funding for non-highway projects, such as the locally successful Red Hook, Brooklyn to Port Newark Barge, has demonstrated that waterborne services

can help reduce truck VMT in congested areas and mitigate negative environmental impacts. By encouraging additional programs that support multi-modal systems development, the committee can broaden the means available to simultaneously create freight system efficiency and provide highway congestion relief.

Here in the Northeast, Interstate 95 is not just a vital highway route to North—South travel between some of the nation's largest urban areas; it is the spine of a multimodal transportation corridor. Air, rail and waterborne systems join this essential highway element to create a network for personal and commercial mobility. Just as Northeast rail corridor operations provide relief and alternatives to highway and aviation systems, waterborne improvements can bring increased mobility and shipper choice in the freight realm. Congress should not wait for congestion to build to the point where gridlock finally occurs and forces a change to other modes—only then discovering that the alternative modes are not fully prepared to respond. Federal policy should begin now to support a transition toward modal equilibrium that our economy and society will require in the not so distant future. That equilibrium will certainly have trucking as its most essential element, but the increased cargo burden that growth will bring should be shared by the others.

Following are proposals that I recommend:

Harbor Maintenance Tax Application Reform

Obstacles to the expansion of domestic barge and short sea operations should be removed. One such obstacle is a provision within the Harbor Maintenance Tax (HMT) that creates an economic penalty on inherently domestic freight movements. If a container of imported cargo enters the US at the Port of New York and New Jersey, for example, it is assessed a fee for the maintenance of Federal channels. If that same cargo is off-loaded to a barge and now moves between two US ports (i.e.—Port Newark—Elizabeth and the Port of Boston), the HMT requires that the fee by paid again by the shipper after the goods are discharged in Boston.

Recommendation:

Eliminate the provision in the HMT that allows for double collection of the tax on domestic moves—especially the transshipped cargo. This change will provide a modest but important cost reduction that will make the waterborne alternative more attractive as a service choice. It would also eliminate an unfair "double hit" tax policy that puts the ad valorem tax on the same cargo twice. Based on fiscal year 1999 figures (the latest we have), the tax on all domestic cargo accounts (bulk and non-bulk) raised less than $50 million of the over $500 million that was collected that year. And the portion paid by containerized general cargo likely is a small fraction of the total domestic collection. Voiding the tax application on that cargo seems to be a cost-effective way to encourage consideration of the waterborne mode.

Freight Congestion Relief Grants And Corridor Improvement Funding Targeted To Non-Highway Modes

The startup costs associated with new services are a barrier to the introduction of waterborne alternatives to the truck-only movement of freight. The carriers who could provide such services need to be given the opportunity to demonstrate their effectiveness if we are ever to create congestion relief in critical multi-modal freight corridors. There are major but not insurmountable challenges to the initiation of domestic movements of containerized freight by water. Water carriers (like railroads) have to absorb additional costs of transferring containers at points where transfers to local truck pick up and delivery take place. Economies of scale advantages can only be realized by these intermodal services once they have operated long enough to build a market presence which attracts substantial volumes of general freight. Historically, shippers and ocean carriers have been slow to change their domestic transfer service patterns even when there is good reason to do so. Without some type of external funding assistance to give alternative modes, especially domestic water service operators, a chance to prove themselves, little progress can be made in shifting freight movements.

The Port Authority is developing a barge and rail Port Inland Distribution Network (PIDN) as an alternative to truck-only container distribution in an eight-State market area 75 miles or more distant from Port of New York and New Jersey facilities. Our analysis shows that most of the potential routes can be operationally self-sustaining within 5 or 10 years and that there are substantial public benefits from reduced congestion, air quality improvements and increased economic development opportunities at feeder port locations from such a system. Moreover, the cost of operational support on a per route basis over this time is generally modest (i.e.—less than ten million dollars). PIDN barge service between the Port of New York

and New Jersey and the Port of Albany may begin as early as this December. Some Federal funds, notably CMAQ moneys, will be utilized to help give the barge service its start. Unfortunately, CMAQ grants for waterborne programs compete with other worthwhile CMAQ programs and this puts a practical limit on dollars available. Moreover, CMAQ has a narrow focus on air quality improvements in non-attainment areas and only allows for 2 years of operational support. It does not fully recognize the impact modal alternatives can have on general highway system congestion relief, safety, security or public investment cost effectiveness in multi-modal corridor service and development.

A major barrier to new modal development, even where it enjoys strong local and State support, is the fact that intermodal service development requires multi-State support. Oftentimes, the benefits cross State lines while the major development costs are centered at the service hub and regional port. Thus benefits can reach well beyond these few locations but the sharing of the costs does not. Federal assistance supporting the delivery of broadly distributed benefits would seem ideal to overcome developmental barriers created by MPO boundaries and State lines. The Federal aid would, however, require expeditious Federal approval, based on State and local support, rather than the bottom's up MPO-through-the-State process that makes CMAQ and many other Federal programs difficult to apply even where it may be the intent of Congress to do so.

Recommendation:

New programs, more focused on congestion relief and other public benefits that would occur from the introduction of new intermodal or multi-modal services in congested corridors, are needed. One way to meet this need would be to set criteria to measure the contribution that the waterborne alternatives can make to multi-modal freight corridor congestion relief. If those criteria were satisfied, highway funds could be made available to introduce and sustain regional efforts to establish new systems. To deal with startup challenges, multi-year operational and capital assistance should be included. A greater Federal role to facilitate the application and funding review process for multi-State/multi-MPO applications is essential. An expanded CMAQ program is one way to support such projects in their initial years. A better approach is to create a freight specific CMAQ-like congestion relief program, open to alternative intermodal systems that can demonstrate highway congestion relief.

Question 2. We hear a lot of positive feedback about the Alameda Corridor project and how Federal funds were able to leverage private sector, State and local funds for a project that benefited the port, the trucking companies, and the railroads. How useful is the Alameda Corridor model and can it be replicated elsewhere with some Federal assistance?

Response. The Alameda Corridor project is an ideal model for strategically planning, coordinating, and funding the development of multi-jurisdictional corridors which optimize the movement of freight between and among key maritime, highway, rail and aviation gateways.

The Port Authority of New York & New Jersey has already begun to expand upon the Alameda "model" in our development of a multi-State "Northeast Intermodal Transportation Corridor" (NITC) program. While still in its infancy, the basic tenet of NITC is that it will, with Federal assistance, encourage States from Maine to Maryland to approach the planning and development of their respective freight infrastructure programs in a coordinated, systematic manner consistent with TEA–21's "National Corridor Planning and Development Program" requirements for the development of corridors of national significance.

Corridor programs such as Alameda offer the potential for: 1) removing cargo from the general passenger traffic flows thereby simultaneously reducing the cost to move those goods and enhancing public safety; 2) rationalizing container distribution; 3) improving air quality; 4) enhancing security; 5) fostering the utilization of "brownfields" for warehousing and goods distribution activity; and 6) stimulating local economies. Given the potential benefits, it is clear that Federal policy needs to do more to promote logistically and environmentally sound long-term solutions to the movement of the nations freight.

STATEMENT OF MICHAEL P. HUERTA, SENIOR VICE PRESIDENT AND MANAGING DIRECTOR, ACS STATE & LOCAL SOLUTIONS, ON BEHALF OF THE COALITION FOR AMERICA'S GATEWAYS AND TRADE CORRIDORS

The Coalition

The Coalition for America's Gateways and Trade Corridors is an intermodal organization comprised of more than 22 groups. The Coalition's sole interest is to encourage adequate Federal investment in our nation's intermodal freight infrastructure and technology to ensure safe, efficient and cost effective goods movement.

Borders and Corridors Programs Overview

Recognizing the unprecedented demands international trade is placing on our nation's transportation infrastructure, and bringing a clearer focus on needed freight transportation and intermodal connector projects, Congress established the National Corridor Planning and Development Program (NCPD) and the Coordinated Border Infrastructure Program (CBI) often referred to as the Borders and Corridors Program. Section 1118 and 1119 of the Transportation Equity Act for the 21st Century (TEA–21) provided $140 million annually through a discretionary grant program administered by the Federal Highway Administration's (FHWA) Office of Freight Management & Operations to fund planning, development, construction and operation of projects that serve border regions near Mexico and Canada and high priority corridors throughout the United States.

The Coalition believes that current Borders and Corridors Programs have fallen short of the intended goals when these programs were established for two reasons.

First, the programs included in the TEA–21 Conference Report were funded at levels far less than necessary to meet freight transportation and intermodal connector needs. As witness to that, since the beginning of the programs, funding requests from States and Metropolitan Planning Organizations (MPOs) have exceeded available funds by a ratio of 15:1.

Second, programs were extensively earmarked in the annual appropriations process. In fact, in the transportation appropriations bill for fiscal year 1902 these programs were earmarked for specific projects at more than twice the authorized funding level, causing the FHWA to decline taking grant applications for that year. As a result, funds have not always been allocated to projects with the greatest national significance to the movement of freight.

Reauthorization

With respect to the reauthorization of TEA–21, the Coalition strongly recommends the programs be continued, but bolstered to ensure the original goals are met. With respect to modification, the Coalition respectfully commends several recommendations to the committee for consideration.

- To meet the high level of demand, funding for the Borders and Corridors Program must be increased to not less than $ 2 billion annually.
- The distribution of funds should be freight specific, and there should be a qualification threshold based on freight volumes and freight-related congestion to ensure limited dollars reach high-volume corridors/borders/gateways.
- Under current law, only States or MPOs are eligible to apply for funding under the Borders and Corridors Programs. It is recommended that the designation of entities eligible to apply for Program funding be expanded to include other public and quasi-public organizations.
- The programs should be redefined to address the needs of all trade gateways, not only land borders, and gateway connected trade corridors. Many gateways that handle high volumes of freight are not eligible for funding because they may not be "borders." For example, while Illinois is not a "border State," one-third of the nation's freight passes through Chicago and it is the largest intermodal hub in the Nation. Similarly, inland ports are also important gateways that enable the efficient movement of goods throughout the country.
- The designated "high priority" corridors eligible for funding under the Corridors Program need to be reexamined to ensure freight intensive areas can apply for funding. Currently, there are many important projects in need of funding that do not fall in one of the 43 priority corridors designated under TEA–21. Highest priority should be given to corridors that move goods to and from trade gateways.

Overall Needs

International trade is the key to America's economic future. Imports and exports, which fuel our economy, are doubling every 10 years. At the same time, freight traffic within the United States' borders will increase 100 percent by 2020. In 1970, for-

eign trade was 10.8 percent of U.S. gross domestic product (GDP). By 2000, it grew to more than 26 percent of the GDP.

This growth trend is expected to continue in all modes of transportation. In the next 20 years, foreign trade moving through American ports is expected to increase by 187 percent, while containerized cargo will experience an explosive 350 percent increase. In response to the overwhelming growth in trade, truck traffic will increase by 200 billion vehicle miles and rail freight shipments are projected to grow by 1 billion tons.

Rapidly accelerating trade combined with domestic growth have created a $10 trillion U.S. commodity flow that produced millions of new job opportunities and a higher standard of living for Americans.

These benefits will only last as long as we keep the freight moving.

While so far freight carriers have done a good job keeping goods moving, in coming years, better, smarter and more truck, rail and intermodal gateway infrastructure will be needed to keep the traffic from stalling in gridlock. Even today, congestion and heavy volume often impede access to major freight terminals. Near dock rail capacity requires significant expansion and capital investment.

Unfortunately, too small a portion of TEA–21 is devoted to freight-related intermodal projects. Meanwhile, intermodal connectors currently have up to twice as many engineering deficiencies and pavement deteriorations as National Highway System non-Interstate routes. While the current port and trade corridor system is pressed to accommodate the current traffic levels, demands on it are expected to double by 2020.

The large burden placed on our freight transportation system has only been exacerbated by increased security concerns since September 11. Intermodal freight infrastructure is critical to national defense. Thirty-eight thousand miles of the interconnected civilian rail system—vital for carrying heavy, oversized equipment and weapons systems—links some 170 strategic defense installations to seaports for military deployment.

Ports and their connectors have always been the point of embarkation for defense materiel, and this role is even more important as our global strategy emphasizes flexible response. Highway connectors play a vital role in the rapid mobilization of personnel and materiel toward points of deployment.

Value of Investment/Cost of Neglect

Investing in transportation yields economic paybacks for all corners of the country. Every dollar invested in the highway system yields $5.70 in economic benefits to the Nation. U.S. freight railroads contribute over $14 billion a year to the economy in wages and benefits to about 200,000 employees and billions in purchases from supplies. And, U.S. ports generate 13 million jobs, contribute $743 billion to the GDP and supply $200 billion in Federal, State and local taxes.

Ignoring these problems will cost our Nation in numerous ways. Growing freight congestion puts our economic growth in peril by creating costly delays for manufacturing, putting a drag on job creation and undermining our ability to compete in the increasingly important global market. Highway congestion alone costs the U.S economy $78 billion annually, while also contributing to air pollution and other environmental concerns. In addition, delays at canal locks nationwide totally some 550,000 hours annually, representing an estimated $385 million in increased operating cost borne by shippers, carriers and, ultimately, consumers.

As you are all probably aware, the Alameda Corridor recently opened in Southern California. We believe this public-private project exemplifies the type needed throughout the country. While at first glance this may seem to be only a rail project, it will also facilitate more efficient truck, ship and rail movement. The benefits from moving freight in and out of our nation's busiest ports faster will not only be felt in Southern California, but will stretch across the rest of the country. The goods that move through the ports of Long Beach and Los Angeles represent $97.3 billion in U.S. trade, support 2,121,500 jobs nationwide and deliver $4.51 billion in State and local taxes throughout the country.

There are many other projects, similar to the Alameda Corridor that still need funding. Here are a few of examples drawn from our members:

- The Port of Pittsburgh will need up to $30 million for rail, road and port improvements.
- To facilitate goods movement San Bernardino County, California needs $383.3 million and Riverside County, California needs $926.7 million.
- For infrastructure improvements Washington State needs $183.8 million.
- The Gateways Cities Council of Governments in California alone needs $4 billion for improvements for goods movement and freight related congestion.

These are just a few examples of tremendous need for intermodal infrastructure improvements.

Recommendation Detail

In response to these problems, the Coalition for America's Gateways and Trade Corridors is asking Congress to:

1. Increase Funding for Freight Mobility

Funding needs for freight mobility are large, and will be met in a variety of ways. It is estimated that some 25 percent of the general highway expenditures go to the benefit of freight movement. Special programs to encourage public-private partnerships will be a key element as well. Given the need for major, targeted investments that meet national needs, but are built by regional, State and local entities, there needs to be a targeted program to encourage and support these projects.

A minimum of $2 billion per year for the Borders and Corridors Programs is required immediately to support designated programs for freight technology and infrastructure, such as intermodal connectors. This amount could productively be doubled as projects move out of design and into construction in the next reauthorization period.

Since the beginning of the program, funding requests from States and MPOs have exceeded available funds by a ratio of 15:1. Much of this funding has gone to the planning, design and engineering of future projects. There is clearly large unmet demand for funding and a growing backlog of projects that are "ready to go." The U.S. Department of Transportation projects that the volume of freight movements in the U.S. will double over the next 20 years. As a result, demands for infrastructure project funding will increase ever further.

2. Utilize Creative Funding Approaches

To provide the level of funding required, Congress should actively explore a variety of funding approaches including the possibility of utilizing general funds. Available funds under the current Borders and Corridors Programs should be increased to support freight-related intermodal projects, especially projects that aim to reduce greenhouse gases.

Attention should also be focused on restructuring and expanding Federal loan and loan guarantee mechanisms to provide grants and long-term credit for intermodal and intermodal connector projects. The program should create incentives for State and local actions taken in support of freight movement projects that are designated under a national program.

3. Establish Freight Mobility as a Central Element in National Transportation Policy and a Key Factor in State and Local Planning

Establishing and maintaining freight mobility as a high national priority must be articulated and reinforced in a variety of ways. Through public pronouncements and policy documents both Congress and the Administration need continually to underscore the importance of freight transportation and the urgency of increasing the capacity and efficiency of our national system.

The Coalition is a member of the Freight Stakeholders Coalition and supports the principles outlined in testimony presented by that organization, which not only call for greater funding but also better freight data and planning.

Freight mobility needs to be given higher priority as an element in State and local transportation planning. Strong relationships exist between the Departments of Transportation and Defense, but these relationships need updating to align them with today's priorities.

Congress should create a National Council on Freight Mobility (including community mitigation) with strong representation from both shippers and carriers, as well as affected communities and other stakeholders, to advise the Secretary of Transportation.

The Council would provide advice and counsel on:

- Overall freight infrastructure expansion strategy
- Developing trends and technology in freight movement
- Determining public interest in freight infrastructure projects

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RESPONSES OF MICHAEL HUERTA TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Mr. Larrabee argues in his testimony that at the same time Congress continues to support the enhancement of highway capacity, we should consider how to foster the development of other modes to accommodate increasing demand. What specific steps do you recommend Congress take to lighten the load on our highways

and ensure that other modes share more equally in moving freight through our nation?

Response. The Coalition believes competition in the marketplace is the best way to decide questions regarding the distribution of freight among modes to be decided. However, much can be done to improve the overall efficiency of our nation's transportation system.

For example, the Coalition believes too small a portion of TEA–21 is devoted to freight-related intermodal projects. Intermodal connectors currently have up to twice the engineering deficiencies and pavement deterioration than National Highway System non-Interstates routes. Also, while the current gateway and trade corridor system is pressed to accommodate the current traffic levels, demands on them are expected to double by 2020. Seamless transfer of goods between the modes will help meet that demand.

The large burden placed on our freight transportation system has only been exacerbated by increased security concerns since September 11. Intermodal freight infrastructure is critical to national defense. Thirty-eight thousand-miles of the interconnected civilian rail system—vital for carrying heavy, oversized equipment and weapons systems—links some 170 strategic defense installations to seaports for military deployment.

Ports and their connectors have always been the point of embarkation for defense materiel, and this role is even more important as our global strategy emphasizes flexible response. Connectors play a vital role in the rapid mobilization of personnel and materiel toward points of deployment.

Accordingly, The Coalition recommends that a larger portion of Federal transportation efforts target intermodal connectors and other infrastructure that improve our nations ability to move goods to and from our international gateways.

Question 2. We hear a lot of positive feedback about the Alameda Corridor project and how Federal funds were able to leverage private sector, State and local funds for a project that benefited the port, the trucking companies, and the railroads. How useful is the Alameda Corridor model and can it be replicated elsewhere with some Federal assistance?

Response. The Alameda Corridor is a great example of how focused Federal funds can leverage the involvement of other governments and the private sector in transportation improvement projects.

We believe this public-private project exemplifies the type needed throughout the country. While at first glance this may seem to be only a rail project, it will also facilitate more efficient truck, ship and rail movement. The benefits from moving freight in and out of our nation's busiest ports faster will not only be felt in Southern California, but will stretch across the rest of the country. The goods that move through the ports of Long Beach and Los Angeles represent $97.3 billion in U.S. trade, support 2,121,500 jobs nationwide and deliver $4.51 billion in State and local taxes throughout the country.

There are many other projects, similar to the Alameda Corridor that still need funding. Here are a few of examples drawn from our members:

- The Port of Pittsburgh will need up to $30 million for rail, road and port improvements.
- The Alameda Corridor East, San Gabriel Valley, and OnTrac Corridors in California need $2.5 billion for infrastructure improvements.
- To facilitate goods movement San Bernardino County needs $383.3 million and Riverside County needs $926.7 million.
- For infrastructure improvements Washington State needs $183.8 million.
- The Gateways Cities Council of Governments alone needs $4 billion for improvements for goods movement and freight related congestion.

In each of these projects, Federal funds will galvanize together the assets of local governments with private sector transportation providers in a manner similar to that which occurred with the Alameda Corridor project. I should note, however, that the Federal assistance the Alameda Corridor project received was primarily in the form of a loan. While this worked for that specific project, it will not work in every case and Congress should look at both grant and loan funds to facilitate projects such as those described above.

Question 3. Many people believe that the Borders and Corridors Programs has not been able to successfully address many key freight issues. One improvement I believe we should consider is to revise this program to encourage public-private partnerships through a greater emphasis on innovative finance and other creative incentives. How else can we improve the Borders and Corridors Programs to target the highest priority freight corridors and intermodal facilities?

Response. One significant step that can be taken is to establish freight mobility as a central element in national transportation policy and a key factor in State and local planning.

Establishing and maintaining freight mobility as a high national priority must be articulated and reinforced in a variety of ways. Through public pronouncements and policy documents both Congress and the Administration need continually to underscore the importance of freight transportation and the urgency of increasing the capacity and efficiency of our national system.

The Coalition is a member of the Freight Stakeholder Coalition and supports the principles outlined in testimony presented by that organization which not only calls for greater funding but also better freight data and planning.

Freight mobility needs to be given higher priority as an element in State and local transportation planning. Strong relationships exist between the Departments of Transportation and Defense, but these relationships need updating to align them with today's priorities.

To advise the Secretary of Transportation, Congress should create a National Council on Freight Mobility (including community mitigation) with strong representation from both shippers and carriers, as well as affected communities and other stakeholders.

The Council would provide advice and counsel on:

- Overall freight infrastructure expansion strategy;
- Developing trends and technology in freight movement;
- Determining public interest in freight infrastructure projects;

With respect to the Borders and Corridors program funds:

- The distribution of funds should be freight specific, and there should be a qualification threshold based on freight volumes and freight-related congestion to ensure limited dollars reach high-volume corridors/borders/gateways.
- Entity eligibility should be clarified and broadened to other public and quasi-public organization, such as multi-jurisdictional authorities.
- The programs should be redefined to address the needs of all trade gateways, not only land borders, and gateway connected trade corridors. Many gateways that handle high volumes of freight are not eligible for funding because they may not be "borders." For example, while Illinois is not a "border State," one-third of the nation's freight passes through Chicago and it is the largest intermodal hub in the Nation. Similarly, inland ports are also important gateways that enable the efficient movement of goods throughout the country.
- The designated "high priority" corridors eligible for funding under the Corridors Program need to be reexamined to ensure freight intensive areas can apply for funding. Currently, there are many important projects in need of funding that do not fall in one of the 43 priority corridors designated under TEA–21. Highest priority should be given to corridors that move goods to and from trade gateways.

RESPONSES OF MICHAEL HUERTA TO ADDITIONAL QUESTION FROM SENATOR JEFFORDS

Question 1. Mr. Huerta, you recommend that a minimum of $2 billion per year be provided for the Borders and Corridors Programs, and that the $2 billion should be doubled in future years. You also recommend that the Congress expand Federal loan and loan guarantee mechanisms for such projects. Would you please expand upon how this $4 billion in annual funding could be used to meet your estimated demand for funding.

Response. The Coalition's recommendation is that funding for the Borders and Corridors Program must be increased to not less than $ 2 billion annually. With respect to how funds can be most productively used the Coalition offers the following recommendations:

- The distribution of funds should be freight specific, and there should be a qualification threshold based on freight volumes and freight-related congestion to ensure limited dollars reach high-volume corridors/borders/gateways.
- Entity eligibility should be clarified and broadened to other public and quasi-public organization, such as multi-jurisdictional authorities.
- The programs should be redefined to address the needs of all trade gateways, not only land borders, and gateway connected trade corridors. Many gateways that handle high volumes of freight are not eligible for funding because they may not be "borders." For example, while Illinois is not a "border State," one-third of the nation's freight passes through Chicago and it is the largest intermodal hub in the Na-

tion. Similarly, inland ports are also important gateways that enable the efficient movement of goods throughout the country.

- The designated "high priority" corridors eligible for funding under the Corridors Program need to be reexamined to ensure freight intensive areas can apply for funding. Currently, there are many important projects in need of funding that do not fall in one of the 43 priority corridors designated under TEA–21. Highest priority should be given to corridors that move goods to and from trade gateways.

STATEMENT OF JOHN D. CARUTHERS, JR., CHAIRMAN, I–69 MID-CONTINENT HIGHWAY COALITION

Messrs. Chairmen and members of the subcommittees, it is a pleasure to come before you today to discuss the importance of the completion of Interstate I–69 to the efficient movement of the nation's freight.

When completed, I–69 will span the nation's heartland, connecting Canada and Mexico through the States of Michigan, Illinois, Indiana, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana and Texas. Designated as congressional High Priority Corridors 18 and 20 in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and as Interstate Route I–69 in the Transportation Equity Act for the 21st Century (TEA–21), the I–69 Corridor traverses over 150 counties and hundreds of municipalities, directly serving over 25 million people. The I–69 Mid-Continent Highway Coalition is comprised of cities, counties, States, business, labor and civic organizations all along the I–69 Corridor. It reflects the economic diversity of this vast region, including the agriculture, mining, timber, energy, transportation, chemical, electronic and industrial sectors-current and future users of the I–69 Corridor.

Two sections of the Corridor 18 system—Interstate 69 from Port Huron, Michigan at the Canadian border to Indianapolis, Indiana and Interstate 94 from Port Huron southwest to the Ambassador Bridge in Detroit and west to Chicago, Illinois—are existing-open-to-traffic Interstates. The rest of Corridor 18, as well as Corridor 20, is under development. From Indianapolis south I–69 connects Evansville, Indiana, Memphis, Tennessee, Mississippi, Arkansas, Shreveport/Bossier City, Louisiana and Houston, Texas to the Lower Rio Grande Valley at the Mexican border. Corridor 20 extends along US 59 from Laredo, Texas at the Mexican border through Houston to Texarkana, Texas. A portion of Corridor 20 overlaps Corridor 18. Together, Corridors 18 and 20 comprise I–69.

The I–69 Corridor 18 and 20 system spans over 2600 miles. About 2000 miles from Indianapolis to the Mexican border remain to be completed. Completion of I–69 will not require an entirely new facility from Indianapolis to the Mexican border. In some areas it will link existing Interstates or highways at Interstate standards. In other areas it will require upgrading and linking existing non-Interstate highways and, in others, new construction.

Work is underway along the entire I–69 corridor. Feasibility studies have been completed and have shown that both Corridors 18 and 20 have positive cost benefit ratios returning $1.57 and $1.68 respectively for every dollar invested. Location and environmental studies are in progress and some sections are in design, preliminary engineering and construction. The entire corridor will be ready to go to construction and, in fact, much of it can be completed in the upcoming TEA–21 reauthorization, if funds are available.

While I–69 traverses nine States, it is important to the Nation as a whole; for efficient movement of freight, for trade, intermodal connectivity and economic development. Trade has shifted, particularly after the passage of the North American Free Trade Agreement (NAFTA), from east-west to north-south. Canada and Mexico are now the United States' major trading partners. U.S. Mexican trade has more than doubled since the passage of NAFTA in 1993. U.S. imports from Mexico were up 175 percent from 1993 to 1999. U.S. exports to Mexico rose 109 percent over the same period and trade with Canada increased 73 percent. In 2001, 80 percent of U.S. trade with Mexico and 67 percent of U.S. trade with Canada went by truck. The I–69 Corridor accounts for over 63 percent of the nation's truckborne trade with Canada and Mexico. It has the nation's busiest border crossings on both the Canadian and Mexican borders. The Michigan border points of Detroit and Port Huron account for 48 percent of the nation's truckborne trade with Canada and the Texas border between Laredo and the Lower Rio Grande Valley accounts for over 49 percent of the nation's truckborne trade with Mexico.

Examining the impact of NAFTA trade on just the I–69 States represented at this joint subcommittee hearing, in my own State of Louisiana truckborne exports and imports to Canada and Mexico grew 47 percent from 1995 to 2000, from $856 million to $1.26 billion. The largest increase in freight traffic has been in truckborne

exports to Mexico which have tripled since 1995. Truckborne exports from Mississippi to Mexico have grown 105 percent since 1995 and truckborne imports have grown 74 percent. Total truckborne trade between Mississippi and Canada and Mexico increased from $984 million to $1.415 billion, or 44 percent between 1995 and 2002. Truckborne trade between Illinois and Canada rose 49 percent from $10.76 billion to $16 billion. Truckborne trade between Illinois and Mexico rose 138 percent from $1.9 billion to $4.6 billion. The value of truckborne trade between Texas and Mexico and Canada has increased from $35.6 billion to $72.2 billion since 1995, 103 percent over 5 years. The largest increase has been in truckborne exports from Texas to Mexico. Michigan and Texas are our nation's two largest trading partners with other countries in North America, accounting for $175 billion in value carried by all modes of surface transportation in 2000. Texas' North American trade is the equivalent of the combined North American trade activity of California, Pennsylvania and North Carolina.

ooking at freight flows nationwide, not just with Canada and Mexico, approximately half of the total freight shipped in the United States in 1997—over five billion tons—passed through, originated or terminated in the I–69 Corridor States. Freight is entering and leaving the I–69 Corridor by truck, rail, air and water. Seventeen of the nation's top 25 seaports are directly connected to I–69 and 13 inland waterway ports serve I–69 cities. Fifteen of the nation's top 25 air cargo airports are readily accessible to I–69. There are 96 rail terminals within 150 miles of the Interstate 69 Corridor. Every major eastern and western rail carrier and both Canadian carriers have terminal operations on the I–69 Corridor. There are truck rail intermodal facilities in every major city along the I–69 Corridor.

The I–69 Port of Houston leads the Nation in foreign waterborne tonnage. The Port of Houston handled 128.8 million tons of foreign cargo volume in 2000, 23 percent more than the foreign freight traffic handled at any other port in the United States. The foreign trade cargo volume handled at the Port of Houston in 2000 was the equivalent of the foreign cargo volume at the Ports of Long Beach, Los Angeles, Portland and Seattle combined. It was also the equivalent of the 2000 foreign cargo volume at the Ports of New York/New Jersey, Hampton Roads, Charleston, and Miami combined. With the exception of the Port of South Louisiana, which is also directly accessible to I–69, the Port of Houston handled more total trade tonnage (imports and exports) in 2000 than any other port in the United States. The Port of Houston has 150 trucking lines and two railroads operating intermodal service.

While the Port of Louisiana is ranked third in the world in total tonnage, with 194 million metric tons of cargo volume, and the Port of Houston is ranked eighth in the world in tonnage with 144 million metric tons, container traffic is also growing. Container traffic in Gulf of Mexico ports served by I–69 is growing faster than the national average or than traffic at Atlantic or Pacific ports. Between 1990 and 2000 Gulf port container traffic increased by 105 percent as compared to the national average of 99 percent. Container traffic in the Port of Houston grew 113 percent.

The I–69 freight corridor also serves the nation's inland waterways. The I–69 Port of Memphis is the second largest inland port in the country. The location of a foreign trade zone, it generates $1.5 billion in economic activity annually. The Port handled 18.3 million tons of domestic trade cargo volume in 2000. More than 275 trucking lines operate regular intermodal services in the Port of Memphis. In the city of Memphis, one of the top ten distribution centers in the United States, all modes of transportation converge and link to I–69. Federal Express operates its main hub in Memphis. The company's delivery of nine million packages a day includes a high percentage of intermodal movements between truck and air. Every major eastern and western rail carrier has a terminal in this I–69 gateway.

Trade entering I–69 from all modes of transportation is growing faster than in the rest of the Nation. The trade tonnage moving through the U.S.' top 50 entry points—including land, sea and air—grew 8.3 percent from 1990 to 1999. Trade tonnage moving through I–69 points of entry grew 18.3 percent, or more than twice as fast as the national average.

A Federal Highway Administration (FHWA) study, "Freight Analysis Framework" 2000, suggests that the recent growth in freight traffic will continue through the year 2020. The study estimates that total domestic freight traffic will increase by approximately 87 percent over the next 20 years and that international trade will increase over 107 percent. The vast majority of the new growth will be in the trucking industry with trucks expected to handle 68 percent of the increased tonnage, 82 percent of the increased value and 62 percent of the increased ton-miles. The FHWA Freight Analysis shows that the majority of the expected growth in truck shipments will continue to be in the central, eastern and southern United States, with a domi-

nant movement in the southwest to northeast direction—a movement ideally suited for the I–69 Corridor.

Yet the I–69 Corridor has not been completed and there is no direct Interstate level highway from Indianapolis to the Mexican border. Completion of I–69 will significantly enhance safety and efficiency along this key international trade route. I–69 will reduce travel time, fuel consumption and costs over the existing circuitous route. It is an essential intermodal link for trade and commodity flow. Completion of the Corridor 18 portion of I–69 alone is also projected to save 3100 lives, avoid 158,000 injuries and 409,000 property damage accidents.

In addition to its national and international trade benefits, I–69 will stimulate economic growth. I–69 traverses some of the nation's most impoverished regions. There are over 9.1 million people living below the poverty level in the I–69 Corridor States. In six of the Corridor States the population in poverty exceeds the U.S. average. There are 13 empowerment zones, enhanced enterprise communities and enterprise communities along the Corridor, including two rural empowerment zones—Mid-Delta and Lower Rio Grande Valley. Construction of I–69 will provide economic growth. The Corridor 18 Feasibility Study estimated that, in the Houston to Indianapolis segment alone, I–69 will create 27,000 jobs, add $11 billion in wages and produce $19 billion in value added through 2025.

When the Interstate system was initially designed in the 1940's and 50's, it was laid out generally east to west, reflecting the demographics, trade patterns and defense needs of the time. Trade has shifted, particularly after the passage of the North American Free Trade Agreement (NAFTA), from east-west to north-south. However, when the Interstate was declared completed in 1995, some of the newer north-south sections like I–69 were left dangling and unfinished. The promise of the National Corridor Planning and Development and Coordinated Border Infrastructure programs in TEA–21, of which the I–69 Mid-Continent Highway Coalition was a major proponent, was the recognition that within the 160,000 mile National Highway System there were some remaining, unfinished corridors of significance to the Nation as a whole, serving national objectives of trade and economic growth, that still needed to be completed and merited a separate program with dedicated funding to do so. Unfortunately, the program was only funded at $140 million a year nationwide and many of the projects that qualified or were earmarked for funding were of local, not national interest. Despite insufficient funding diluted among projects that are not nationally significant, the I–69 Corridor made significant progress. Since the inception of TEA–21, I–69 has received over $245 million from the National Corridor Planning and Development and the Coordinated Border Infrastructure programs and directly from the Highway Trust Fund. Funds have also been provided for specific segments in ISTEA, TEA–21 and appropriations. States have also invested substantial amounts of their own funds.

The Corridor has moved ahead so significantly that all of I–69 can go to construction in the period of TEA–21 reauthorization and much of it can be completed—if dedicated funds are available to do so. The last estimated cost of completing the unfinished portion of I–69 was $8.3 billion, with the Federal share at $6.6 billion.

Having built the Interstate system, which served us well for the latter half of the twentieth century, we cannot rest on our laurels. We must invest our resources in those unfinished corridors that serve today's and tomorrow's 20 first century trade flows such as I–69. There are a number of mechanisms to accomplish this; limiting the Corridors and Borders program to major trade corridors and increasing its funding, dedicating program funds to complete unfinished Interstate links or funding freight corridors. Any of these programmatic options would work—whether alone or in combination. The point is that we must recognize the need for and build the infrastructure to serve our nation's freight flows. The traffic is there. The intermodal connections—rail, water, and air—are there. The trade is surging at Houston, Detroit and Laredo. The maquiladoras in the Lower Rio Grande Valley of Texas are manufacturing automobile parts, electronics, computers, batteries and plastic, glass and rubber components and transporting them by truck for final assembly in manufacturing facilities in Michigan, Indiana, Illinois and Ohio. Corn from Indiana is being trucked to the Lower Rio Grande Valley to be used as corn syrup in soft drinks, fruit juices and candy produced in maquiladoras and shipped worldwide. Cotton is going by truck from Mississippi to be made into clothing apparel in South Texas. Foreign exports from the Port of Houston are going by truck to Chicago and Indianapolis. Yet the Interstate level facility to transport these products safely, efficiently and economically—I–69 remains unfinished.

Interstate 69—High Priority Corridors 18 and 20

- Designated as congressional High Priority Corridors 18 and 20 in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and as Interstate

Route I–69 in the Transportation Equity Act for the 21st Century (TEA–21), the I–69 Corridor traverses over 150 counties and hundreds of municipalities, directly serving over 25 million people. When completed, I–69 will span the nation's heartland, connecting Canada and Mexico through the States of Michigan, Illinois, Indiana, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana and Texas.

- Two sections of the Corridor 18 system—Interstate 69 from Port Huron, Michigan at the Canadian border to Indianapolis, Indiana and Interstate 94 from Port Huron southwest to the Ambassador Bridge in Detroit and west to Chicago, Illinois—are existing-open-to-traffic Interstates. The rest of Corridor 18, as well as Corridor 20, is under development. From Indianapolis south I–69 connects Evansville, Indiana, Memphis, Tennessee, Mississippi, Arkansas, Shreveport/Bossier City, Louisiana and Houston, Texas to the Lower Rio Grande Valley at the Mexican border. Corridor 20 extends along US 59 from Laredo, Texas at the Mexican border through Houston to Texarkana, Texas. A portion of Corridor 20 overlaps Corridor 18. Together, Corridors 18 and 20 comprise I–69.
- When the Interstate system was initially designed, it was laid out generally east to west, reflecting the demographics, trade patterns and defense needs of the time. Trade has shifted, particularly after the passage of the North American Free Trade Agreement (NAFTA), from east-west to north-south. U.S. Mexican trade has more than doubled since the passage of NAFTA in 1993. U.S. imports from Mexico were up 175 percent from 1993 to 1999. U.S. exports to Mexico rose 109 percent over the same period and trade with Canada increased 73 percent. The I–69 Corridor accounts for over 63 percent of the nation's trade with Canada and Mexico. It has the nation's busiest border crossings on both the Canadian and Mexican borders, accounting for 48 percent of the nation's trade with Canada and over 49 percent of the nation's trade with Mexico.
- Yet there is no direct Interstate level highway from Indianapolis to the Mexican border. Completion of I–69 will significantly enhance safety and efficiency along this key international trade route. Completion of the Corridor 18 portion of I–69 alone is projected to save 3100 lives, avoid 158,000 injuries and 409,000 property damage accidents. I–69 will reduce travel time, fuel consumption and costs over the existing circuitous route. It is an essential intermodal link for trade and commodity flow. Seventeen of the nation's top 25 seaports are directly connected to I–69 and 15 of the nation's top 25 air cargo airports are readily accessible to I–69.
- In addition to its national and international trade benefits, I–69 will stimulate economic growth. I–69 traverses some of the nation's most impoverished regions. There are over 9.1 million people living below the poverty level in the I–69 Corridor States. In six of the Corridor States the population in poverty exceeds the U.S. average. There are 13 empowerment zones, enhanced enterprise communities and enterprise communities along the Corridor, including two rural empowerment zones—Mid-Delta and Lower Rio Grande Valley. Construction of I–69 will provide economic growth. The Corridor 18 Feasibility Study estimated that, in the Houston to Indianapolis segment alone, I–69 will create 27,000 jobs, add $11 billion in wages and produce $19 billion in value added through 2025.
- The I–69 Corridor 18 and 20 system spans over 2600 miles. About 2000 miles from Indianapolis to the Mexican border remain to be completed. The last estimated cost of completing the unfinished portion of I–69 was $8.3 billion, with the Federal share at $6.6 billion. Completion of I–69 will not require an entirely new facility from Indianapolis to the Mexican border. In some areas it will link existing Interstates or highways at Interstate standards. In other areas it will require upgrading and linking existing non-Interstate highways and in others new construction.
- ISTEA provided $4.05 million for Corridor 18 Feasibility and Special Issues Studies, the identification of Sections of Independent Utility (SIUs) and Special Environmental Studies. The State of Texas paid for the Corridor 20 Feasibility Study and other location studies out of State only funds. Since the inception of TEA–21, Corridors 18 and 20 have received over $245 million from the National Corridor Planning and Development and the Coordinated Border Infrastructure programs and directly from the Highway Trust Fund. Funds also have been provided for specific segments in appropriations, ISTEA and TEA–21 and States have invested their own funds.
- Work is underway along the entire I–69 corridor. Feasibility studies have shown that both Corridors 18 and 20 have positive cost benefit ratios returning $1.57 and $1.68 respectively for every dollar invested. Location and environmental studies are in progress and some sections are in design, preliminary engineering and construction. The entire corridor will be ready to go to construction and, in fact, much of it can be completed in the upcoming TEA–21 reauthorization, if funds are available.

• The Corridors and Borders program is only authorized at $140 million per year and there has been over $2 billion in demand for funding each year. While I–69 is truly a national/international Corridor, there are many projects that have received funding under the Corridor program that only serve one State or region.
• Completion of I–69 will require funding dedicated to I–69 and other corridors that are truly international in scope and service. I–69 is the nation's preeminent national/international Corridor. It is one of the nation's few unfinished Interstates that remained when the Interstate program was terminated in 1995. It is also one of a handful of high priority corridors that are designated as future Interstates under Section 1105(e)(5)(A) of ISTEA.
• The I–69 Mid-Continent Highway Coalition has been the primary advocate for I–69 before Congress and the executive branch. The Coalition spearheaded the creation of the National Corridor Planning and Development and Coordinated Border Infrastructure programs in the Transportation Equity Act for the 21st Century and has consistently advocated funding for I–69 in annual appropriations and at the Department of Transportation. The Coalition is a dues paying organization of cities, counties, states, business, labor and civic organizations all along the I–69 Corridor. Supporters include over 45 Chambers of Commerce representing over 13,050 businesses. The I–69 Mid-Continent Highway Coalition reflects the economic diversity of this vast region, including the agriculture, mining, timber, energy, transportation, chemical, electronic and industrial sectors-current and future users of the I–69 Corridor.

STATEMENT OF JIM FISKE, CHAIRMAN, MAGTUBE, INC., GOLETA, CA

I am Jim Fiske, Founder and Chairman of Magtube, Inc. of Goleta, California. We are a venture funded-company developing a new freight transportation system that promises faster service, higher security, far better energy efficiency, cleaner operation, and lower cost than any existing mode. Thank-you for giving me this opportunity to present information that I think could have a significant impact on the transportation planning that is so crucial to the economic future of this country.

As I'm sure the committee is aware, the American transportation industry is vast, encompassing nearly 11 percent of the GNP. According to the Bureau of Transportation Statistics, one out of every 10 U.S. jobs is directly or indirectly related to transportation. Some industry experts say the figure is closer to one out of five when all inventory, logistics, and related corporate functions are included. This industry, and the American population, is now facing severe problems, not the least of which is increasing congestion. For example, according to the Southern California Association of Governments (SCAG) the average speed for a 24-hour weekday period on the greater Los Angeles highway and arterial system is about 38 miles per hour. During the morning peak period in some of the heaviest corridors the average travel speed is less than 20 miles per hour. And Los Angeles is far from alone. In general, demand for transport rises faster than population or average incomes. Roughly 20 percent of U.S. urban areas are experiencing extreme congestion, and the percentage is growing.

The capacity of our highways is clearly being strained to the limit, and yet the Department of Transportation projects that highway demand will only grow. Between the years 2000 and 2025 the number of passenger vehicles is forecast to grow from 219 to 262 million, while intercity ton-miles of freight carried by truck grows by 88 percent. City, State, and Federal agencies have earmarked huge sums of money to deal with this growth. The SCAG Regional Transportation Plan alone includes $15 billion for highway and arterial improvement projects including mixed-flow lanes, interchanges, truck climbing lanes, truck lanes and grade crossings. But even if this plan is completed SCAG projects that Southern California congestion delays could increase more than 100 percent by 2025. Some statistics project that a freeway trip taking 1 hour under normal conditions today will take 3 hours and 10 minutes in 2020.

What are we to do? Government and industry experts are straining to provide improvements but most industry analysts seem to believe that increasing congestion, safety concerns, and environmental damage is inevitable—"an inescapable part of modern urban life worldwide". I am here to tell you that nothing could be further from the truth. The "Electro-Mechanical Revolution" is far from over.

The immensity of the transportation industry aggravates its problems and makes them difficult to deal with, but it also creates a huge potential market for cost effective solutions.

I think there is a common misconception that the passenger transport business is much larger than the freight business, and as a result far more attention has

been focused on improving the infrastructure and technology required to move people than that required to move freight. If this continues, we run the risk of missing a major opportunity. In reality, the freight component of the industry is both larger than the passenger component and far easier to improve. Furthermore, by improving the freight component we will greatly reduce the strain on the passenger component of the industry. But railroad, truck and air transport are all mature technologies with fundamental barriers to improvement. Significant improvement in speed, cost, and quality of service requires a totally new approach that circumvents existing problems.

One possibility frequently overlooked is the pipeline. More than 1.4 million miles of gas and petroleum transmission and distribution pipeline are in service in America. The technology is highly developed, well understood, and extremely cost effective. Transporting a ton of oil by pipeline is nearly 5 times cheaper than shipping a ton of freight by rail, 50 times cheaper than truck, and 170 times cheaper than air. Pipelines are also the safest transport mode and the least disruptive to the environment. But pipelines have two major limitations that prevent their application to general freight—their transport speed is very low (oil travels at roughly 4 miles per hour), and they only carry fluids.

Another possibility is Maglev, or magnetic levitation, which uses magnetic forces to provide both lift and propulsion. Studies sponsored by U.S. Government agencies in the early 1990's compiled a long list of potentially beneficial attributes, including high speed, faster trips, low energy consumption, low operating costs, high reliability, low wear and maintenance, petroleum independence, low pollution, excellent system control, high capacity, safety, convenience, modest land requirements, and low noise. But they also revealed that capital costs exceeding $35 million per mile for maglev systems would result in a very low return on investment, making them commercially infeasible. Since the 1970's Germany and Japan have invested billions of dollars in maglev development. Neither has constructed an operational system. Only the Chinese government, which has purchased the German Transrapid design for a short installation in Shanghai, has been willing to foot the bill for an operational system. Barring a major cost breakthrough, maglev systems will never be constructed by private business alone.

We have found that cost breakthrough.

Engineers constantly improve operational equipment, so it's no surprise that their first impulse after discovering maglev technology was to apply it to an existing transport mode, namely railroad. Over time maglev became synonymous with trains. "Maglev Train" has become a single concept. This is a huge oversight. Trains are the wrong metaphor. Maglev is a powerful technology crippled by its association with the wrong application. Using maglev simply to improve a train is rather like using jet engines to propel a barge.

If maglev technology is applied to pipelines, however, particularly freight pipelines, the result is revolutionary. This combination allows smaller vehicle size, narrower rights-of-way, lower complexity, reduced initial investment, lower energy costs, higher acceleration, higher speed, shorter headway, and higher system capacity. These capabilities reinforce each other to create a new synergy. Costs plummet, performance skyrockets, and the available market increases. Unlike maglev passenger trains, a system of maglev freight pipelines has the potential for a high return on investment.

Magtube is creating just such a system. We have discovered a new maglev technique, for which we have patents pending, with fundamental advantages over previous designs. We are implementing it now. At this moment our first full-size maglev vehicle is floating over its track just outside Santa Barbara, California. Our goal is to create a new transportation paradigm, a arrangement of maglev pipelines or "Magtubes" we call the Magnetic Levitation Freight Transportation Network, or more simply, the Mag Net(. This network will provide a level of speed, safety, security, efficiency, and cost-effectiveness not currently possible for mail, priority packages, perishables, and freight of all types. Transit times will be measured in minutes or hours instead of days. Think of it as an "Internet for Freight." The Mag Net will streamline vital transportation corridors to reduce congestion, transit times, and costs while improving reliability. Construction costs will be a fraction of conventional Maglev, high speed rail, or highway expansion. Shipping costs will be lower than air freight, truck or railroad. The potential for high return on investment will permit private ownership, decreasing highway damage and congestion at no direct cost to the Federal Government. The same design can be used around the globe, providing even greater benefits for countries with poorly developed transport.

We are currently planning the construction of pipelines a bit over six feet in diameter with a projected cost in the vicinity of $5 million per mile. Our vehicles are sized to handle standard freight pallets for easy interchange with other modes. They

will have the capability to move a one-ton payload at up to 500 miles per hour or more through an evacuated tube while providing an energy efficiency equivalent to more than 1000 miles per gallon of gasoline. Magtubes will have very high capacity when fully utilized –10,000 tons per hour or more should be readily achievable for a single pipe. This compares to a capacity of 7000 to 18000 tons per lane per hour for heavy trucks on an uncongested highway. Truck lanes planned for the Los Angeles area are projected to cost over $50 million per lane mile.

The Mag Net's extreme energy efficiency provides a potential energy savings exceeding 8 billion gallons of diesel fuel per year in the U.S. alone, with a 72 million metric ton decrease in CO2 emissions. The carbon monoxide, nitrogen oxides, particulates, sulfur dioxide, volatile organic compounds and noise normally emitted by truck and air freight carriers would likewise be eliminated. With our vehicles traveling through underground tubes, totally isolated from passenger traffic, they will provide a level of safety never before seen in a transportation system.

The Mag Net will also provide an unprecedented level of security.

America's current freight system is barely able to handle the immense traffic flow required for free trade, even with minimal security. But the events of 9/11 have created a frightening dilemma—while cursory inspection of imports is no longer acceptable, thorough screening seems impossible without bringing trade to a halt. Government and industry are struggling to find ways to efficiently move freight across borders while ensuring detection of explosives, chemical weapons, biotoxins, nuclear materials and other contraband. At present officials search only 2 percent of the 11 million freight containers arriving here each year. The solutions that have been proposed, such as they are, provide stop-gap measures at best. They will require huge expenditures and attempt to maximize security primarily by focusing it on a small fraction of shipments. Most trade goods will continue to cross borders without inspection, as they do now, or will encounter severe delays—or both.

Magtube vehicles, on the other hand, will travel silently out of sight, protected by a vacuum, a steel tube, and several feet of earth. Untouchable. With computer control their precise location will always be known to Magtube and our security partners—and no one else. Small, standardized shipping containers will provide compatibility with other shipping modes and easy access for inspection or machine scanning. Automated searches for contraband will be fast and cheap with minimal delays. Nuclear, biologic, and/or chemical sensors can be installed in each vehicle for enhanced detection capability. Freight can be inspected either at its source or at a facility far from any border, then sent to a border crossing with complete assurance that it will remain under constant supervision until it reaches its destination. Whether their cargo is tissue paper or spent nuclear fuel rods, our vehicles will bypass highways, railroads, border inspection stations, and all other sources of congestion or concern. If one link of the Mag Net is shut down its normal traffic will simply be rerouted through other links.

We are currently in the final stages of constructing a laboratory demonstration of a full-scale vehicle and track. In 2003 we plan to begin construction of a second-generation vehicle and a high-speed test track. At the same time we're exploring options for commercial pilot projects—actual revenue-producing freight transport installations—with organizations such as SCAG, other transportation groups in California, New York and Michigan, and the Department of Transportation. Our goal is to be ready to begin the construction of pilot projects in the 2004–2005 timeframe. The most attractive sites for these installations will be those areas with the worst problems, such as clean air non-attainment areas, border bottlenecks, and severely congested cities.

We do not expect or want the Mag Net to be publicly funded. We are in business to design, build, and operate the Mag Net for profit. But there are several things the Federal Government could do to accelerate system startup and expansion. (1) Congress could make freight maglev installations explicitly eligible for DOT's Transportation Infrastructure Finance and Innovation Act (TIFIA) to provide Federal credit assistance such as direct loans, loan guarantees and lines of credit. Additionally with much of the focus of next year's TEA–21 reauthorization on the Congestion Mitigation and Air Quality (CMAQ) program, we would respectfully that it be clarified that technologies such as ours, be eligible, where appropriate and necessary, for CMAQ funding for those areas of the country in air quality non-attainment and maintenance areas. (2) Congress could help provide access to or assistance in acquiring rights-of-way for such installations adjacent to Federal aid highways. (3) Congress could make freight maglev part of any proposed freight component in the next highway authorization. (4) Congress could provide assistance with Federal agencies in identifying pilot projects and planning border crossing installations to improve freight flow and security. (5) Congress could assist us in our discussions with mul-

tiple Federal agencies and with our cross-border trading partners, Canada and Mexico.

Major breakthroughs in transportation technology are exceedingly rare—the railroad, the automobile, the airplane—but they have far-reaching consequences. In 1942 German submarines sank most of our oil tankers along the Gulf and East Coasts. In response we built the government-financed War Emergency Pipeline, the first large-diameter long-distance oil pipeline, and soon discovered it had immense economic and operational advantages. In that case it took a World War to overcome inertia and jumpstart a better method of transportation. We are now facing another crisis, a battle against increasing congestion, major threats to security, stagnating travel, slower goods movement, and increasingly severe environmental impact. We can win this war—without constraining the free movement of goods and people. Indeed, we now have a clear path to a level of mobility previously considered science fiction. The "Network Economy" need not be limited to the exchange of information. If we build the Mag Net and move freight transport below ground everybody wins—shippers, carriers, the government, and the public. This committee and the Congress can help us do it.

Again, my thanks to the committee for allowing me to present this testimony. My associates and I are available at your convenience should you care to discuss the information I have presented, or any issue dealing with freight transportation and security.

Energy Efficiency Comparison

Mode	Speed (mph)	BTU/ ton-mile	Ton-miles/Gal. (diesel equiv. *)
Railroad	65	368	377
Long-haul truck	65	1151	120
Truck (avg)	65	2793	150
747–400F	500	10,800	12.5
Air Freight (avg)	500	20,000	7
Mag Tube (est.)	200	48	2890
Mag Tube (est.)	300	49	2831
Mag Tube (est.)	400	60	2312
Mag Tube (est.)	500	81	1712

*138,700 btu/gal

STATEMENT OF THE LOS ANGELES COUNTY ECONOMIC DEVELOPMENT CORPORATION (LAEDC)

Mr. Chairman and members of the subcommittees, the Los Angeles County Economic Development Corporation (LAEDC), a private nonprofit, 501(c)3, is pleased to present this overview of goods movement in Southern California. We appreciate the opportunity to offer this statement as part of legislative hearing record being developed by the U.S. Senate in preparation for the reauthorization of TEA–21. We greatly appreciate the interest and focus of the respective full committees in the issues surrounding TEA–21. In addition, we are very appreciative of the leadership demonstrated by Senator Barbara Boxer and Senator Diane Feinstein and the great economic and environmental benefits TEA–21 has brought to California's transportation system.

This statement is based from four public policy and transportation studies: the Southern California Freight Management Case Study (enclosed); the Alameda Corridor East Train Study (enclosed); the 60-Mile Circle (available at www.laedc.org the week of September 16th); and the forthcoming On-Trac Corridor Trade Impact Study, 2002. Together these studies, coordinated by the LAEDC, paint a remarkable picture of a region with a rapidly growing population, burgeoning international and domestic trade, and a looming trade transportation capacity crisis that has both local and national implications. Southern California is America's gateway to the Pacific Rim, and our nation's international trade is growing rapidly. Yet, Southern California's infrastructure is inadequate to handle this rising tide of trade, and the region will need Federal assistance and creative solutions to finance the required improvements.

Today we would like to briefly introduce you to the region, describe its key population and trade trends, and summarize the region's infrastructure capacity shortfalls.

Regional Overview

Southern California, the five-county region comprised of Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties, operates on a scale normally associated with States and even countries. At 17 million people and growing, more people live in Southern California than in all of Florida, currently the fourth most populous State in the union. Despite its reputation for making movies and little else, Southern California employs more than a million people in manufacturing. Powered by core strengths in aircraft, biomedical technology, business services, food, furniture, metal fabrication, motion pictures and television production, textiles and apparel and tourism, the region produces over $600 billion in goods and services annually. This places the region's gross domestic product tenth in the world among countries, just behind Canada and Brazil and ahead of Mexico, Spain, India, South Korea and Australia. Home to almost 200 different nationalities and cultures, Southern California is one of the most diverse places on earth. The region is one of the top tourist destinations in the country, and thanks to its combination of wealth, size and reputation for trend setting, comprises one of the world's most important consumer markets.

Regional Trends and Resulting Capacity Shortages

Population and trade growth are the two key trends affecting the region. The five-county Southern California region will add more than 5 million people between 2000 and 2020. This is roughly equivalent to the combined populations of the Cities of Los Angeles and San Diego, or twice the population of Chicago. Much of the growth will be internally generated: In addition to having the largest population base among the 50 States, California also has one of the highest rates of natural increase (births minus deaths as a share of total population). Internal population growth will be supplemented by immigration. California has the highest rate of net international migration of any State, helping make Los Angeles a modern Ellis Island.

Two shocking implications of this growth: First, at current rates of automobile ownership, five million more people will add about 2.7 million private vehicles to the region's already congested freeways. Second, just to maintain the status quo, population growth of more than five million people will require adding twice the infrastructure and services that exist in present-day Chicago. For every school in Chicago, Southern California will need to build two.

In terms of trade, Southern California has emerged as a leading global trade and transshipment center because of its massive internal market, heavy investment in world-class trade infrastructure, and its new role as the distribution center for U.S.-Pacific Rim trade. The massive internal market draws trade both for final consumption and for inputs in valued-added products ranging from shirts that are labeled and placed on hangers to parts that are used in manufacturing. These two factors help to pull in still more trade, and drive up the percentage of international cargo that makes its first stop in Southern California. With so much cargo destined here in the first place, it makes sense for shippers to use the region as a distribution center for the rest of the United States. This role is confirmed by data from the Los Angeles Customs District, which recorded almost one-quarter trillion ($230 billion) dollars in trade for year 2000.

The $230 billion in trade is an underestimate since it is merchandise trade only, therefore excluding some of the region's core strengths such as motion pictures, tourism, and financial services. The number is also low because it is based on port of entry only, thereby excluding the region's NAFTA trade with Canada and Mexico, which travels primarily by truck and rail and thus is counted in border areas such as San Diego, Laredo and Detroit. Even still, the value of merchandise trade at the L.A. Customs District is expected to almost triple to $661 billion, 2000–2020. We'd like to quickly describe the growth trends and capacity issues for the region's ports, railroads, freeways and airports.

Ports—The Ports of Los Angeles and Long Beach are the busiest in the Nation, together handling one-third of all container traffic in the United States and an astonishing 65 percent of all container traffic on the West Coast. With a combined container throughput of 9.5 million Twenty-Foot Equivalent Units (TEU) in 2000, they were the third busiest container facility in the world, behind only Singapore and Hong Kong.

The long-term trend in container traffic at the ports has seen steady growth, though the pace has slowed in recent months. As recently as 1998, the Alameda Corridor Transportation Authority (ACTA) conservatively forecast year 2000 container traffic of 5.6 million TEUs (twenty-foot equivalent units). The actual total was 9.5 million TEUs; no one, including the ports, anticipated that container traffic would grow so fast.

Container traffic on the Alameda Corridor East (see geographic map in Rail Corridors section) is now expected to almost double by 2010, and then double again to 32 million TEUs by 2025. For perspective, consider that a single large ship typically carries 6,000 TEUs. That is enough containers, placed end to end, to build a wall of boxes more than 20 miles long. The forecast growth may seem incredible, but if anything, it is probably conservative. Indeed, for the past 10 years, traffic levels have consistently surpassed previous estimates.

Rail Corridors—Driven by the rising tide of trade flowing through the ports, easterly bound rail traffic is expected to rise dramatically over the next twenty-five years. The newly constructed Alameda Corridor—a 20-mile, high-speed, completely grade-separated train route connecting international trade via the ports and the rail yards just east of downtown Los Angeles—will handle some of the international increases. Yet the Alameda Corridor is only the first link of a massive regional mainline rail corridor network. Domestic and international trade at the two rail yards east of downtown is the starting points of the Alameda Corridor East. This eastbound corridor carries about three times the cargo of the recently completed Alameda Corridor because the intermodal rail yards receive more international goods by truck from the ports and even more domestic or locally produced goods for movement to the rest of the United States. The short answer is that Alameda Corridor East carries about 23 percent of the United States waterborne international trade and is the only corridor in Southern California that carries both domestic and international goods through the region to and from the rest of the United States.

Alameda Corridor East

(Union Pacific and Burlington Northern Santa Fe Mainlines)

As seen in the above graphic, the two rail corridors connect the downtown rail yards with the transcontinental rail network: the Alameda Corridor East (San Gabriel Valley Corridor), via the Union Pacific (UP) tracks through the San Gabriel Valley into San Bernardino and Riverside Counties, and the Alameda Corridor East (OnTrac Corridor), which follows the Burlington Northern Santa Fe (BNSF) mainline through densely populated northern Orange County into Riverside and San Bernardino Counties. Freight and commuter trains also share the tracks of both corridors, further complicating efficient mobility. The OnTrac Corridor, going through the city of Placentia, carries 50 percent of all eastbound rail cargo and is the only rail artery used by the United Parcel Service to move cargo to Midwest and East Coast destinations. OnTrac Corridor train traffic will rise 210 percent, 2000–2025, while the San Gabriel Valley Corridors train traffic will increase 236 percent over the same period. Rail traffic on these routes, at more than one train every 10 minutes, will easily surpass current capacity, barring major improvements, in the next 3–5 years. Intermodal lift capacity in the region—the facilities that transfer containers between trucks and trains—is greatly constrained. Demand for intermodal lifts is expected to exceed capacity within the next 5 years. Simply put, in just a few years, a shortage of intermodal capacity and additional passenger trains will mean more trucks on the already congested freeways. At the same time, additional freight trains will translate into more cars on the freeway. Without additional capacity it is a no-win situation for local commuters, the other 49 States, and the U.S. Treasury. Local commuters will be impacted because they will reach unbearable congestion. The other forty-nine will see job growth slow because Southern California consumers will see more difficulty receiving goods through eastbound rail corridors, and the U.S. Treasury because the customs revenues collected on imported international goods—an unbelievable 1 percent of all U.S. Treasury revenues comes from customs duties—will likely slow or decrease due to inefficient freight mobility in Southern California. Currently about half of those customs revenues are collected on goods going through Southern California's transportation systems.

Freeway System—On the freeways, the number of vehicle miles traveled in Southern California has been rising faster than population growth. "Rush hour" has become an oxymoron in Los Angeles. The peak travel period has crept up to 6 hours per day, during which the average travel speed drops to 35 miles per hour. The Texas Transportation Institute annually surveys road congestion in metropolitan areas across the U.S., and Los Angeles has had the worst congestion every year since 1982. The latest survey reveals 85 percent of all lane miles are congested, with almost half classified as "extremely congested." As a result, on a per capita basis, the region wastes more hours (56) annually stuck in traffic than anywhere else in the country.

Some freeways handle up to 40,000 trucks daily, and with heavy truck traffic expected to rise 65 percent, 1995–2020, they may soon handle up to 80,000 truck trips daily. Owing to their size and operating characteristics, trucks use a much greater share of freeway capacity than their numbers might suggest. Already, heavy trucks

use 45 to 60 percent of capacity on certain freeways, most notably the I–710. Since trucks move 81 percent of all tonnage originating in Southern California (according to the 1997 Commodity Flow Survey), increasing freight flows will mean more trucks on the freeways.

Airports—Southern California's economy is increasingly dependent on airports. Many of the region's leading industries—from tourism to manufacturing to biotechnology—depend on air travel and air cargo. Even businesses that don't rely on air cargo directly benefit from the enhanced business connections and opportunities made possible by direct flights to and from our key overseas trading partners. The region's exports increasingly travel by plane. In 1995, 54 percent of regionally produced exports (by value) were shipped by air, and the percentage is higher today. Indeed, LAX handles more exports by dollar value each year than the Ports of Los Angeles and Long Beach combined.

LAX is already extremely busy. In 2000, LAX was the third busiest passenger airport in the world, after Atlanta (ATL) and Chicago (ORD). Similarly, LAX was the third busiest cargo airport in the world behind only FedEx-hub Memphis (MEM) and Hong Kong (HKG). Although air demand dipped following the September 11, 2001 tragedy, the impact on long-term air travel trends is expected to be slight. Air traffic demand has been skyrocketing, outpacing population growth. Estimates from the Southern California Association of Governments (SCAG) suggest air passenger demand will almost double from 82 million annual passengers (MAP) in 1998 to 157 MAP in 2020. Air cargo volume is expected to triple from 2.8 million annual tons in 1999 to 8.9 million tons in 2020. Preliminary, post-9/11 revisions suggest these levels will be reached two to 3 years later than previously estimated, with passenger growth delayed more than cargo. Overall, the region faces a capacity crisis; particularly now that it seems certain that an airport will not be built at El Toro in Orange County.

Congestion is a problem across all modes of transportation. The region will struggle to accommodate future freight operations; 10–15 year lead times for financing and constructing upgrades to infrastructure are almost guaranteed; current intermodal facilities at local ports and rail yards will reach capacity within 5 years; and without major investments, the rail lines east of downtown Los Angeles will be so congested the rail network will effectively cease to function. These problems will be exacerbated by congestion on the roads. Air cargo facilities, for example, rely on trucks to feed shipments to the airport and deliver airfreight to its final destination, yet traffic is terribly congested in the vicinity of LAX. Congestion threatens both domestic and international trade moving through the region, and the quality of life for people who live there.

National Implications

Southern California's trade transportation infrastructure should be of great concern to the rest of the United States because the region's global gateways and trade corridors act as conduits for two-way domestic and international surface trade between Pacific Rim nations and every region of the United States. Let's take a quick look at the OnTrac Corridor Trade Impact Study (2002) for two-way domestic and international surface trade during the year 2000 between California and regions of the United States.

The international trade figure for each region represents the two-way trade between other regions of the United States and overseas customers and suppliers that travel via the UP and BNSF train routes that comprise the Alameda Corridor East. The domestic trade numbers represent commerce between California and other States. Roughly half of the domestic trade between California and other States will originate or be consumed in Southern California (based on Southern California's share of the State's GDP). International trade diversion to other ports of entry is cost prohibitive since half of all international goods would still need to be delivered to Southern California. This means that over 20 percent of all U.S. waterborne trade is consumed locally in Southern California, or 45 percent of all customs revenue that is generated in the United States goes through Southern California, or .5 percent of all the revenues of the United States Treasury is collected via customs duties on products imported through Southern California each year.

The Northwest States (WA, OR, MT, ID and WY) received and sent international trade via the Alameda Corridor East in 2000 valued at $2.2 billion dollars. Domestic trade between the Northwest and California for the same year was $60.4 billion. For the Great Plains States (ND, SD, NE, KS, MN, IA and MO), the comparable figures were $8.6 billion and $42.4 billion. The numbers for the Great Lakes States (IL, WI, MI, IN, KY, OH and WV) were $25.0 billion and $69.4 billion. For the Atlantic Seaboard (CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT and VA), the figures were $34.4 billion in international and $74.6 billion in domestic trade. In the Southeast

(AR, AL, GA, FL, LA, NC, SC, TN and MS), the numbers were $16.0 billion international and $71.7 billion domestic. For Texas and Oklahoma, the numbers were $12.1 billion international and $54.2 billion domestic. And finally, for the Southwest States (CA, NV, AZ, UT, CO and NM), international trade moving through the Alameda Corridor East rail routes was valued at $98.0 billion and domestic trade with California was worth $80.3 billion. The Southwest was the only region where the international trade was larger than the domestic only because California's international trade is included, but California's domestic trade with itself (worth $1.3 trillion in 2000) is not included in the $80 billion regional total.

All these billions of dollars in domestic and international trade represent the value in two-way trade to other regions of the country and highlight the importance of efficient movement of goods through Southern California for the entire country. The domestic surface trade between California and the other States, worth tens of billions of dollars annually, dwarfs the enormous international trade flows. California consumers represent one of the largest markets for goods produced by other U.S. States. Thus, investing national funds in efficient transportation networks in California is actually in other States' interest. For example, Montana sells Californians about $1.5 billion of domestic products each year and receives about $10 million of international trade through Southern California ports and corridors. Iowa, on the other hand, sells Californians about $5 billion worth of products each year and only buys about $300 million of Californian products in return. So, a lot of jobs depend on Southern California's appetite for products and all the Federal money spent on trade transportation infrastructure in Southern California will ensure that the goods produced in other States continue to reach their California customers in a timely way; may reduce warehousing cost through logistics strategies like "just-in-time" delivery; and will speed goods to and from overseas to destinations throughout the United States.

Reauthorization of TEA–21 and Freight Policy

During the deliberations by your respective subcommittees regarding the reauthorization of TEA–21, we urge that you give strong consideration to the following proposals for Federal action to enhance the efficient movement of goods and freight on the nation's transportation system:

1) Freight movement should be considered a major policy focus and high priority in the TEA–3 legislation;

2) A dedicated category of Federal funding should be established to support freight related transportation infrastructure. Particular support should be given to trade corridor improvements, similar to the Alameda Corridor East extension program in Southern California, and other similar global gateways throughout the country. In addition, support should be given to the implementation of intermodal connectors, including connectors designed to improve ground access at international airports;

3) Increased funding flexibility should be extended to existing TEA–21 funding categories, including CMAQ, providing access to freight related infrastructure, including rail grade-crossing and lowering improvements;

4) Consideration should be given to new and innovative funding sources, including direct user-based fees, similar to the financing arrangement used for the Alameda Corridor project. Another concept we urge you to review is the earmarking of the incremental growth in custom revenues going through the nation's corridors and global gateways. These added funds should be targeted to support unfunded infrastructure improvements in communities that are directly related to the growth of two-way domestic and international trade;

5) New policies and provisions, including changes in Federal tax policy to encourage public private transportation partnerships, including an enhanced role for Class I railroads serving the nation's most severely congested corridors; and

6) Establish an Office of Freight Policy and Implementation in the Office of the Secretary of Transportation. One option would be to expand the current responsibilities of the Office of Intermodalism, and place the management responsibility with the Under Secretary of Transportation.

Mr. Chairman, thank you for the opportunity to submit this statement for the legislative record associated with the reauthorization of TEA–21.

STATEMENT OF HON. JAMES P. MCGOVERN, U.S. REPRESENTATIVE FROM THE COMMONWEALTH OF MASSACHUSETTS

Mr. Chairman, thank you for the opportunity to testify before the subcommittee today. I commend you and the members for holding this TEA–21 reauthorization hearing on truck safety. It is, as we all know, a critically important issue.

Mr. Chairman, I appear before the sub-committee this afternoon because I believe strongly that any serious and substantive discussion regarding truck safety begins and ends with the subject of truck size and weight. That is because truck safety is largely a function of truck size and weight. We know this, not only from recent studies and reports, but from our shared common experience as well.

Too many of us, too often, have been unsettled while driving alongside or behind huge triple trailer trucks and other longer combination vehicles known as LCVs. These trucks can be more than 100 feet in length and can sway three to four feet into adjacent lanes of traffic, even on a windless day. In some instances, a truck veering sharply can cause a "crack the whip" effect, where the wheels on one side of the rear trailer are actually lifted off the ground. These life-threatening occurrences are altogether too frequent to be dismissed as dramatized anecdotal evidence. In fact, the research suggests the danger posed by such trucks is very real.

The US Department of Transportation's 2000 Comprehensive Truck Size and Weight Study confirmed that multi-trailer trucks are especially dangerous. According to the DOT study, if the current restrictions on LCVs were removed, they would likely have a fatal crash rate of at least 11 percent higher than single trailer trucks.

An earlier report prepared for the Association of American Railroads suggested that LCVs are actually 66 percent more likely to be involved in a fatal crash. Similar studies have found that heavier trucks take more time and distance to stop and merge into traffic, thereby increasing the likelihood of crashes. Not surprisingly, these same studies have found that increasing truck weight increases the risk of rollover crashes and enhances the risk that collisions between trucks and cars will be fatal for the occupants of the car.

Now, I recognize and appreciate that the Transportation Research Board's (TRB) recent report on truck size and weight finds much of the research I have just cited as inconclusive. And while I congratulate the TRB for their contribution to this policy discussion, I must tell you that I am more than a little troubled by their recommendation that we should instead experiment with bigger trucks on America's roads and bridges. I can assure you my constituents do not care to be guinea pigs in that experiment.

Mr. Chairman, just as our common experience informs our opinion on this issue, so must common sense dictate the solution. I am pleased to be joined by nearly 75 of my colleagues in bi-partisan support of H.R. 3132, the Safe Highways and Infrastructure Preservation Act. This IS common sense legislation that will maintain the reasonable limits that currently exist on truck size and weight on our Interstate System and extend those same limits to the National Highway System. It does not roll back truck size and weight, but rather closes loopholes in the current law that have resulted in a proliferation of overweight trucks. Ultimately, this legislation will both save lives AND protect the nation's multi-billion dollar investment in our highway infrastructure.

Mr. Chairman, the fiscal considerations attendant to this issue must also not be minimized. According to the Federal Highway Administration's 1999 Status Report on the Nation's Surface Transportation System, it will take $1.13 trillion over the next 20 years simply to maintain our roads and bridges. But, as we are all keenly aware, there is a backlog on road and bridge maintenance. Nearly 30 percent of our nation's bridges—and 50 percent of the bridges in my home state of Massachusetts—are structurally deficient or functionally obsolete. Now, we also know that as truck weight increases, the amount of pavement damage increases exponentially. In fact, according to the DOT's 2000 Comprehensive Truck Size and Weight Study I referenced earlier, bigger trucks would add more than $300 billion in costs to our transportation spending.

Mr. Chairman, as Congress prepares to consider the reauthorization of its major transportation spending bill, I am hopeful that the Safe Highways and Infrastructure Preservation Act will be adopted in some form or fashion.

The legislation makes sense, the timing is right and above all else, the American public must be protected from the danger of still bigger trucks.

Thank you very much.

REAUTHORIZATION OF TEA–21

THURSDAY, SEPTEMBER 19, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 9:35 a.m. in room 406, Senate Dirksen Building, Hon. James Jeffords [chairman of the committee] presiding.

PROJECT DELIVERY AND ENVIRONMENTAL STEWARDSHIP

Present: Senators Jeffords, Baucus, Bond, Carper, Corzine, Crapo, Voinovich, Warner and Wyden.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. The hearing will come to order.

Late yesterday, President Bush issued an Executive Order on environmental stewardship in transportation, the exact topic of this hearing. I read the order. I am willing to give the Administration the benefit of the doubt on this enhanced Federal coordination. The value of the value of the order depends on how it is carried, so I am willing to reserve judgment.

I will be asking a number of questions about this order, and I expect that other Senators will be doing the same. I want to point out to the reporters in the audience that the Executive Order is only a portion of the real story today. The men and women testifying today will be discussing successes that are already being made in improving transportation projects, while protecting and enhancing the environment.

The real focus of today's hearing is about understanding the multitude of factors that can affect the development and construction of a major transportation project. Transportation projects not only provide mobility, they bring about benefits for families, communities and the environment. GAO will tell us that there can be up to 200 steps in four broad categories of completing a major transportation project. But it is more complicated than that. Charlie Hales, representing Portland, views this process as, quote, "governing with the consent of the governed." He also says that Portland's experience is that the best way to deliver quality projects is to go through the planning process right the first time, and only once. This approach is sometimes referred to as the environmental stewardship. The goal of environmental stewardship should be to identify and meaningfully address project conflicts at the beginning of the planning process, not at the eleventh hour through litigation.

The keys to better up-front planning include earlier involvement by the stakeholders, more resources to facilitate that involvement, and a better information base. Project stewardship will assure that we get the most out of every dollar spent. Let us not forget that these major projects are not just about building infrastructure, but also involve protecting and enhancing the natural and human environment. Thus, this hearing today is about how to get it right the first time, which can save billions and even more lives.

I want to be sure that our discussion today is placed in the proper context. For instance, I was surprised to learn that only 3 percent of federally funded transportation projects even require an environmental impact statement. These very few major projects can take between nine and 19 years to complete, but most projects require far less time. It is also important to remember that when delay does occur, it can be caused by events throughout the delivery process, by right-of-way challenges, utility relocation problems, remitting, weather delays, and construction change orders. As we look to improve the timeliness of the project delivery, we will also see deficiencies in each stage. I am concerned as well about quality, cost-effectiveness, and honesty in project delivery. That is why I have asked the DOT Inspector General to testify today about the importance of these aspects of good project stewardship, keeping graft and corruption away from those huge construction contracts. But I know that most of our attention has been focused on environmental process. I agree with the very recent FHWA report that says that we must get beyond environmental process bottlenecks and focus on practical solutions through integrated concurrent planning and public input. In 1999, as a part of the last reauthorization, Congress directed the Secretary of USDOT to develop a coordinated environmental review process in conjunction with other Federal resource agencies. Today, representatives of the USDOT and the USEPA will report on their progress in meeting that mandate.

Perhaps most notably today, we will hear from practitioners from around the country reporting on their efforts to improve both the efficiency and effectiveness of the planning and environmental process. I am pleased to welcome Emily Wadhams, the Historic Preservation Officer from my home State of Vermont, who has helped pioneer cooperative efforts with our transportation agency.

I am also happy to welcome Carol Murray from my neighboring State and the home of the Ranking Member, Bob Smith. Carol is a Transportation Commissioner in New Hampshire and has led an innovative effort in the State to expand Interstate 93.

We are also joined today by witnesses from Florida, Portland, Oregon, and from a representative of the Nation's consulting engineers.

Throughout our reauthorization process, we will have asked our witnesses about lessons learned over the past 10 years, and about changing conditions that confront us in the future. We have then asked the key question, How should we refine our program based on these lessons learned and those changing conditions? Today's hearing will continue this approach.

Let me now introduce our witnesses. Emil Frankel is the Assistant Secretary for Transportation Policy at the U.S. Department of

Transportation. Thank you for joining us today. I am pleased to have you with us. We also have John Peter Suarez, the Assistant Administrator of Enforcement and Compliance Assurance of the U.S. Environmental Protection Agency. Also from USDOT is Kenneth Mead, Inspector General of the U.S. Department of Transportation. Ken advises the Secretary of Transportation and the Congress on the best practices and deficiencies found, and recommends ways to strengthen the management of DOT's programs and operations. Thank you for being here today, Ken. Also Kate Siggerud is here today with us. Kate is the Acting Director of the Physical Infrastructure Issues for GAO. For the past several years, Kate has directed GAO's reviews of Federal aid highway program issues, which includes the interaction between transportation and the environment. New Hampshire Department of Transportation Commissioner Carol Murray—thank you again for being with us today.

[The document referred to follows:]

THE WHITE HOUSE

September 18, 2002

EXECUTIVE ORDER—ENVIRONMENTAL STEWARDSHIP AND TRANSPORTATION INFRASTRUCTURE PROJECT REVIEWS

By the authority vested in me as President by the Constitution and the laws of the United States of America, and to enhance environmental stewardship and streamline the environmental review and development of transportation infrastructure projects, it is hereby ordered as follows:

Section 1. Policy. The development and implementation of transportation infrastructure projects in an efficient and environmentally sound manner is essential to the well-being of the American people and a strong American economy. Executive departments and agencies (agencies) shall take appropriate actions, to the extent consistent with applicable law and available resources, to promote environmental stewardship in the Nation's transportation system and expedite environmental reviews of high-priority transportation infrastructure projects.

Sec. 2. Actions. (a) For transportation infrastructure projects, agencies shall, in support of the Department of Transportation, formulate and implement administrative, policy, and procedural mechanisms that enable each agency required by law to conduct environmental reviews (reviews) with respect to such projects to ensure completion of such reviews in a timely and environmentally responsible manner.

(b) In furtherance of the policy set forth in section 1 of this order, the Secretary of Transportation, in coordination with agencies as appropriate, shall advance environmental stewardship through cooperative actions with project sponsors to promote protection and enhancement of the natural and human environment in the planning, development, operation, and maintenance of transportation facilities and services.

(c) The Secretary of Transportation shall designate for the purposes of this order a list of high-priority transportation infrastructure projects that should receive expedited agency reviews and shall amend such list from time to time as the Secretary deems appropriate. For projects on the Secretary's list, agencies shall to the maximum extent practicable expedite their reviews for relevant permits or other approvals, and take related actions as necessary, consistent with available resources and applicable laws, including those relating to safety, public health, and environmental protection.

Sec. 3. Interagency Task Force. (a) Establishment. There is established, within the Department of Transportation for administrative purposes, the interagency "Transportation Infrastructure Streamlining Task Force" (Task Force) to: (i) monitor and assist agencies in their efforts to expedite a review of transportation infrastructure projects and issue permits or similar actions, as necessary; (ii) review projects, at least quarterly, on the list of priority projects pursuant to section 2(c) of this order; and (iii) identify and promote policies that can effectively streamline the process more required to provide approvals for transportation infrastructure projects, in compliance with applicable law, while maintaining safety, public health, and environmental protection.

(b) Membership and Operation. The Task Force shall promote interagency cooperation and the establishment of appropriate mechanisms to coordinate Federal, State, tribal, and local agency consultation, review, approval, and permitting of transportation infrastructure projects. The Task Force shall consist exclusively of the following officers of the United States: the Secretary of Agriculture, Secretary of Commerce, Secretary of Transportation (who shall chair the Task Force), Secretary of the Interior, Secretary of Defense, Administrator of the Environmental Protection Agency, Chairman of the Advisory Council on Historic Preservation, and Chairman of the Council on Environmental Quality. A member of the Task Force may designate, to perform the Task Force functions of the member, any person who is part of the member's department, agency, or office and who is either an officer of the United States appointed by the President with the advice and consent of the Senate or a member of the Senior Executive Service. The Task Force shall report to the President through the Chairman of the Council on Environmental Quality.

Sec. 4. Report. At least once each year, the Task Force shall submit to the President a report that: (a) Describes the results of the coordinated and expedited reviews on a project-by-project basis, and identifies those procedures and actions that proved to be most useful and appropriate in coordinating and expediting the review of the projects.

(b) Identifies substantive and procedural requirements of Federal, State, tribal, and local laws, regulations, and Executive Orders that are inconsistent with, duplicative of, or are structured so as to restrict their efficient implementation with other applicable requirements.

(c) Makes recommendations regarding those additional actions that could be taken to: (i) address the coordination and expediting of reviews of transportation infrastructure projects by simplifying and harmonizing applicable substantive and procedural requirements; and (ii) elevate and resolve controversies among Federal, State, tribal, and local agencies related to the review or impacts of transportation infrastructure projects in a timely manner.

(d) Provides any other recommendations that would, in the judgment of the Task Force, advance the policy set forth in section 1 of this order. Sec. 5. Preservation of Authority. Nothing in this order shall be construed to impair or otherwise affect the functions of the Director of the Office of Management and Budget relating to budget, administrative, and legislative proposals.

Sec. 6. Judicial Review. This order is intended only to improve the internal management of the Federal Government and is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or equity by a party against the United States, its departments, agencies, instrumentalities or entities, its officers or employees, or any other person.

GEORGE W. BUSH,
The White House, September 18, 2002.

I now turn to Kit Bond. Do you have a statement?

OPENING STATEMENT OF HON. CHRISTOPHER S. BOND, U.S. SENATOR FROM THE STATE OF MISSOURI

Senator Bond. Thank you, Mr. Chairman.

I was hoping I would get to say something. We have some views on this. This hearing is very important to examine the progress made on environmental streamlining under TEA–21. As the Department of Transportation itself says, environmentally responsible transportation improvements, delivered on time and within budget, is a simple vision that all too often evades the USDOT and its partners. Every one of us in this room knows the importance and role that transportation plays in our everyday lives, especially in our economy. Our economic stability and progress is tied directly to transportation. As my dear friend and colleague from Virginia, Senator Warner, often said, this is a one-world market. Our country's transportation infrastructure makes it so.

My home State of Missouri has always been a leader in this area. In 1808, the King's Highway from St. Louis to southwest Missouri became the first legally designated road west of the Mississippi. In 1929, Missouri was the first State to protect and earmark funds for

highway purposes. The first stretch of Interstate on which work actually began anywhere in the country was Interstate 70 in St. Charles, Missouri.

Missouri is at the geographic center of the U.S., and serves as a confluence not only of our Nation's highway systems, but also for our Nation's two greatest waterways, the Mississippi and the Missouri. With the second largest third rail hubs and the second largest inland port in the United States, Missouri products travel to all 50 States and all reaches of the globe. So we care a lot about transportation.

We also care a great deal about the environment. I have fought long and hard as Governor and now in the Senate to increase the amount of money we spend in Missouri and across the Nation on cleaning on waste water and making water safe to drink. I hope next year we will come to a consensus on further air pollution reductions from electric power utilities.

We cannot give away our environmental gains achieved over the last 30 years to transportation projects needlessly hurting the environment. I share the historic trust belief that environmental reviews are an essential element in transportation development. I also agree with the American Association of State Highway Transportation Officials that, quote, "Environmental stewardship begins not with new laws and regulations, but with a commitment by transportation agencies themselves to make environmental protection and environmental enhancement an integral part of their mission," close quotes.

But with that commitment, how far can we get under the current laws and regulations? According to FHWA, it typically takes nine to 19 years to plan, gain approval and construct a new major federally funded highway project that has significant environmental impact. Frankly, that is far too long. Now, some would say that the environmental portion is a minority of that time period. That just hides the fact that the average length of time to process environmental documents for major projects is still over 5 years. Some may be proud that the average is now 5 years and 2 months instead of 5 years and 10 months, but that does not cut the mustard. Five years is just too long.

Part of the problem is groups who use well-meaning environmental reviews for nothing but delay. Testifying before this committee, the Executive Director of the Surface Transportation Policy Project admitted that, quote, "In the struggle between the proponents and opponents of a controversial project, the best an opponent can hope to do is to delay things until the proponents change their minds or tire of the fight. That is the only option they have, so they use it," close quotes.

Sometimes these advocates of delays are actually aided by governments themselves. Attempts by DOT in the last Administration failed to implement the intent of Congress in TEA–21. Their regulatory proposals were riddled with new requirements that could easily mushroom into new major causes of delay, cost-overruns and litigation. They also left many existing problems unaddressed, resulting in missed opportunities to achieve needed reforms.

Many States are trying to implement innovative new programs to streamline environmental and historic preservation reviews. I

was particularly impressed by the example of Vermont, the home State of our chairman. We will hear testimony today that Vermont delegated sign-off authority under Section 106 of the National Historic Preservation Act to the State agency of transportation itself. Maybe we should consider going national with the Vermont model. Do you think we could delegate sign-off for environmental reviews to the Department of Transportation? Somehow, I believe there may be some objections.

But all kidding aside, we still have a long way to go in realizing our vision of environmentally responsible transportation improvements delivered on time and within budget. Memorandums of understanding, either well-meaning, but toothless tools, calling for agencies to do nothing more than play nicely, are insufficient. I commend President Bush for his leadership in issuing the Executive Order already mentioned by the chairman, on environmental streamlining. Putting the weight and authority of the President behind the need to deliver environmentally sensitive transportation projects on time, on budget and in compliance, is a great step.

We know, however, that Administrations come and go. The next Administration may not share the same commitment to our Nation's transportation infrastructure. So I think we need to institutionalize improvements and we should consider doing so in legislation.

We need to take a serious look at some of the proposals which might strengthen the overall NEPA decisionmaking process and eliminate inefficiencies in this system. Some of the suggestions I have heard to date include putting a final end to the major investment study requirement and recognizing the innovations occurring at State and local levels; two, possibly designating USDOT or State DOTs as lead agencies in these NEPA processes for surface transportation projects; or three, establishing default deadlines for agency and public comments, with allowances for alternative deadlines or extensions; and four, the possibility of providing clear guidance on how to define a project's purpose and needs statement in a NEPA document. These are extremely important issues for the environment, for transportation, and for our economy and for our future. I look forward to working with my colleagues on all of these issues.

I thank the chairman.

Senator JEFFORDS. Thank you.

Senator Wyden?

OPENING STATEMENT OF HON. RON WYDEN, U.S. SENATOR FROM THE STATE OF OREGON

Senator WYDEN. Thank you, Mr. Chairman.

I would like to take just a minute and talk about the history of how this came into being, because maybe it will be helpful to us as we try to finally turn this around and get this done.

The last time ISTEA came up, Senator Bob Graham and Senator Chafee and I met for many, many months with transportation officials, with environmentalists, with developers, and we said look, here is the problem. When it comes to major transportation projects, those projects in effect go on two tracks. Over here is the development side; over here is the environmental side. And what

has happened, as Senator Bond correctly lays out, is you go all the way down the line and you are basically pretty much done on the development side, and then somebody comes in with a NEPA objections or something at the very end, slam the brakes on, and then everything falls apart.

So what we proposed in the last ISTEA legislation is that instead of going down those two separate tracks, just ignoring one or the other, the two tracks were supposed to work together. The idea was that every step of the way, the two tracks would be linked and there would be constant communication from transportation, the development community and the environmental community. Conceptually, it sounds fairly straightforward. It sounded straightforward then. It still sounds straightforward today. Unfortunately, what we have seen, and Senator Bond again is right. Vermont is a very good model. Portland, Oregon is a very good model where we have had years of exactly this kind of communication under the leadership of our former Commissioner Charlie Hales and others. Somehow, it cannot be writ large here in Washington, DC.

I am prepared to say, and I think I can speak for Senator Graham on this, that if this does not get done right now, we are going to come back and legislative it again in the next version of ISTEA. I am prepared, as long as I've got any breath in this body, to stay at it administratively to try to get it right. If it doesn't get done right, then we will have to look at it once again legislatively. But I would just hope that we would say that the fundamental premise, instead of having these two separate tracks that never get linked, and the only time they communicate is when there is a blow-up at the end, which causes the delays that Senator Bond is correct to describe, that we change that process and that we essentially say that every step of the way there has got to be the kind of communication that prevents these kinds of delays.

So Mr. Chairman, I am only going to be able to stay a little bit because we have got a markup in the Commerce Committee. But I know a lot of colleagues care a lot about this. There is a lot of history and this should not be bureaucratic water torture. People in this country want the proverbial win-win. They want transportation projects. They want them done in line with sensible environmental rules. What we have gotten as a result of this process is in effect a lose-lose. We do not get the transportation projects, nor do we get the important environmental work that needs to be done. I guess if we have to legislative a Vermont or Portland, Oregon model, we can look at doing that the next time around, but I hope it will not come to that, and this can finally get done right administratively.

I thank you for the time this morning.

Senator JEFFORDS. I thank the Senator from Oregon.

Senator Crapo?

OPENING STATEMENT OF HON. MICHAEL D. CRAPO, U.S. SENATOR FROM THE STATE OF IDAHO

Senator Crapo. Thank you, Mr. Chairman.

I do have an opening statement, but I would defer to Senator Baucus if he wanted to go first. Senator, would you prefer to go first?

Senator Baucus. Well, Senator, that is fine. You are here. go ahead.

Senator Crapo. OK. Thank you.

The reason I made that offer is because Senator Baucus and I have a common interest in this issue as well, and we are working together on some legislation that we intend to introduce I believe in the next few weeks that will deal with this issue that we are talking about. It is going to focus on reducing delays in the highway projects and the transit projects under the NEPA Act.

The basic approach that we are talking about is going to be one of, as the Senator from Oregon has indicated, ensuring prompt and effective coordination among the Federal agencies on this two-track approach, with reasonable deadlines and completion of reviews, and with authority for the States to assume some of the responsibilities of the Department of Transportation in certain circumstances, which would facilitate a lot of the kinds of successes that I believe other Senators here have been talking about.

I will not make my opening statement lengthy because frankly Senator Bond and Senator Wyden and the chairman in their statements have already well laid-out the case for why I believe and Senator Baucus and I are working together, that we need to have legislative solutions. In fact, some of the ideas that have already been tossed out may need to be added in as we work together to address this.

My goal is to advance a common sense approach that will both strengthen our transportation system and make sure that we support our environmental laws and achieve their objectives. I doubt there is a member in this chamber who has not heard concerns about the transportation projects, and I doubt there is a member in this chamber who does not believe that we can do much better than we are now doing in terms of accomplishing both effective transportation systems and meeting the needs of our environmental protection. The delays that we see add to the cost of the projects, deny the public the benefit of the projects, and frankly I do not think add anything to our ability to improve and strengthen our achievement of environmental objectives.

I am concerned that the situation has reached the point where frustration over unwarranted delays in the development of needed transportation projects are going to undermine public support for environmental review requirements. We must move forward and not allow that unhealthy situation to develop.

I look forward to learning from our witnesses today how they would approach these issues. I am very open-minded about how we need to deal with it, but I am convinced that we need to take action now; that we simply cannot see the kinds of delays that we have faced continue.

Reauthorization of TEA–21 will be our opportunity to act, and I would like to see us specifically legislate as we deal with this streamlining issue. We can eliminate unnecessary delays. We have got to be firm and we have got to be focused, and we have got to demand that the delays end.

Thank you, Mr. Chairman.

Senator JEFFORDS. Thank you.

Senator Baucus?

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. Thank you, Mr. Chairman. I was privileged to be one of the authors of TEA–21. I helped write sections 1308 and 1309. These are the sections, as you know, that direct the Secretary of Transportation to find ways to expedite the project approval process and get construction underway faster. I remember working with Senators Warner, Graham, Wyden and the late John Chafee, former chairman of this committee, and the member of the House to come to a compromise on the environmental streamlining provisions included in TEA–21.

At the time, I had heard from many Departments of Transportation, particularly mine in the State of Montana, about how cumbersome a process it is to come to completion on a highway project. Everyone who worked on TEA–21, both the House and the Senate, wanted to include a direction to USDOT to streamline the planning and project development processes for the States. So we did. We were very clear. The environment and the environmental reviews should not get short shrift, but we needed to find a way to make it easier to get a project done, eliminate unnecessary delays, move faster, and with as little paperwork as possible.

I cannot overemphasize that the planning and environmental provisions of TEA–21 need to be implemented in a way that will streamline and expedite, not complicate the process of delivering transportation projects. These projects that we are trying to expedite provide good-paying jobs for every State. Contracts must be let in a timely manner.

That is why Congress directed the USDOT to include certain elements in the regulations on environmental streamlining. We included concept to be incorporated, like concurrent environmental reviews by agencies and reasonable deadlines for the agency to follow when completing the reviews. Certainly, we did not legislate an easy task for USDOT. Trying to coordinate so many separate agencies is, as is often said around, like trying to herd cats. The whole concept of environmental streamlining is to make the permit and approval process work more smoothly and effectively, while still ensuring protection of the environment—one of the more difficult challenges of TEA–21.

So we waited for the rules. We waited to hear from DOT, patiently. And we waited. After 2 years after the passage of TEA–21, we finally got them. I have to tell you, Mr. Chairman, I was very disappointed when those rules came out in May of 2000. They hit very far from the mark, and in fact they made things worse. There were a greater complication than were they an assistance to States. They made the jobs much, much more difficult. They were supposed to answer questions, but those proposed rules raised even more questions because they were vague where they needed to be precise.

These proposed rules would make it much harder, if not impossible, to come to a decision. It would have been even more difficult for States to deliver their programs. Contracts would not get let and jobs would be lost.

So the DOT solicited comments, which I understand were overwhelmingly negative, and went back to the drawing board, and we

never heard from them again. Even when a new President took over, a new Administration, no new rules. We are exactly where we were in 1998. As for sections 1308 and 1309, nothing has been done to implement them. It is just as cumbersome today to bring a highway project to completion.

This committee has held three hearings on this subject of environmental streamlining since the passage of TEA–21 in 1998. This is the fourth. I understand that late yesterday, the President signed an Executive Order calling for a handful of projects to be supervised by the heads of USDOT and CEQ. The highest levels would personally make sure that there were timely environmental reviews. That would have been a good start in 1998, but I must say it is a bit late. We are on the verge of reauthorization of TEA–21. This time, I would like us to take specific legislative action. I would like to see us specifically legislative environmental streamlining—no waiting for regulations or more Executive Orders. Congress needs to be clear about what they need to see and put it into law.

To that end, along with Senators Crapo and others, I plan to introduce a proposal on environmental streamlining. It will be part of a series of bills that we are introducing on highway reauthorization. This bill will address three issues. First, the USDOT needs to be the lead agency on at least two requirements—purpose and need for a project, and scope of alternatives; not just one of the agencies, but the lead agency. This will make sure that any stalemates, at least more sure that any stalemates are resolved more quickly.

Second, we should allow States to take over the role of USDOT if they can meet certain requirements and if they choose to take on that role. This will help eliminate another step of bureaucracy. And last, we must ensure that resource agencies act in a timely manner. When it comes time for an agency like Fish and Wildlife to assess the extent of damage, if any, to a wetlands, or the Army Corps of Engineers to issue a permit, these agencies should not be able to take years to make those decisions. We need to legislate specific time limits, and I mean legislate. I have great deference for those who say let the administrators come up with administrative decision, but frankly my patience has run out. I don't think we can wait any longer. We have to legislate time limits, because otherwise, my fear is the agencies will come up with something that is as complicated as the last effort. They will no get the job done.

In my view, these three matters are not meant to be a comprehensive streamlining, but I believe they will be a big help and a good start, and the bill we will introduce will be a solid beginning to Congress setting some specific guidelines for expediting the planning and the environmental review process.

Once again, I want to reiterate, I want to make sure that environmental laws and policies are obeyed to the letter, but there has got to be a faster, easier way to do the work that needs to be done on our surface transportation system, while continuing to protect the environment.

Thank you, Mr. Chairman.

[The prepared statement of Senator Baucus follows:]

STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Thank you Mr. Chairman. I appreciate your interest in this issue and look forward to working under your leadership as we try to resolve these problems. I was privileged to be one of the authors of TEA–21. I helped write sections 1308 and 1309. These are the sections that direct the Secretary of Transportation to find ways to expedite the project approval process and get construction underway faster.

I remember working with Senators Warner, Graham, Wyden and Chafee and with the House members to come to a compromise on the environmental streamlining provisions included in TEA–21. At the time, I had heard from my Department of Transportation and from others about how cumbersome a process it is to come to completion on a highway project. Everyone who worked on TEA 21 both the House and Senate, wanted to include a direction to the USDOT to streamline the planning and project development processes for the States.

We were very clear—The environment and the environmental reviews should NOT get short shrift! But, we needed to find a way to make it easier to get a project done, eliminate unnecessary delays, move faster and with as little paperwork as possible.

I cannot over-emphasize that the planning and environmental provisions of TEA–21 need to be implemented in a way that will streamline and expedite, not complicate, the process of delivering transportation projects. These projects that we're trying to expedite provide good paying jobs for the folks in Montana and for every State. Contracts must be let in a timely manner. That is why Congress directed the USDOT to include certain elements in their regulations on environmental streamlining.

We included concepts to be incorporated—like concurrent environmental reviews by agencies and reasonable deadlines for the agencies to follow when completing their reviews. Certainly we did not legislate an easy task to the USDOT. Trying to coordinate so many separate agencies is like trying to herd cats.

The whole concept of environmental streamlining—that is, to make the permit and approval process work more smoothly and effectively, while still ensuring protection of the environment—is one of the more-difficult challenges of TEA–21.

So I waited for the rules to come out. And waited. And 2 years after the passage of TEA–21 I finally got them. I have to tell you Mr. Chairman. I'm was very disappointed when those rules came out in May of 2000. I believe those regulations hit very far from the mark. Those regulations were supposed to help the State DOTS get their jobs done better and more efficiently not make their jobs harder. They were supposed to answer questions-but what is contained in those documents raises even more questions than before because they were vague where they needed to be precise.

Those proposed rules would make it even harder, if not impossible to come to a decision. It would have been even more difficult for States to deliver their programs. Contracts wouldn't get let and jobs would be lost. So the DOT solicited comments—which I understand were overwhelmingly negative—and went back to the drawing board and we never heard from them again. Even when a new President took over. New administration. No new rules. And today we have nothing. We're exactly where we were in 1998. As for sections 1308 and 1309. Nothing has been done to implement them. Its just as cumbersome today to bring a highway project to completion.

This committee has held three hearings on the subject of environmental streamlining since the passage of TEA–21 in 1998. This is the fourth. I understand that late yesterday the President signed an Executive Order calling for a handful of projects to be supervised by the heads of USDOT and CEQ. The highest levels would personally make sure that there were timely environmental reviews.

That would have been a good start in 1998. But, its too little too late. W e are on the verge of reauthorization of TEA–21. This time, I would like to see us specifically legislate environmental streamlining. No waiting for regulations or more executive orders. Congress needs to be clear about what they want to see and put it into law.

To that end, along with Senator Crapo and others, I plan to introduce a proposal on environmental streamlining. It will be part of a series of bills that we are introducing on highway reauthorization.

This bill will address three issues. First, the US DOT needs to be the lead agency on at least two requirements-"Purpose and Need" for a project and "Scope of Alternatives." This will make sure that any stalemates are resolved quickly. Second, we should allow States to take over the role of the USDOT if they can meet certain requirements and if they choose to take on that role. This will eliminate another step of bureaucracy. Last, we must ensure that resource agencies act in a timely manner. When it comes time for an agency like Fish and Wildlife to assess the ex-

tent of damage (if any) to a wetlands or the Army Corps Engineers to issue a permit, these agencies shouldn't be able to take years to make these decisions.

We need to legislate specific time limits for them to follow. No answer at all is not acceptable. It is unacceptable for agencies to sit on their decision for years. We can't make them issue the permit and we don't want to, but we can make them make a decision in a timely manner.

The rest of the world works on deadlines. They can too. These three things will help to expedite the planning and NEPA processes.

These three things are not meant to be comprehensive streamlining, but I believe that they will be a big help and a great start. The bill we will introduce will be a solid beginning to Congress setting some specific guidelines for expediting the planning and environmental review processes.

Once again, I want to reiterate that I want to make sure that environmental laws and policies are obeyed to the letter. But, there's got to be a faster, easier way to do the work that needs to be done on our surface transportation system, while continuing to protect the environment. I believe our bill will be a means to those ends.

Thank you Mr. Chairman.

Senator JEFFORDS. Senator Voinovich?

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator Voinovich. Thank you, Mr. Chairman for conducting this hearing on project delivery and environmental stewardship.

I think I have a unique perspective on this issue, as a former Governor and Mayor. In particular as Governor, I first witnessed the frustration of many State agencies because they were required to complete a myriad of federally required tasks on every project they initiated. My experience with the process led me to hold two hearings on project delivery and streamlining when I was chairman of the Subcommittee on Transportation and Infrastructure.

Now, I am concerned that the amount of time it takes to develop and complete large construction projects has gotten even worse, and my colleagues have mentioned that. Ten years ago, one Ohio group produced a chart entitled, "So you want to build a highway." It showed that—they called it the 8-year hitch that was required to develop a road project, and that is before construction even begins. On average, major transportation projects now take 13 years or more to get through the planning process, environmental reviews, designed, right-of-way acquisition. On those major projects, development of environmental impact takes on an average more than 5 years to complete, although we have seen some things around the country where they have been able to streamline it by just coming together in a task force.

Environmental review is a good policy, but there are more efficient ways to get it done. As chairman of the National Governors Association, I was involved in negotiating TEA–21 and lobbying for a streamlined project delivery process. Congress recognized the States' frustration and enacted an environmental streamlining provision, and Senator Baucus you made reference to it, 1308, 1309.

After arriving in the Senate in 1999, I called two subcommittee hearings on implementation on environmental streamlining as contained in TEA–21. We stressed the importance of implementing it. A year after those hearings and nearly 2 years after the passage of TEA–21, the Department of Transportation finally published its proposed regulations for implementation. As you know, every group in the country that had anything to do with it said, rather than complying with the intent of 1308 and 1309, it did just the opposite

and it made the process even more complicated than what it was before. Other groups such as the Association of Metropolitan Planning, American Society of Civil Engineers, the American Road and Transportation Association—all requested that the rules be substantially rewritten.

At that time, I joined Senator Smith to introduce a bill, in the year 2000, that would have required the Administration to revise and re-propose the rules, and Senator Baucus and Senator Crapo, I am very interested in your legislation. Frankly, I think that—and I am not going to read the rest of the statement—but I think that the time has come when we have to act. I am pleased that the Administration has an Executive Order, and they get it, but the fact is, if we really want to get something done on this, we ought to sit down with the Administration, these people here that are here at the table, figure out what it takes in order to get this job done. We have enough models out there. My goodness, we have had benchmark models all over the country about what it takes in order to get the job done. They have done it consistent with good environmental issues, and figure out what it is that we need to do, and get the law passed. I would hope, Mr. Chairman, that we do not wait for the reauthorization of TEA–21. Why don't we get this issue out of the way now, and not go back and revisit it and have it part of the overall TEA–21 legislation? Get it off the table. We are going to have enough other stuff to talk about on TEA–21, that we are going to be debating about. Let's get this one off the table and get on with it, because we have waited too long.

Thank you.

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Thank you, Mr. Chairman, for conducting this hearing on project delivery and environmental stewardship. I have a unique perspective on this important issue due to my background as a former Governor and mayor. In particular, as Governor, I witnessed first-hand the frustration of many State agencies because they were required to complete a myriad of federally required tasks on every project they initiated.

My experience with this process led me to hold two hearings on project delivery and streamlining when I was chairman of the Subcommittee on Transportation and Infrastructure. Now, as the current ranking member of the Clean Air Subcommittee, which has jurisdiction over NEPA, I am concerned that the amount of time it takes to develop and complete large construction projects has gotten even worse. Ten years ago, one Ohio group produced a chart entitled "So You Want to Build a Highway?" that showed an "eight-year hitch" required to develop a road project—and that's before construction even begins.

On average, major transportation projects now take 13 years or more to get through the planning process, environmental reviews, design, and right-of-way acquisition. On those major projects, development of an Environmental Impact Statement (EIS) takes, on average, more than 5 years to complete. Surely, there is room for improvement.

Environmental review is good public policy, and I know there are more efficient ways to ensure adequate and timely delivery of construction projects and still carefully assess environmental concerns.

As chairman of the National Governors Association, I was involved in negotiating TEA–21 and lobbying for a streamlined project delivery process. Congress recognized the States' frustration and enacted an environmental streamlining provision in TEA–21.

After arriving in the Senate in 1999, I called two subcommittee hearings on implementation of environmental streamlining as contained in Section 1309 of TEA–21. At those hearings, I stressed the importance of implementing Section 1309 in

a way that will streamline and expedite, not complicate the process of delivering transportation projects.

A year after these hearings and nearly 2 years after the passage of TEA–21, the Department of Transportation finally published it proposed regulations for the implementation of Section 1309 in May 2000. Many of us were disappointed with the length of time it took to develop these rules and with their content.

Unfortunately, the proposed rules were inconsistent with congressional intent and would have done little, if anything, to streamline and expedite the States' ability to meet their transportation needs. In fact, the American Association of State and Highway Transportation Officials, representing our customers—the State departments of transportation—and said that the proposal was "completely at odds" with congressional intent.

Other groups, such as the Association of Metropolitan Planning Organizations, American Society of Civil Engineers, and the American Road and Transportation Builders Association all requested that the proposed rules be substantially rewritten. They were really a great disappointment. That is why I joined Senator Smith to introduce a bill in October 2000 that would have required the administration to revise and re-propose the rules.

Mr. Chairman, we are about to enter the last year of TEA–21, and we still do not have rules to implement the environmental streamlining provision of the law. I regret that we may have wasted an opportunity to realize the benefits of an expedited environmental review process that we envisioned 5 years ago.

Meeting our nation's transportation needs is too important for us to wait until the next highway authorization bill before we get serious about streamlining. That is why we should do whatever is humanly possible to implement the environmental streamlining provision of TEA–21. Otherwise, I believe we will end up waiting several more years before we can see any substantial progress in reducing unnecessary delays on transportation projects.

In 1999, the Federal Highway Administration signed a Memorandum of Understanding with six other Federal agencies and established a pilot program on environmental streamlining. I am eager to hear from the Department of Transportation as to whether the MOU or the pilot program has had an impact on reducing project delays. Most importantly, I would like to know why the Department has not issued a new rule on environmental streamlining and whether it intends to do so before TEA–21 expires next year.

However, last night the President did announce an Executive Order on Environmental Stewardship and Transportation Infrastructure Project Reviews. Although it's not a new rule, I appreciate the Administration's recognition of the continued importance of environmental streamlining to improving our nation's transportation system. I look forward to hearing from today's witnesses about this Executive Order and how effective it may be in improving project delivery.

Again, thank you, Mr. Chairman, for holding this hearing. I join you in welcoming each of the witnesses who have come to testify. I look forward to their testimony and to their answers to any questions that may follow.

Senator JEFFORDS. Now, I turn to our witnesses. Our first witness is the Honorable Emil Frankel, Assistant Secretary for Transportation Policy, U.S. Department of Transportation, Washington, DC. Please proceed.

STATEMENT OF HON. EMIL FRANKEL, ASSISTANT SECRETARY FOR TRANSPORTATION POLICY, U.S. DEPARTMENT OF TRANSPORTATION

Mr. Frankel. Mr. Chairman, members of the committee, thank you for the opportunity to discuss the issues of transportation project delivery and environmental stewardship, and thank you for your opening statements.

Ensuring that important transportation projects are completed as quickly as possible, while protecting the environment, is one of the top priorities for all of us at the Department of Transportation, as I know it is to members of this committee, as reflected in the opening remarks. Many factors impact the timing of a project's completion, from planning to environmental review to construction. Issues confronted on one project will often vary substantially from those

in another seemingly similar project. Unfortunately, the nature and complexity of the issues mean that blanket solutions have proved very elusive.

That is not to say that progress cannot be made. The Federal Government's role in creating project delays is frequently minor, although occasionally it is not. In light of these circumstances, President Bush yesterday issued an Executive Order to enhance environmental stewardship and improve transportation infrastructure project reviews. Concurrent with the President's Executive Order, the Secretary of Transportation has withdrawn draft rules proposed by the Department of Transportation in May, 2000 that deal with planning and environmental streamlining for transportation projects.

The Executive Order is responsive, we believe, to the purposes of section 1309 of the Transportation Equity Act for the 21st Century. It lends the weight of the White House to bring together Federal agencies to coordinate and accelerate reviews of important transportation projects. The order does not bypass or alter in any way NEPA or any other environmental statute. President Bush has instructed his cabinet to form a review team chaired by Secretary Mineta to coordinate the environmental review of specific high-impact transportation projects. In addition, by working closely with Governors and transportation leaders, we hope to identify effective procedures for routinely expediting consideration of environmentally sound transportation projects nationwide.

The Secretary will develop a list of specific streamlining projects to tackle immediately. We will seek project nominations from Governors, from local authorities, such as airport directors and MPOs and other transportation agencies. Working with State and Federal agencies, we expect to help cut through red tape and promote effective strategies for taking time out of the decisionmaking process. While we will start with a few projects, the intent is that this is a rolling list. That is, projects are dealt with that other projects will be substituted for. So it is not just a few projects. The Department will be contacting affected stakeholders soon to develop criteria for selecting projects into established deadlines for project nominations.

In its simplest terms, environmental stewardship and streamlining consists of cooperatively establishing realistic project development timeframes among the transportation and environmental agencies, and then working together to adhere to those timeframes. Because major transportation projects are affected by dozens of Federal, State and local environmental requirements, administered by a multitude of agencies, improved interagency cooperation is critical to the success of environmental streamlining.

Long before the issuance of this Executive Order, the Department has targeted the intersection of transportation and environment as an area of importance. The Executive Order follows other administrative actions taken by the Department and the resource agencies, I might say, to enhance coordinated project review. In February, as noted, the Department of Transportation submitted a report to Congress that summarized many of the steps the Federal Highway Administration had taken to enhance environmental streamlining. That was in compliance with a request and a report.

From 1999 to 2001, the median time for completing environmental review for the small number of projects requiring EIS decreased by 1 year. This year, the Federal Highway Administration has set internal goals to continue to decrease the review time for all projects requiring rigorous environmental analysis. This would be accomplished through negotiated project timeframes with each State Department of Transportation and Federal Highway Administration division office, in consultation with review agencies.

All 50 States have adopted initiatives for streamlining that clarify, amend or reinvent the project development process. Twenty-four States have focused their process redesign efforts on integrating planning and NEPA activities. Using TEA–21 authority, 34 States have agreed to provide personnel to State and Federal environmental agencies for the purposes of expediting reviews. Twenty-nine States have adopted agreements to merge the NEPA process in the Clean Water Act permitting process administered by the Corps of Engineers. And Federal Highway Administration is working with the Corps to modernize merger agreements already in place and foster new ones.

Aside from the environmental issues, as this hearing emphasizes, other problems can delay the completion of a project. Many of the procedures relating to construction bidding and procurement that influence the initiation and development of projects are a function of State, not Federal, law. Nonetheless, Federal law should be permissive, should promote innovation at the State level, and we are examining, as I know you are, a relevant statutory framework in the context of the reauthorization proposal which we will be making to the Congress early next year.

I am pleased that the Inspector General of the Department is here, and we welcome his comments and have had conversations with him about the issue of oversight, which the chairman has emphasized in his opening remarks. You cannot have a complete conversation about project delivery without talking about DOT's oversight role. And although TEA–21 directed extensive delegation of approval authorities to the States, for most Federal aid projects the Federal Highway Administration's oversight role and FTAs on larger projects was enhanced. TEA–21 requires that projects with an estimated cost of $1 billion or more submit an annual finance plan. In reauthorization, we will be looking for ways to further enhance the management of projects.

In conclusion, Mr. Chairman, the upcoming reauthorization bill will be the next step in a long process that began with TEA–21 and ISTEA before it. By further fostering the efficient and effective coordination and collaboration of numerous Federal Departments and agencies to enhance environmental reviews, TEA–21 and the just-issued Executive Order should provide an excellent framework from which to take that step. It is not, I emphasize, the Executive Order is certainly not the end of the road. It is just another step in a process of enhancing this review process.

We will continue to examine other administrative actions and legislative proposals, as I know the committee will, to further enhance this process, while being respectful of the environmental stewardship.

Mr. Chairman, I request that my written statement be included in the record of this hearing. Thank you again for the opportunity to testify before you today, and I look forward to responding to any questions.

Senator JEFFORDS. Your statement will be included in the record.

Mr. Suarez?

STATEMENT OF HON. JOHN PETER SUAREZ, ASSISTANT ADMINISTRATOR, OFFICE OF ENFORCEMENT, COMPLIANCE, AND ASSURANCE, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. Suarez. Thank you, Mr. Chairman. Members of the committee, good morning.

As you know, I am the Assistant Administrator for the Office of Enforcement and Compliance Assurance at the EPA. I want to thank you for inviting me to appear before you today to discuss project delivery and environmental stewardship under TEA–21. I am pleased to be here, and I look forward to a productive relationship with this committee, and I thank you. It is my first time up, and I am enjoying my appearance.

Senator JEFFORDS. I look forward to working with you.

Mr. Suarez. Thank you, Mr. Chairman.

As you consider reauthorization of TEA–21 legislation, I understand the committee is particularly interested in EPA's contribution to the environmental streamlining called for in section 1309. As you know, the Office of Enforcement and Compliance Assurance is responsible for EPA's NEPA program, and my remarks today will focus on how EPA has attempted to incorporate the provisions of section 1309 into our NEPA program.

EPA embraces the streamlining provisions of section 1309. We are committed to working with our Federal and State partners to better serve the American people with faster, yet environmentally sound transportation decisions. We are bringing our special expertise to bear earlier in the transportation decisionmaking process to improve the quality of analysis and to ensure that the environment is protected, and also to speed project approvals.

Quality and expedient analysis are being accomplished through strategic staffing. An example of this includes the hiring of a manager with Federal Highway Administration experience for EPA's regional NEPA office in California. In several key States, we are able to provide more timely and sustained assistance on State priority projects thanks to the additional personnel funded by section 1309. We are working closer than ever with Federal highway and State DOTs entering into formal agreements which ensure early involvement and technical assistance for future individual projects. Early involvement reduces delays at the later stages of project review resulting from interagency agreements. FHWA statistics, as Mr. Frankel has just mentioned, show that 1 year has been shaved off the median time to process environmental documents for major projects since the passage of TEA–21.

For example, Interstate Highway 69, a proposed 1,600-mile across-America highway from Mexico to our border with Canada is a good example of how EPA is using its efforts to expedite a specific national priority project. Three EPA regions are coordinating

with the FHWA and seven State DOTs to identify and resolve environmental issues at the earliest possible stage. The EPA regions are also providing technical assistance to the State DOTs with geographic mapping of sensitive resources to improve and streamline the environmental impact analyses. In fact, Arkansas estimates that in one recent case, use of the geographic information system analysis, or GIS, and early coordination cut in half the time needed to complete the NEPA process.

Within a year of TEA–21's enactment, EPA had expanded the model process developed with the mid-Atlantic States, FHWA, and our other Federal and State partners to streamline the environmental review of transportation projects. The mid-Atlantic transportation and environmental process, also known as the MATE process, resulted in a formal agreement that commits all parties to a timely, cost-effective and environmentally sound transportation project development plan. In addition to the MATE process in the mid-Atlantic, other EPA regional offices have signed a variety of streamlining agreements tailored to the needs of individual States. For example, last year EPA and the California DOT signed an agreement for the review of California's priority transportation projects. In Oregon, EPA and the State have formally agreed to implement a specific process for resource agency involvement in streamlining. Also, after the Washington State legislature passed its Environmental Permit Streamlining Act last year, EPA became an active partner in developing and implementing streamlining processes in that State. Additionally, EPA is serving as a cooperating agency with the Kansas DOT on the U.S. Highway 59 project and on the I–70 second-tier studies in Missouri. EPA and the Minnesota DOT are working under an MOU to streamline the approval process for the 169 Trunk Highway.

Our strong relationship with the States is exemplified by our participation in streamlining discussions at many of the American Association of State Highway and Transportation Officials Planning and Environmental Committee meetings. This first-hand discussion by my staff with AASHTO members is a direct result of Congress' emphasis on streamlining. EPA is also participating in the development of AASHTO's Center for Environmental Excellence. This Center holds great potential for sharing expertise across agency and State boundaries on a quick-turnaround basis.

An encouraging sign that EPA has noticed since the passage of TEA–21 is a growing endorsement of environmental stewardship by the State DOTs. Half of our State DOT partners are formally supporting AASHTO's Environmental Stewardship Demonstration Program. New York State, for example, has found that by mulching land adjacent to highways, the State saves mowing costs by preventing stream damage from runoff. The more we can build environmental considerations into all aspects of transportation planning and delivery, the better we will serve the American public by providing environmentally sound transportation solutions.

EPA, as you know, participates in FHWA's Streamlining Committee. We continue to encourage our regional offices, where most NEPA reviews are done, to work with their States to obtain funding for positions and technical support, which in turn is resulting in expedited attention to State priority transportation projects.

EPA is also working with FHWA in its effort to develop training for Federal agencies and State DOTs on Alternative Dispute Resolution. This training, expected to start next spring, will ensure that disagreements during the project review process can be identified and swiftly resolved.

In conclusion, I would like to endorse the critical role that NEPA plays in coordinating environmental requirements. NEPA has served the American public well for 30 years by providing full disclosure of the impacts of major Federal actions, and requiring examination of alternative ways to achieve a project's purpose. EPA is committed to streamlining as the way to make NEPA even more effective through a more efficient and timely process.

I thank you for the opportunity to testify. I look forward to working with you and continuing to promote streamlining and stewardship, and I will be happy to answer any questions.

Senator JEFFORDS. Thank you.

Mr. Mead?

STATEMENT OF HON. KENNETH M. MEAD, INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION

Mr. Mead. Thank you, Mr. Chairman.

Much of the discussion thus far has focused on responsible environmental streamlining. I very much appreciate the invite today because I like to focus on the broader subject of project delivery, and a series of specific steps that the Congress can take in the coming reauthorization to strengthen management and oversight, facilitate delivery of projects to taxpayers, approximately on budget, on schedule, and free from fraud and waste.

My testimony is based on audit reports we have done on about 18 major highway and transit projects across the Nation, as well as significant criminal investigations that we have undertaken with the Department of Justice. Whether transportation dollars are lost to cost overruns, schedule slippage or even outright fraud, the result is that fewer resources remain for transportation projects. The dollars are going to be tighter this time around, as you know, but the demand for infrastructure investment is going to be at least as great as it was last time.

Mr. Chairman, the combined Federal, State and local investment during the 6 years of TEA–21 is likely to exceed $500 billion. That is more than $225 million at a burn rate per day. A lot of money goes to large projects. These so-called "megaprojects" are projects of national significance. To give you a frame of reference, there are 35 active or planned highway projects that will cost about $71 billion. The Department has requested funding for 34 new-start transit projects that are valued at about $21 billion. Increasing the efficiency with which that $500 billion I mentioned is spent by just 1 percent would free up an additional $5 billion, which is enough to pay for four of the Nation's active largest highway projects.

The projects have become more complex in the last couple of decades. I don't have any panacea for all of the problems, and there is no cookie cutter approach from what we see in our work. But project managers nowadays are consistently faced with such factors as having to maintain traffic flow and commerce, while building in dense urban areas and meeting the environmental and historic

preservation requirements—considerations that two or three decades ago, when we launched the Interstate, really were not quite that pronounced.

The financing of projects has changed. It has become a much more difficult proposition involving complex financing techniques like structured bonding, innovative financing, and private equity investments.

From what we see, the Federal Highway Administration has taken some steps to strengthen the stewardship and oversight, and adapt to today's environment, but it still has a very heavy emphasis on engineering issues and detailed contract change-order level reviews and approvals. Historically, the Federal Highway Administration has given much less attention to identifying systemic problems with project management or other major project drivers of today, like project financing, controlling project level costs, schedule performance, and maintaining accountability over funds. Because they have not implemented a higher level focus on oversight, it sometimes has missed the larger issues.

For example, on Boston's Central Artery project, the Federal Highway Administration approved literally thousands of design changes to the project and contract amendments—about 16,000, I think—but missed a $1.4 billion cost overrun. Likewise, when Congress asked the Federal Highway Administration to identify projects costing $10 million or more, that had increased by 25 percent, the information system that we have at the Department is not sophisticated enough to respond to that question.

In this reauthorization, we think that Congress ought to consider delegating to the States more of the detailed contract-level approval actions and refocusing FHWA's oversight. Specifically, projects that are running around $1 billion or more are of national significance, and FHWA ought to stay on top of them to ensure they are kept on time and budget. But for the overall highway program, FHWA ought to institute an oversight program that is aimed at ensuring those major project drivers are working well.

That is going to require a change in the staff at Federal Highway Administration that is more in keeping with the complexities of the modern-day transportation project. FHWA's staff is and has been predominantly engineers—very few people with project management skills, transportation project management skills or that understand the financing of today's modern transportation project.

We think they also ought to give some consideration to using the Federal Transit Administration's approach of contracting out oversight. That has worked reasonably well. It is not perfect, but it helped the Federal Transit Administration get off the General Accounting Office's high-risk list. I think it could help while FHWA develops a multidisciplinary staff.

Project finance plans—I think this is great that Congress enacted that in TEA–21. I think it only makes sense that when you are spending millions of taxpayer dollars that we ought to have a finance plan about how we are going to pay for it. Right now, that requirement applies to $1 billion and up. I would reduce it probably to $500 million or perhaps even lower. I am not sure that the Federal Government needs to get in the business of approving

ones, though, that are under $1 billion, but I think there should be one.

Cost estimating—there are no standards for cost estimating projects that are under $1 billion. I think there ought to be a standard so the 50 States are singing off the same sheet of music.

Information—you need information to manage these projects. We think it is pretty basic that the Federal Highway Administration ought to know how much a project is going to cost and roughly when it is going to be completed. When there are major cost overruns and delays, we ought to be able to tell you. Right now, we cannot. Fraud prevention—This is an important subject because I think that it would be unfair to characterize the TEA–21 program as being riddled with abuse like fraud. Nothing on the scale of the 1950's and 1960's and in the Interstate era. We are not seeing problems like that. But I do need to tell you that given the large increase in funding in TEA–21, our indicators for fraud are on the upswing. This is a major area of emphasis by the Department and by the States. Secretary Mineta and Administrators Peters and Dorn both appeared at the National Fraud Conference earlier this year to emphasize the importance of this. To give you an idea of the numbers, from 1999 to 2001, indictments moved from 12 to 39; convictions from 12 to 26; monetary recoveries, $15.8 million to $43.2 million. That is just for my office alone. Right now, we have about 106 pending investigations across the United States in 37 States.

One thing I would recommend that the Congress consider in reauthorization is when we go in and prosecute a case and we get a judgment, and there is a fine involved, the current practice is to send that money back to the U.S. Treasury. I can give you a whole series of examples where what prompted the case was that the State was damaged. For example, in the State of Louisiana, giant culverts—they were buried in the soil in the State of Louisiana, but they did not have the laminant that you need around these culverts in the acidic soils of that State. So you had these culverts buried all over the State, and the government was being defrauded. The State of Louisiana suffered. Now, they are going to have to dig them up and replace them. We got a $30 million judgment on that.

I think that some of the money in cases like that ought to go back to the States that have been damaged. It could help in the fraud prevention efforts and it can also help restore the State—kind of make the State whole. But to do what we did in the State of Louisiana, it is a torturous process. You have got to go to the highest levels of the Justice Department. You have got to make special procedures. I think we ought to be doing that as a matter of course.

Thank you, Mr. Chairman. I know I ran a bit over, but thank you.

Senator JEFFORDS. Thank you. Excellent testimony.

Ms. Siggerud?

STATEMENT OF KATE SIGGERUD, ACTING DIRECTOR OF PHYSICAL INFRASTRUCTURE ISSUES, GENERAL ACCOUNTING OFFICE

Ms. Siggerud. Thank you.

Mr. Chairman and members of the committee, thank you for the opportunity to appear before you today. In this series of hearings on TEA–21 reauthorization, you have heard about the importance of mobility to the Nation's economy. Delivering Federal aid highway projects in a timely manner is a key contribution to improving mobility.

My testimony today will cover three topics: first, the time it takes to deliver a federally financed highway project; second, the types of events that can affect delivery time; and third, Federal and State initiatives designed to improve delivery time for highway projects. My testimony is based today on ongoing work for Chairman Jeffords. We plan to conduct additional research and issue a final report in spring of 2003.

Regarding my first point, in FHWA's best judgment, it typically requires from nine to 19 years to build a major highway project. In developing this estimate, FHWA focused on new roads that had significant environmental impacts. This estimate is based on FHWA's best judgment, rather than an analysis of actual projects, because FHWA and State DOTs do not track how long it takes to build federally financed roads. Projects take his long in part because they are large and complex, involving up to 200 key steps. However, only about 3 percent of highway projects are major projects. Most are narrower in scope, for example, resurfacing an existing road, which would presumably take less time. According to the experts with which we spoke, these kinds of highway projects can range from three to 20 years depending on their complexity.

To make sense of this nine to 19 year timeframe, we broke it down into four phases. Planning, the first phase, typically takes four to 5 years. Activities include developing a multi-year plan that lists approved projects; consulting with the public on the plan; and review and approval of the plan by the Federal Highway Administration. Preliminary design and environmental review, the second phase, takes one to 5 years. Activities include an initial project design and environmental review of project alternatives. About 3 percent of projects require an environmental impact statement, the most extensive type of review. As a result, these are likely to take longer than other reviews. Most projects—91 percent—are categorically excluded from needing an environmental impact statement, while 6 percent require an environmental assessment instead.

The third phase, final design and right-of-way acquisition, takes two to 3 years. Activities include acquiring title to the property needed for the project and locating and making plans to move the utilities. In construction, the final phase, this takes two to 6 years. During this phase, States let a construction contract subject to FHWA approval, of course, and then build the project.

Turning now to events that can affect duration of highway projects, larger and more complex projects take longer in part because they are large and complex. They involve Federal and State requirements, more Federal stakeholders, and attract more public interest. However, we conducted a limited review of six new road projects in California, Florida and Texas. These varied in their complexity. We found that the projects took from seven to over 15 years to complete, excluding the planning phase for which the data were not available at the State level. Several of these projects expe-

rienced events that affected the duration of the project. For example, during the preliminary design phase, one project needed to be altered to accommodate clearances for large trucks. Another project was altered in response to wetlands that had been previously undiscovered. During the final design phase, several projects ran into difficulty obtaining clear title to the right-of-way and other encountered delays while relocating the utilities. Finally, during construction, several States encountered weather delays and problems with the contractor performance.

Turning now to Federal and State initiatives, we identified several initiatives that looked promising in terms of reducing project duration. Most of these efforts have focused on the environmental review phase. Since DOT has already testified today on its environmental streamlining process, I am going to concentrate my remarks on State efforts.

Thirty-four States are using interagency funding agreements to hire staff at Federal and State resource agencies to help expedite project reviews. Forty-one States have delegated enforcement of historic preservation requirements to their DOTs. In Vermont, for example, this is believed to expedite project approval by weeks or months. States also had initiatives for the other phases of a project. For example, several States that we talked with are identifying utility locations earlier in order to save time in the final design and construction. Several others, including Florida, have made successful use of incentives in contracts to improve their contractors' performance.

Mr. Chairman, this concludes my short statement. I would be pleased to answer any questions.

Senator JEFFORDS. Thank you. Thank you all for very excellent statements.

Now, I will go back to Mr. Frankel.

Mr. Frankel. Thank you, Mr. Chairman.

Senator JEFFORDS. I would like to ask you a few questions about the President's Executive Order. How does this Executive Order differ from the environmental streamlining memorandum of understanding signed in 1999?

Mr. Frankel. Mr. Chairman, I think that as I mention in my remarks, I think this has to be viewed in context, in a continuum—obviously, Congress' own action and the enactment of TEA–21 and section 1309; the administrative actions which I have cited and of which you are aware, were in the report; memoranda of understanding that have been drafted with other resource agencies. I think the most important thing is that the Executive Order puts the weight of the President, of the White House, behind this process. With all due respect, the environmental streamlining provisions of TEA–21 were directed primarily, if you will, at the Secretary of Transportation at the Department of Transportation. This needs to be obviously a cooperative effort involving the resource agencies, so the Department of Transportation is not in the position of regulating, of administering the various laws relating to environmental protection and environmental quality.

I think the key thing with this is that the President himself has basically said to all the relevant agencies, under the leadership to be sure of the Secretary of Transportation, but to the resource

agencies that on a project-by-project basis, we must work together, not in any way to shortchange the substantive outcomes. I want to emphasize this. This does not speak to the substantive outcomes, but rather to assure an expedited, timely and appropriate review. In that sense, it reinforces, continues the efforts undertaken, as you mention, with the memorandum of understanding.

Senator JEFFORDS. The Executive Order calls for the Secretary of Transportation to develop a list of high priority transportation infrastructure projects for expedited agency review. What process will be used to select these projects, and will there be safeguards in the selection process to ensure that projects have come from the transportation planning process, and have realistic funding for their completion?

Mr. Frankel. Let me say about the process, Mr. Chairman, that this really is proceeding on the track, as I indicated, that we want advice from Congress, from stakeholders, from the States as to what our process should be in terms of defining the standards for the nominations, if I can use that word. It will proceed under the same time. We are going to go, and as a matter of fact, the Secretary has already written to Governors and to other stakeholders, but particularly to the Governors asking them to nominate projects for this. Quite candidly, we have some ideas within the Department, but that is not even a beginning point. This really must come from States and local officials and from various transportation agencies.

At the same time, on a parallel track, if you will, we want advice about what process we should use within the Department so that the Secretary can reduce that number, whatever it may be, of possible nominees to key projects—ten, fifteen. As I emphasized in my remarks, this is going to be a rolling list. This is not a list that we will do our ten or fifteen, and then the Executive Order goes away—quite the contrary. But we want help and advice about what the process, what the standards ought to be, as we are soliciting and in fact sifting through the possible nominees. We want to make sure that these are projects that are genuinely affected, where the issue genuinely is one of, for whatever reason, not timely consideration by the resource agencies of the applications and of the environmental process.

Senator JEFFORDS. Following up on that question, what does the Administration envision as an expedited review for these projects?

Mr. Frankel. Again, Mr. Chairman, I do not think there is a blanket answer, as I said in my remarks. Here, frankly, I draw on my own experience, not over the last year, as an official of the U.S. Department of Transportation, but as you know, I served as a Commissioner of a State Department of Transportation. There are no silver bullets for this. This is a tedious, time-consuming, project-by-project basis. I share with many members of the committee that there need to be deadlines. There need, where we can, to be concurrent reviews. But I think that really needs to be negotiated, worked out, if you will, on a project-by-project basis because some projects are a lot more complicated. Projects raise different issues. They involve different resource agencies. There are many other factors involved.

I think the question of expediting really, as I said, depends on the specific characteristics of the project, and negotiating, working out the deadlines, and then ensuring that the resource agencies meet those deadlines that they have agreed to. I have had experience, as I know others have, in terms of working projects in that way. I think that expedited is in a sense of making sure the resources are available for the environmental review to go forward; that commitments are made and that those commitments are honored; and that we get decisions—we get decisions, not dictating whether they are up and down decisions, but that there is a final decisionmaking process in the case of each of these major projects.

Senator JEFFORDS.port of the Transportation Infrastructure Streamlining Task Force will be issued at least once a year. When would the first issuance of this report be made, and will the report be issued to Congress as well as the President?

Mr. Frankel. Actually, let me say, Mr. Chairman, I am glad you mentioned that. I didn't have a chance, really, to speak to that. That part of the Executive Order I think is one of the most important parts. As you have said, it talks about a report, but what is in that report would describe the results of these coordinated, expedited reviews, and identify procedures. Someone here earlier made reference to the fact of best cases and learning from examples. You have cited something in Vermont. I think States should learn from each other. We will learn from this process. We will share those experiences with others. These will be contained in the report. We will address procedures that can be undertaken and implemented, which will continue to improve the process.

I must tell you candidly, I am going to have to get back to the committee on the question of exactly when the first report would be made. I am sure that it is something that would be shared and available. This is intended to be a transparent process. I think the transparency of it and the accountability of it is one of the things that is most important. That is really something else that is implicit, if not explicit, in this Executive Order—instructions to DOT and the resource agencies, that we be transparent and not use delays in order to frustrate the achievement of important and good transportation infrastructure projects.

Senator JEFFORDS. The Inspector General recommends changes to thresholds required for projects to have a finance plan from the current $1 billion to $500 million. What were your thoughts on this recommendation? What additional workloads will this create?

Mr. Frankel. Let me say, we obviously have spoken to the Inspector General as we and you well know from conversations we have had that we have been involved in the preparation of the Administration's reauthorization bill now for several months. We expect to address this. We are aware of the Inspector General's recommendations. We are considering recommendations. I think you can appreciate the fact that I cannot indicate to you the specifics of those recommendations in regard to oversight, and the specific suggestion made by the Inspector General at this point because we have not completed our own internal processes of what is going to be in our recommendations to the Congress. But this is something that we are taking very seriously and we are looking at the range

of options, including that one which the Inspector General has mentioned.

Senator JEFFORDS. In your testimony, you explain that environmental streamlining and stewardship is a term for a new way of doing business that brings together the timely deliver of transportation projects with the protection and enhancement of the environment. In essence, it is the rejection of the false choice so often presented between adding transportation capacity and protecting the environment. Can you give the committee an example of these false choices?

Mr. Frankel. Well, I am not sure whether you are seeking a specific project. If so, I think that is something—a specific project or projects—that I would like to supply subsequently to the committee. But I think in general, the use of delay, and again someone mentioned this in the opening remarks maybe several times, the use of delay as a device to defeat a project I think is not appropriate. I think that is an example, if you will, maybe false choice is not exactly the right term, but bad public policy.

We need, and indeed the environmental laws, NEPA and the various permitting and regulatory laws, are written in a way so that we balance investments with environmental protection and quality of life. I think we just have to ensure that substantive decisions are made. That, in and of itself, is the way these laws and public policies are supposed to work.

Senator JEFFORDS. Senator Voinovich?

Senator Voinovich. Thank you, Mr. Chairman.

I have a couple of areas I am interested in. Mr. Mead and Ms. Siggerud, you had an opportunity to review these agencies. I have been spending a lot of time in another committee on the human capital crisis that we have—the crisis in competence; the issue of having the people with the right skills and the right knowledge at the right places and at the right time.

What is your observation about the capacity of the Department of Transportation in terms of fulfilling their role, in terms of personnel and the people they need to get the job done?

Mr. Mead. I think there needs to be a major change. Specifically in our testimony, I mentioned that today's project requires many things in addition to just the engineering discipline, just like the profession of auditing needs more than just people with the discipline of accountancy today. The Federal Highway Administration, for example, I think they need to develop some skills in the financial management area. When you are talking about multi-billion dollar projects; when you are going to be inviting the public to invest in projects and spend their money in a project, it is important that the prospectus make the appropriate disclosures, particularly if the Federal Government is supposed to sign-off on a finance plan, as they are required by law to do.

At the Department of Transportation, they would have to make a concerted effort to develop a more multi-disciplined workforce in the Federal Highway Administration. I think they are examining that. That cannot be done overnight. That is why I would suggest that as an interim measure, at least, and on a selected basis you contract out some of those reviews so you can secure that talent in that fashion.

Ms. Siggerud. Senator Voinovich, we report to the new Congress every 2 years in what we call our performance and accountability series on each cabinet-level department. We will be including in that report this year a very similar message to what Ken just outlined. There is a human capital crisis in the Department of Transportation and within the highway community in general. We will point out that the engineering profession, while it has been very important in developing the highways in this country, has not necessarily set up the use of technology, the kind of public outreach and environmental analysis that is needed, as well as the financial management issues that Ken mentioned.

We will be pointing out that this is an issue both for the Federal Highway Administration and also at State and local transportation agencies as well, and there is a need to look at that issue.

Senator Voinovich. I had asked the Department of Transportation, and I am going to write to your people over there, I want to see in the next couple of months your plan to re-shape the workforce of the Department of Transportation. I know that the Administration has asked agencies to do it. Mr. Chairman, I think we should insist upon finding out from them where their problems are, what they are going to do to re-shape, what they are going to do to bring on the people that can get the job done.

This issue was ignored by Congress and it has been ignored by Administrations. Until we deal with this personnel problem, a lot of the problems that we are talking about here are not going to get taken care of.

The second area that I am concerned about is that we are talking about changing rules, changing regulations. We are going to be hearing later on from some people out in Oregon and others, where things have really worked out quite well. I am really interested in getting back—we are going to be working on this legislation—but getting back on just what changes really need to be made. You have got projects where you have been able to get the job done. My experience as a manager is if you get the right people with the right interpersonal skills at the table, you can get the job done.

Now, the issue is, what rules are standing in the way? If you have got these people that have got this right attitude toward things and have moved projects along, to ask them, what are the regs that if they were changed would have helped expedite the process even more? OK. I want to know, what are those. No. 2, are there laws that are in place that have stood in the way, or stand in the way of our moving forward? Gee, if we could have got this, we could have gotten that. Boy, things would have been even smoother.

Last but not least, the issue of role models. What are the role models? I would like an around the country—particularly projects that deal with some really sensitive environmental concerns. I am sure that some of the people here today are interested about the environment. Are we going to sacrifice the environment on the altar of expediting highway projects? I would like to know where we have had some very sensitive projects and where they have moved along in a smooth fashion, so that we have the best information we can have when we are putting together legislation to deal in this particular area.

Is there anything, Mr. Frankel, on your mind of a model that you could share with us?

Mr. Frankel. Well, Senator, your comments are very thoughtful and we will obviously try to be as responsive as we can to the variety of personnel workforce issues, as well as the rules and best cases. I think that is something we are trying to do, as I have indicated. I think the Executive Order advances, moves the ball forward, does not get us by any means to the end of the road. Because again, if you will forgive me for drawing on my experience when I worked at the State level, and something you certainly know far more about than I, but nonetheless it is people and it is tedious, tough work of getting people of good will.

EPA, for example, has regulatory responsibilities. They have a law or laws to enforce, if you will. We need to identify what the issues are, but ultimately it is people of good will around a table on a continuing basis, tables over a long period of time, working out the details, trying to assure that these appropriate interests—advancing the economy, infrastructure investment, and environmental protection are all balanced in an appropriate way. They can be. That is my own experience. A couple of times there are some projects where it is just very difficult to achieve, but generally people, if they are there, and this Executive Order I think is basically saying not just to the technical staff, but saying to the Administrator of EPA, to the Secretary of Agriculture, the Secretary of the Interior, and the Secretary of Transportation—you have got to weigh-in on these projects. You have to apply the best cases. What have we learned here and what can we apply there?

I might say that, and I think you would be the first to acknowledge, I am quite familiar obviously from my own background of some of the things done in Vermont, for example; less aware, perhaps, about Ohio and Oregon. But I also know that the circumstances are different. There are different environmental laws which are applicable in Oregon from Connecticut, and there may be, while there are things we can learn in Oregon and apply elsewhere, there are also things which are unique project-by-project. This is tedious, tough work, and you know that from your experience as a Governor, as the leader of a State. There really is no cookie cutter. There is no, as I said, silver bullet here to come up with an answer which is going to be the answer for all projects.

We can, and I think you are quite right—are there particular legislative statutory issues or regulatory issues which stand in the way of those sorts of negotiations and dispute resolution and so forth, and we should dismantle those. I know this committee and the Congress will address those in reauthorization. We hope to be helpful in that process. We will have some statutory recommendations to make, consistent with your question. But again, I want to emphasize that we have to learn and apply ourselves on a case-by-case basis.

Senator Voinovich. I would just like to make one last comment, and that is this. Mr. Chairman, I would like to see us expedite this issue and get it over with before we get into the whole rest of the reauthorization of TEA–21. This has been around here for too long and it is too important to just say, well, we are going to wait around, because we will add another 3 years.

The last thing, my advice to you would be, if the President is going to do an Executive Order and pick out the projects, what I would do is I would get the people involved in those projects from the States to sit down with the people from Vermont and Oregon and have a seminar for them for a couple of days; have them come in and talk to these people about what they did locally to get the job done. Because I don't care what you do with the heads of all these Federal agencies, it happens on the—you know, where the rubber meets the road, with the people that are involved. If they can get together and hear from other people and say, hey, this is the way we got the job done, I think you are going to get much farther ahead than if you try to do this from the top down.

Thank you.

Mr. Frankel. Senator, I think that is a very good suggestion. A lot of that has been going on, but we need to do more of that, and thank you for the suggestion.

Mr. Mead. I think you are onto something, too, about the best practices in these projects. This transcends just the environmental issue—I–15 in Utah, brought in on time; I–40, which was the bridge collapse that was recently done—that was done on time; Alameda Corridor in California; and I think even the Central Artery in Boston today stands as some testament to the wisdom of Congress in establishing the finance plan. Some people may find that is a strange comment for the Inspector General from the DOT to make, but I think it is true.

Senator JEFFORDS. Thank you.

Senator Corzine?

Senator CORZINE. Thank you, Mr. Chairman. I appreciate you holding these hearings. They are very informative and one that impacts all of us in our local communities.

I have a statement that I would like to submit for the record, if that is OK.

Senator JEFFORDS.

[The prepared statement of Senator Corzine follows:]

Senator CORZINE. I am curious why when only 3 percent of all the federally funded projects are being held up, according to this GAO study and testimony, by environmental issues, why we are not doing some of the things that Senator Voinovich is talking about. It seems to me that a lot of these major projects, there are issues that are far more impacting on the length of time it takes. Isn't that making the case of working on best practices in the planning area, and best practices in the design area, and dealing with, I think you used the word "concurrent" efforts with regard to all of these various phases of development with regard to projects. Why are we singling out environmental stewardship—if you would speak to that; any of you, but certainly Mr. Frankel, since the Department of Transportation is working on it. Can you give me some understanding of why that is the focus of expediting this process, streamlining this process, relative to, at least from this testimony, a four to 5 year planning process for a major project.

Mr. Frankel. Senator, first of all as I indicated in my remarks, there are other issues. By no means is the environmental review and permitting process the only factor that impacts the timing of a project. I suppose our comments in the Executive Order were ad-

dressed to environmental streamlining and stewardship because that was the subject of section 1309, and it was an important action, in my mind, for the President and the Administration to take as not fulfilling, but moving forward, being responsive to the mandate of that section of TEA–21.

As I indicated in my remarks, we hoped—we want to make sure, I think it is very important that Federal law not in any way inhibit States from innovating. The issue of bidding, procurement, which also is a very—the contracting process itself, which is a very important factor in project initiation, is primarily, as you well know, an issue of State law, but we need to make sure that Federal law does not inhibit States from taking innovations. Again, the application of best cases—that is going on within the Department. I think we need to advance that.

I might say, incidentally, the 3 percent figure—actually the 3 percent figure is of transportation projects which are subject to EIS's. It is not even 3 percent are subject to delays, because a lot of those projects move forward. There is a certain time requirement, but nonetheless are not unnecessarily or inappropriately delayed, but it is a factor. We single it out here. The Executive Order does really because we thought it was, and it is important that we be responsive to the mandate that the Congress established, and the leadership of many members of this committee, and contained in section 1309 of TEA–21.

Senator CORZINE. Well, I would just make the comment that I identify with the kinds of managerial issues, if you will, that I think Senator Voinovich is talking about, being accountability issues, being at least as significant in the delaying process by most analysis that I have seen, as opposed to singling out environmental issues, which seem to be the whipping boy of why this is a slower process than people expect in the political realm. I question whether that is where we ought to be directing our efforts, or whether we ought to be directing our efforts toward the managerial and accountability issues that bring delivery. It certainly has a lot of impact with regard to how State and Federal authorities work with each other. So much of this is done at the State level, so looking at best practices that are being accomplished in the State, I encourage and I think the chairman is working in that area.

Thank you.

Senator JEFFORDS. Senator Warner?

Senator Warner. Thank you, Mr. Chairman, and colleagues. I am pleased to join in this very important hearing. I am just going to make a few personal observations, Mr. Chairman.

Senator JEFFORDS. Go right ahead.

Senator Warner. I would start off by saying with all due respect to my long-time friend and chairman, I am going to part with you and associate myself with Mr. Baucus and others this morning who spoke with regard to the need for legislation. Roughly 16-plus years I have been on this committee. It has been a great pleasure and an honor to serve on it. I went through the 1991 ISTEA, in which we made a reference to this subject—I noted, just a reference. And then in 1996, 1997, I was privileged to be chairman of the subcommittee, and in that bill, we put in provisions in that bill. But here we are today still looking at the same subject, and with all

due respect to a very distinguished President, I feel it is time that the matter has to be codified, and we will be working with those colleagues to do so.

I just wish to inform the chair of that.

Senator JEFFORDS. I appreciate that.

Senator Warner. And to show you the intensity of my feeling on this subject, I am up for reelection. Now, that is not any great moment to anybody sitting in this room, but on the referendum in two major geographic areas of my State, in Northern Virginia and Tidewater, is a very simple authorization to raise taxes on the citizens—got that?—raise taxes for transportation needs. Most skilled politicians, which I am not, would learn how to duck and run from that.

[Laughter.]

Senator Warner. But I feel I have an obligation to tell my constituents, since I am going to vote on one of those ballots for that referendum item, I am going to vote for it. Now, not too many, particularly who pride themselves as conservative Republicans, vote to raise taxes, and particularly in the year in which you are seeking reelection to the Senate. But that is the intensity with which I feel on this issue of transportation, my constituents are just plain weary of waiting year after year after year after year to see that these programs materialize, combining most often State and Federal funds. So the time has arrived to codify this and I will work to do so. Whether I will be here next year remains to be seen, but I will cast that vote.

I thank the chair.

Senator JEFFORDS. I think there is no one that can do so with less fear of retribution than you, Senator.

[Laughter.]

Senator Warner. Well spoken.

[Laughter.]

Senator JEFFORDS. I want to thank the panel. We will now move on to our next panel.

I want to welcome our second panel. This is an important hearing and I really look forward to this panel and your participation. I will introduce each of the witnesses and ask for their statement. The first witness is the Honorable Carol Murray, Commissioner in the New Hampshire Department of Transportation, from Concord, New Hampshire.

Ms. Murray, please proceed.

STATEMENT OF HON. CAROL MURRAY, COMMISSIONER, NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.

Ms. Murray. Good morning, and thank you very much, Mr. Chairman. As wonderful as Washington is, I think you and I would rather be back in our respective States.

Mr. Chairman, members of the committee, I do appreciate very much the opportunity to be here today, having said I would rather be in New Hampshire. I thank you very much to be here to talk about environmental streamlining.

The subject of environmental streamlining is a very important and unfortunately very complex and difficult topic, one that has no silver bullet solution that I can identify and isolate. I can readily

identify the reason that I and my counterparts nationally consider this so significant. The public has asked the transportation agencies to provide this Nation with the mobility critical for our quality of life and our economic vitality. The same public also wants the environment preserved and protected. The only way to accomplish these twin goals is for transportation and environmental agencies to work cooperatively.

The public looks to these agencies to implement the policy direction provided by elected officials with an open, trusting, balanced and communicative spirit. But I am not convinced that the public's vision or that of their elected officials is being implemented very well by the agencies involved. The concept of environmental streamlining was not conceived to put environmental preservation and enhancement as secondary or a minor interest in the development of transportation projects, but rather to encourage early discussion, involvement and decisionmaking by the agencies with environmental and transportation duties. If the public agencies could work to provide the best balanced project in a timely way, then the public's voice will have been heard.

Over the last two reauthorization bills, Congress set a new direction for transportation. Transportation agencies moved into a new era. With some resistance, we realized that mobility for the future was not just highways. Choices in modes of transportation and connection between modes are now a focus. Congress also said that to develop the best projects for this country, the participation of local communities, regional planning agencies and the public must be encouraged and their voice heeded. The evolution in how State DOTs work came hard to those of us used to doing the designs by the book, and approaching the public with our well-designed, but off-the-shelf, standard highway solutions.

What we in the transportation business have found is Congress was right in the direction they gave us. After a decade of increasingly successful implementation, we are believers. We are cutting ribbons and celebrating projects that have been developed with more thoughtful consideration of transportation user needs, local communities' visions for their future, and in balance with the natural and cultural environment. I do believe that over the last two decades, the transportation community has changed and become better. While I would like to say that we have got it perfect, that would certainly not be true. We need to continue to listen, to learn, and I think we are going to do that with an acceptance that was not there before ISTEA and what we have learned since.

What is frustrating is the reluctance of the environmental community to recognize this change. It is disheartening that this environmental community has not championed and joined in early involvement and commitment to transportation project planning. We have found reluctance in engaging and working toward a mobility solution that balances the various public needs in a fiscally responsible way.

You have all heard about the Interstate 93 widening project in New Hampshire, and Senator Smith's work to bring streamlining to reality. As we agree, policy level representation from the public regulatory agencies met as decision points were approached. Early agreement was reached to operate in an open, trustful and profes-

sional manner. This group has met numerous times over the past 2 years, and the culmination of this work is the draft environmental impact statement which is being published as we speak.

Then, on September 9, I received a letter from the EPA that discounts the work accomplished in the streamlining process. Primary reasons given were that only regulatory agencies were involved, not private environmental groups, and the 18 communities that may experience secondary growth, even though they are directly not on the Interstate. This letter came despite over four dozen public meetings that have been held as this project develops, with all these meetings publicly noticed well in advance and individual notices sent to those specific environmental groups.

The project impacts an estimated 70 acres of wetland over 19 miles of widening of an existing Interstate highway. Our proposed mitigation includes 650 acres of land purchased and wetland creation, at an estimated cost of $15 million, plus a $3 million technical assistance program for local communities to assist in developing local land-use regulations that reflect their future vision for their community. The proposed mitigation package was severely criticized in the letter from EPA because, and this is a quote, "While of importance to the towns, it does not have high ecological value." The EPA letter further states, and again I quote, "Current State and Federal wetland regulations and typical zoning rules have generally not been effective."

While the debate about local, State and Federal roles in land-use transportation and secondary impacts is a really engaging debate, I believe that is a public policy decision that Congress, State legislatures, municipalities and the public should decide, not governmental employees, particularly those far removed from the project area. The EPA submits that a mitigation package of approximately 2,300 acres at a cost of upwards of $50 million is needed. The reason cited is secondary impacts that may occur due to the project, not the direct impacts, which they even agree are a relatively minor consequence.

Additionally, to their way of thinking, the highway widening should include concurrent construction of transit options beyond what we have already planned—enhanced bus service and potential rail being provided for in the project.

All of these proposed environmental mitigation elements are, I think, good things. But the fundamental question is whether or not it is the responsibility of this transportation project to pay for all of them. In fact, because New Hampshire has done a very good job in providing a high quality of life in all arenas, including environmental protection, mobility and economic vitality, people will come to New Hampshire with or without that Interstate being widened.

Why do we need environmental streamlining? Because all agency implementers of elected officials' laws need to work together effectively and in a fiscally responsible way to respond to the public's needs in a balanced manner.

The transportation agencies after ISTEA and TEA–21 learned we have not got the answers. The designers and builders of our Interstate system achieved a wonder, but in hindsight, it might and probably should have been done differently. So Congress passed ISTEA and TEA–21, and now in 2002, it seems that the transpor-

tation projects, in the environmental view, are seen as a financial resource to implement conservation projects. Early involvement in all transportation project planning is needed, but additionally mutual respect for professional responsibilities, fiscal reality, and overall an understanding that we need to make honest decisions that respects the public's will as envisioned by our elected leaders.

The EPA letter that I mentioned states that mitigation costs should be up to 20 percent of the total project cost. In a time when we are all struggling to fund the public's transportation mobility needs, a decision by a government employee to direct funding to non-transportation purpose seems to me inappropriate.

What do we need to meet the public's goal of providing mobility for quality of life and economic vitality, while protecting and preserving the environment? This is best achieved if the principles envisioned by Congress for environmental streamlining are implemented. Above all, we need a process that includes early involvement that is consistent, truth-based, cooperative, a process that is streamlined, effective, balanced, and then we will get to good transportation project delivery which unfortunately is not what we are seeing today.

Hopefully, the next reauthorization or sooner will produce a streamlined process that follows the direction of Congress and meets the public expectations.

Thank you very much, Mr. Chairman and members of the committee for your time. I would be happy to answer any questions.

Senator JEFFORDS. Thank you, Ms. Murray.

Mr. Morefield?

STATEMENT OF KENNETH MOREFIELD, ASSISTANT SECRETARY FOR PLANNING AND ENGINEERING, FLORIDA DEPARTMENT OF TRANSPORTATION

Mr. Morefield. Mr. Chairman, members of the committee, it is my pleasure to appear before the committee today to present view of the Florida Department of Transportation concerning project delivery and environmental stewardship.

Section 1309 of TEA–21 has provided the impetus for State and Federal agencies to look for ways to improve the delivery of transportation projects, while protecting our environment. The Federal Highway Administration, along with the Federal Transit Administration, have worked with us and many other Federal, State and local agencies to develop a new process we call the Efficient Transportation Decision Making process, or ETDM for short. I am pleased to report that we are virtually finished developing the new process. We expect to begin full statewide implementation by July of next year.

The development of this new process began in February of 2000, when over 20 Federal, State and local agencies met and pledged their support of an effort to examine how transportation decisions are made in Florida, and to develop an improved process. The multi-agency working group was then formed and met several times during the year. Nine task work groups worked on issues related to implementation of the process.

In December 2001, Federal, State and local agencies gathered at an executive summit and signed a memorandum of understanding

endorsing the ETDM process and pledging their continued support for full development and implementation of the process. We believe our ETDM process is fully responsive to the direction of section 1309 and the National Environmental Policy Act. We have been pleased to brief your committee, staff and others on our process, but we do not promote it as one that would fit every State. In fact, Florida's environmental laws, our own mix of State and local agencies, and other differences led us to an early conclusion that the best way to address improved project delivery and efficient decisionmaking was with our own efforts, and not through a one-size-fits-all approach. Section 1309 of TEA–21 calls for change. Florida's ETDM process accomplishes all the objectives in section 1309.

The State of Florida is fortunate to have a very rich data base of information about our resources. We have collected that information at the University of Florida GeoPlan Center in Gainesville. This high technology digital data base tool allows direct access to project planning information over the Internet. It provides the foundation for our ETDM process and is called the Environmental Screening Tool. This tool enables us to perform two screenings which document agency and community input much earlier in our transportation planning process. We call these screening events the Planning Screen and the Programming Screen. Modification of project plans in response to these early screening events will enable us to avoid or reduce costly changes late in the process. These screening events will provide information that will allow agencies to be engaged in the thoughtful exchange necessary to properly balance land use, environmental protection and mobility needs.

The primary purpose for the Planning Screen is to provide decisionmakers with better information to stage transportation improvements in the Cost Feasible Long Range Transportation Plan. The Programming Screen provides an opportunity to identify project issues and the need for technical studies prior to the project advancing into our work program. The NEPA process begins at the Programming Screen with a class of action determination that leads to environmental documentation and construction permits. A fundamental premise of our process is that it builds upon earlier analyses, rather than reopening all issues at every step of the process.

The screening events will be performed by Federal, State and local agencies working together as an Environmental Technical Advisory Team. We will have one team in each of our seven geographic districts. Each team will be responsible for agency reviews and feedback as projects are developed. Community outreach coordinators within FDOT will seek input from affected communities and post the input received so that agencies are aware of community concerns.

Project planning information is entered into the environmental screening tool by metropolitan planning organizations or by the Department for rural areas. Standardized analysis will then be performed on these planned projects, and the results are then made available to agencies through the Internet. All agencies will perform their reviews on a coordinated time schedule, and enter the agency's official comments about the impact on the resources protected by their agency. The agency will be able to suggest changes

to project concepts through the feedback portion of the data base system.

At the same time, opinions of the affected community are also posted in the feedback portion of the system. The results are visible to the agencies, nongovernmental organizations, and the public. Everyone will have access to the same information.

In summary, Florida is about to implement a new way of doing business. We believe the Efficient Transportation Decision Making process meets the objectives of this committee as set forth in TEA–21. We are convinced that this new process will provide for earlier and concurrent agency reviews, resulting in a reduction in the time required to plan projects and achieve earlier permit approval.

Thank you for the opportunity to share Florida's approach on environmental stewardship, and I would be pleased to answer any questions.

Senator JEFFORDS. Thank you for your statement.

Ms. Wadhams, I welcome you here, and commend you for all the wonderful work you have done in Vermont. It is a pleasure to have you here.

STATEMENT OF EMILY WADHAMS, STATE HISTORIC PRESERVATION OFFICER, VERMONT DEPARTMENT OF HOUSING AND COMMUNITY AFFAIRS

Ms. Wadhams. Thank you, Senator Jeffords. Good morning, Mr. Chairman, members of the committee.

Thank you for the opportunity to provide testimony today on how Vermont has expedited our historic preservation reviews of transportation projects. For the record, my name is Emily Wadhams and I am the State Historic Preservation Officer in Vermont.

It is an honor to be here, and I especially want to thank you, Senator Jeffords, for the invitation. We in Vermont have long looked to you as a leader in historic preservation. History is important to Vermonters, as you know, and you have worked hard to help Vermont citizens preserve our State as a special place. You have recognized the importance of landmarks like covered bridges and barns, with national legislation that helps preserve these icons for all Americans, and you have championed our small towns and village centers with your leadership on Postal Service policy that helps keep post offices active as vital community centers, so we thank you.

Senator JEFFORDS. Thank you.

Ms. Wadhams. In Vermont, my office has worked very hard with State and Federal transportation officials to develop a programmatic agreement. We accomplished this in the year 2000. This agreement created a simplified review process under section 106 of the National Historic Preservation Act. As you know, section 106 requires Federal agencies to assess the impact of their funding on historic and archaeological resources. Before we had this agreement, the agency of transportation would submit projects to my staff for review. Resolving impact issues often meant the time consuming exchange of memos, telephone calls, and meetings. Like other States, we found that transportation safety and efficiency goals often collided with historic preservation goals, pitting our Department against our Agency of Transportation in battles over the

preservation of cultural resources. Mistrust among the parties to the process was common, often resulting in a blame game of who was at fault for delaying projects.

I believe that we did not have much to lose by changing the way we did business around environmental reviews. Now, under the terms of our new programmatic agreement, the State Historic Preservation Officer has delegated the review and sign-off authority to qualified historic preservation professionals within the Vermont Agency of Transportation for all State and Federal projects. After almost 2 years of experience with the agreement, I can report that the success of this approach has far exceeded our expectations. The first annual evaluation by the signatories of the agreement last December proclaimed it a resounding success. Thirty other States recently requested copies of our agreement so that they can consider it for their jurisdictions.

Vermont is the only State so far to have developed such a comprehensive, and some might say radical solution. One could argue that the State Historic Preservation Office has given away control over projects, but I would contend that we have gained time to do other important preservation work. We have gained a constituency within our agency of transportation that we never had before. I also think that historic resources are being better protected.

In the 1990's, several things happened that set the stage for allowing us to take this step. First, my office and AOT worked together to address historic metal truss bridges, one of the most adversarial issues that we have had to deal with. We both committed time and money to develop a survey, to produce a consensus bridge plan that prescribes treatments for over 100 bridges in our State. In Arlington, Vermont, for example, an obsolete metal truss bridge next to a fishing access on the famed Batten Kill trout stream is now a fishing platform accessible for people with disabilities. This is one of many useful and historic bridges that would have been demolished without this bridge program.

Another collaborative effort occurred about the same time, a project sanctioned by the passage of ISTEA in 1991, the development of the new Vermont Design Standards. The standards allow for more creativity and flexibility in designing transportation projects and increased community input early in the planning process. One of the first beneficiaries of the Standards was the town of Underhill, where citizens fought for and won a so-called "footprint" replacement bridge—a bridge that matched the dimensions of the old bridge, as well as the small scale of the community. So with ISTEA and TEA–21 encouraging departments of transportation to look beyond the pavement; and with the new relationship we had developed in creating the bridge program and the design standards, there was an increased level of trust between my office and the Agency of Transportation. This trust allowed us to take the leap of faith needed to write the comprehensive programmatic agreement.

A critical step was working together with them on the manual of procedures that we were going to follow. We negotiated the list of activities that are exempt from any kind of review. We found a way for the SHPO to be kept informed and to intercede if nec-

essary, and we defined an annual reporting and amendment process.

The key to our success was really our Agency of Transportation's willingness to take its responsibility toward historic preservation seriously. Now, resource stewardship is more naturally integrated into the Agency's thinking in the very earliest stages of planning projects, not as an afterthought or a burden. In the past when preservation issues came up, as you have heard before, it was often late in the process, making it very difficult and expensive to make changes.

The programmatic agreement has reduced delays in the review process dramatically. It has increased and improved the quality of public involvement and public education. It has increased interagency cooperation on non-regulatory projects in ways that benefit Vermonters. For example, our AOT now sponsors our annual statewide historic preservation conference, and our Vermont archaeology month. And AOT has now begun on their own initiative to develop projects like a railroad depot initiative to rehab the State-owned railroad stations. This probably would not have happened without this new consideration of historic resource protection in their day-to-day activities.

There has been much discussion recently about problems with section 4(f) of the Department of Transportation Act, and I felt I needed to put in a word in about this. Section 4(f) prohibits the use of historic sites on public lands unless there is no prudent and feasible alternative. It is viewed by some as being rigid and cumbersome, and sometimes results in solutions that do not make sense, especially with smaller projects. In Vermont, 4(f) has not been an issue because AOT's historic preservation staff flags adverse affects early on in the planning process and addresses them at this stage. Almost everyone who works with 4(f) agrees that improvements to the process could and should be made, but changing the statute is, in my opinion, unnecessary and would weaken the protection in the law.

The success of the Vermont example to expedite reviews under 106 can be applied to improving the 4(f) process. As we learned, willing partners, committed to making the process work, can come up with good solutions. We have demonstrated that with a collaborative approach, everyone wins. Projects get built faster. Resources get protected, and the public is better served.

Thank you.

Senator JEFFORDS. Thank you, Ms. Wadhams, for an excellent statement. We really appreciate the work you are doing. Vermont probably has the most difficult time because the whole State is historic.

Ms. Wadhams. Exactly, exactly.

[Laughter.]

Senator JEFFORDS. Our next witness is Vice President of Highways Programs for Parsons Brinckerhoff, Hal Kassoff of Washington, DC. Please proceed.

STATEMENT OF HAL KASSOFF, VICE PRESIDENT OF HIGHWAY PROGRAMS FOR PARSONS BRINCKERHOFF, WASHINGTON, D.C.

Mr. Kassoff. Mr. Chairman, members of the committee, good morning. My name is Hal Kassoff. I am Vice President with the consulting engineering firm of Parsons Brinckerhoff. This morning I am representing the 5,800 member firms of the American Council of Engineering Companies, where I chair the Transportation Subcommittee on Environmental Streamlining. I am also co-chair of the Planning and Environmental Working Group for the American Road and Transportation Builders Association's Reauthorization Task Force.

Let me just add as an aside, it is a pleasure to sit between two success stories—one that you have just heard and one that you are about to hear. If these successes were typical of what was happening across the land, much of my testimony would not be necessary.

Expediting project delivery is one of the premier issues for members of the transportation community. And those who are experienced in delivering surface transportation projects will agree that the most difficult and time-consuming challenge involves coping with what has too often become an overly arduous and time-consuming environmental review process.

Recently, those who oppose streamlining this process have begun to argue that environmental factors are not the significant cause of project delay; that funding constraints and mismanagement are the real problems. Mr. Chairman, I am afraid these arguments are a distortion of the reality that I have known for the last 23 years working with the project development process across this country in both the public and private sectors.

In his testimony before this committee on April 29, 1999, Mr. Roy Kienitz, the then-Executive Director of the Surface Transportation Policy Project, said, and I quote, "In the struggle between the proponents and opponents of a controversial project, the best that an opponent can hope for is to delay things until the proponents change their minds or tire of the fight. It is the only option they have, and so they use it."

Mr. Kienitz went on to say, and I quote, "There is no good reason for Federal approval to take years if there are no major disagreements over the project being proposed. These delays are the most needless of all and are the easiest ones to attack," end of quote. Mr. Chairman, this refreshing observation by Mr. Kienitz underscores the fact that the process needs to be fixed. A recent study by FHWA found that in the 1970's, the average time for completion of environmental impact statements was 2.2 years, and this time period doubled to 4.4 years in the 1980's, moved further to an average of 5 years in the 1990's. Also, the average time grew by nearly two additional years when either section 404 wetland permit issues or section 4(f) issues were involved.

Now, we have heard about the 3 percent EIS's. Let's look at the 97 percent environmental assessments and categorical exclusions. Another recent study under the National Cooperative Highway Research Program reported on a survey of well over 30 States who described their experiences with delays in satisfying environmental

requirements for smaller, simpler projects. According to this report, 63 percent of all DOTs responding to the survey experienced environmental processing delays with preparation of these categorical exclusions, CEs, and 81 percent reported similar delays involving environmental assessments, or EAs. These delays triple average environmental review times from about 8 months to just under 2 years for the CEs and more than double these time periods, from under 1.5 years to about 3.5 years for the EAs.

Now, some Departments of Transportation have actually extended their schedules to reflect these extremely long durations. Unfortunately, this can then give the misimpression that the environmental process is not causing needless delay, because the schedules have been lengthened. Other DOTs will simply not allocate funds to projects until environmental requirements have been cleared, in order to avoid tying up and then delaying the use of critically important financial resources.

In an ironic twist, environmental activists can then claim that such projects are being delayed not by environmental requirements, but by funding constraints, when in fact the opposite is often the case.

Mr. Chairman, ten national environmental organizations recently joined in releasing a one-page document, and there are copies in this room, entitled Expediting Project Delivery Without Sacrificing Environmental Protection. While exception could be taken with a number of specific points in the paper, the overall title is right on the mark. In fact, we are not aware of anyone in the transportation community who would argue that environmental protection should be sacrificed in order to expedite the project deliver process. You heard this from Carol Murray. We have gotten the message. This issue is no about weakening environmental protection. The issue is about implementing an improved process that expedites project delivery without sacrificing environmental protection.

We believe that section 1309 needs a legislative booster shot in the form of a carefully balanced approach that reflects three basic components—the first, clarify expectations of both transportation and environmental agencies; second, transform specific processes; and third, hold both transportation and environmental agencies accountable for achieving positive results.

Mr. Chairman, time does not permit us to talk about the entire list of specific measures which we are urging this committee to support through legislation. They are spelled out in our written statement, which is submitted for the record. I am about to close. They cover a variety of areas, including some you have heard—streamlining, planning rules, as well as environment, 4(f) reform, delegation of authority.

Mr. Chairman, in closing, the need for fixing the environmental review and approval process is unfortunately very real. The problem has been building for decades. Solutions are needed now, or urgently needed projects will continue to be bogged down. The results will be lives lost, a weakened economy, less time with our families, fuel wasted, expensive and undependable delivery of freight, and increased air pollution. On behalf of the transportation community, we urge the committee to support legislation that will address the problem in a meaningful and effective way.

Thank you.

Senator JEFFORDS. Thank you very much.

Mr. Hales is the Transit Planning Principal, HDR, Inc., of Portland, Oregon. Out to Oregon we go.

STATEMENT OF CHARLES HALES, TRANSIT PLANNING PRINCIPAL, HDR, INC.

Mr. Hales. Thank you, Mr. Chairman. It is an honor to be here.

I am Charlie Hales and I am with HDR in Portland. When I was first contacted about testifying here at the committee, I was a little apprehensive because I knew you would hear from a variety of experts, as you have this morning, including my colleague, Mr. Kassoff. I am not one of those experts in terms of the laws and the regulations and their specifics, but I am a practitioner because I served for 10 years on the Portland City Council as an elected Commissioner in charge of transportation and planning. I think my story and our community's story is, I hope, helpful to your committee as an example.

I want to frame that story, really, in two paradoxes. First, I have during my entire political career enjoyed strong support from environmental organizations and that alliance continues today. And yet in all three of my campaigns for public office, most of my financial support came from real estate developers. The other paradox is that our city and our State is loaded with environmentalists. We have lots of trees and lots of tree huggers. And our city is awash in neighborhood associations. We have 100 of them, and in some people's minds to make that even more bizarre, we actually fund them to provide them staff support. If there was ever a recipe for paralysis, we should be it. And yet Portland boomed in the 1990's, and I was involved in the construction of over $2 billion worth of infrastructure, including highway widening projects. We have grown and grown well. Money magazine calls us the most livable city in America.

So how is this possible? How is it possible that we have grown this way, and during that process, by the way, in almost no case, in almost no case, have major transportation projects been held up by appeals or multiple trips through the NEPA process, and a similar story is true for private development. Almost all projects are approved at the permit counter.

I believe the answer to that question and the resolution of those paradoxes is that in our State, smart growth is not just a turn of phrase. It is a way of life. In applying that philosophy to these projects, we have really found three principles that are consistent all the way across the board. First, public works projects are placemakers. This is true whether the project is a highway or a transit line or a park or a community center. When you build a public works project, a freeway interchange, a light rail line, you exert a massive influence on the character and the destiny of the place. Suburban sprawl results from the compartmentalized, rather than integrated approach to this question. Designing projects which support the place is the only prudent investment strategy for public funds. The alternative strategy, and one which is far too common, is building public works projects and then letting the place develop spontaneously.

Second, land use planning must lead project engineering. We believe the purpose and need section of NEPA is just applied common sense. We need to honestly consider all the alternatives and their side-effects, and that failure to do this is expensive. We think that transportation investments that serve a well thought-out plan pay dividends. My company summarizes this integrated approach in three words: community, mobility and environment. It is sound public policy to respect all three.

The third principle: bring all stakeholders and all points of view to the table. As I mentioned, I build a lot of infrastructure. For those projects to succeed, all who have a stake in them must be appropriately involved early on. An open, inclusive process considering all the issues involved in a major project is legally, pragmatically and politically required.

Portland believes that the best way to, quote, "streamline NEPA," end quote, is to go through the planning process right and the first time. A sustained commitment to comprehensive land use planning integrates these requirements and addresses the concerns of Federal, State and local agencies and communities in our plans and projects. We get to "yes" in that environment, even in a city with an endangered species swimming through our downtown.

We have taken this coordination and public involvement and alternative analysis instructions from you seriously and put it into our practices. We do not believe because of that incorporation of this philosophy into our approach that environmental review needs to hold up projects, or add significantly to their costs. That is important in my State. If Oregonians are green, they are also tight. We do not like to spend money and are almost as serious about that as Vermonters, I suspect.

[Laughter.]

Mr. Hales. We think that done right and expeditiously, environmental review reduces interagency conflict. The Oregon DOT, like most State DOTs, is still primarily a road and highway organization, but our ODOT staff has incorporated this planning-based approach into their work. They, in return, expect counties and municipalities to work cooperatively with them.

I do not think it is possible to mandate cooperation or consensus or trust. So trying to push projects forward by arbitrary time limits or curtailing public or judicial review or limiting consideration of alternatives or determinations of the project's purpose and need—I do not think those are going to work. I think in a complex environment like the design and permitting of major public works projects, cooperation, consensus and trust are necessities. Our experience is that if local citizens participate in the planning process and have a clear buy-in and responsibility for commitment, there are few lawsuits and few appeals and few challenges. The plan is the community's plan.

I should also emphasize, because Portland gets bandied about as this example, maybe too much, that one does not need to adopt Portland's approach. You do not have to clone Portland in the rest of the country in order for this approach to be effective. Portland is not a charming abnormality, but we get projects built by embracing smart growth. There are lots of ways to do that, and that is

the message that I hope other communities will heed in making these laws work.

To sum up, I believe that a community which first engages in real, comprehensive and sustained land use planning and which makes infrastructure decisions subordinate to and consistent with that plan, and conducts a genuine and genuinely open process of alternatives analysis, not only gets through environmental review with a minimum of difficulty, the people in that community own the results of that process and they get to live in a better place.

Thank you, Mr. Chairman.

Senator JEFFORDS. Thank you. I have enjoyed working with Oregon for over 30 years now, I think, since we did away with billboards and beverage container laws and all those kind of things. So it is pleasure to have you here to testify.

Now, I turn to questions. Trust, Ms. Wadhams—Emily—trust seems to be the key in your successful interactions with the Vermont Agency of Transportation. What would you say are things that other States can do to build trust between the State Transportation Agency and the State Historic Preservation Office?

Ms. Wadhams. That is a good question. I think you could do it the way we did, by having specific projects that we worked on, like our bridge project and our Vermont Design Standards Project, that were a collaborative effort. So people from the Agency of Transportation and the Division for Historic Preservation got to work together on projects with common goals. That was one thing that got us to the point where we had enough trust.

But I think another really critical part of it was the leadership at both the Agency of Transportation and at the Division for Historic Preservation. As a matter of fact, in the early 1990's, Jeff Squires, who now is on your staff here, worked for the Agency of Transportation as a planner, and then was the Deputy Secretary. That was the same time that ISTEA was coming in, and there was a cultural shift that began to happen at the Agency of Transportation. A lot of it I give Jeff credit for. Instead of having an engineer-based approach to create roads for "happy cars," as we like to call them, it was really an approach that looked at people in communities and what they wanted. The leadership at the Agency of Transportation insisted that it happen. Plus, the Federal regulation—ISTEA and the enhancements program—really helped.

On my side, I found there was great mistrust on the part of my staff about "letting the fox guard the hen house."—(we cannot give up authority to review these projects to AOT. They are building the roads; they are going to be the ones that are tearing down the historic resources.) My sense was, it is the Federal agencies' responsibility delegated to the States, to comply with section 106 and to review and evaluate historic resources. It is by law their responsibility. They have trained professionals on staff who have the same skills that we have. Give them the opportunity to prove that they will do a good job. If it does not work, we can stop. We can terminate the agreement.

I really had to pull my own staff into this reluctantly, and I think they have also been surprised by how well it has worked. It is the leadership saying, we can do this, we can cooperate, much as you have in Oregon.

I think a third thing that you could do at the Federal level that might help us, (and I have to put in a plug here for more resources for historic preservation offices—I am the historic preservation officer—is the Historic Preservation Fund. Federal funds (over approximately 60 percent of our office expenses) have been level-funded at best over the last 30 years. As a matter of fact, while our mandated responsibilities have increased, we have seen our dollars decrease in real-dollar value. What we would like to be able to do, is what Florida has done a very up-to-date data base and Internet-based survey. We in Vermont do not have that and a lot of States are in the same position that we are. If we could create the infrastructure for good decisionmaking, do good surveys, update the ones that we have, get good data bases, do good public education—do that part of our job, then we can make better decisions. We can give the information to the Agency of Transportation. They do not have to go out and do a survey every time they have a project. I think that would give the State Historic Preservation Offices the confidence that they were doing their job; they had the resources to provide information. Bring us into the 21st century with our technology, because many States are not there.

So that is another thing that I think the Federal Government could do, either by earmarking transportation dollars for historic preservation offices, since we do work so closely together, to make sure we provide the transportation offices with the tools they need to do their work.

Senator JEFFORDS. Mr. Morefield, do you have a comment to make on Ms. Wadhams' statement?

Mr. Morefield. Overall on the historical process, I think in Florida we would love to work together, and I think we are moving toward that way on that particular activity through what we are doing with our streamlining process. I think some of the issues that we see is the 106 process being historic, and then having to go back through again the same type of a process because of the 4(f) requirements of the USDOT.

So I think there are some efficiencies if we can do it one time would be good. As she related to our data base, I think that that particular issue is going to be key to our process. Is it going to work? We have got a program. We have got the Internet-based system. We are going to have timeframes for agencies to put into their portion of the file, their comments. I think it is going to behoove the Department of Transportation to make sure this process is going to work, that we listen. We read those comments. We actually meet with those folks when they have valid comments, and that we actually make some changes in the process.

It is not going to work if we just gather comments and then, like the old highway and bridge companies or agencies of the past, we are the Department of Transportation, we need to take into account those, work with those that have comments, and make sure that we do in fact change the projects so that when we get to the NEPA process, we have identified those issues that need to go through the formal process. Once we do that, hopefully the NEPA process, instead of taking 5 years will take something less because we have narrowed it down to those few critical issues.

So it behooves the Department of Transportation, who has got the overall responsibility, to make sure that we do something with these comments now that we are going to have them, on a timely basis.

Senator JEFFORDS. I am afraid we are going to have to end in about 15–20 minutes, so I am going to ask one question and have your comments on the panel.

Section 1309 of TEA–21 was Congress' attempt to focus public policy toward improved transportation decisions, while still protecting and enhancing the environment. It directed the Department of Transportation to work with the Federal resource agencies to improve the environmental decisionmaking process. As practitioners from the State and local governments and the private sector, what programs and policies developed by DOT have been most successful, and where can further improvements be made?

Anybody want to start? Mr. Hales, go right ahead.

Mr. Hales. One of the programs that I think is working particularly well because it does recognize—I know talking about land use here in the Senate and in the Congress is problematical, having a lot of people running and screaming from the room saying it is a local issue, but the FTA has recognized that unless a transit project really carries out a local land use plan, it is unlikely to exceed its ridership estimates. Unlike a highway project, obviously a transit project is better and better if more people are using it.

So in their new-starts criteria, which guide their selection of those projects for funding, they have incorporated in those criteria a land use criteria, as well as ones about ridership and cost-per-mile and so on. I think that merits-based approach, that naturally involves other agencies because the FTA, after all, is not in the land use planning business; tends to bring the other parties to the table and tends to assure that the projects that get funded are the ones that really do multi-objective, do accomplish multiple objectives, rather than simply the transportation objective. So I would commend those new-starts criteria as an example of how an agency can put those provisions into practice.

Senator JEFFORDS. Mr. Kassoff?

Mr. Kassoff. I think ironically the area I would say has been most successful is one which the environmental community cites as an area that would be in the greatest jeopardy if streamlining were implemented, and that is the area of public involvement. Through ISTEA, which transformed the philosophical basis, the philosophical approach to transportation planning, and TEA–21, which kept that philosophy intact, you have public involvement in the long-range planning process that produces area-wide plans and statewide plans. You have public involvement in the programming process that produces what is called the STPs and TIPs, which are the capital improvement programs. And then at the project level, when a project proceeds forward you have public involvement again.

What transportation agencies are learning is that it can't even end at the planning and environmental stage, right down through construction, particularly when you are impacting people with construction, that public involvement process actually helps the agency get its job done.

So I think the public involvement process, while not perfect and there is always room for improvement, has been one of the great successes in this country.

Senator JEFFORDS. Ms. Wadhams?

Ms. Wadhams. I would say the enhancements program in TEA–21 (originally ISTEA). I mentioned this earlier, I think because it did really effect a cultural shift in agencies of transportation, and allowed them to incorporate the idea of enhancements, not just pavement, bridges, new highways, but ideas of community, how you are affecting community, and building highways not for happy cars, as I said, but for people and communities. I think the enhancements program has been very, very successful and I would encourage that it be maintained and increased even.

Senator JEFFORDS. Mr. Morefield.

Mr. Morefield. One of the things that, not just in the environmental area, but overall the FHWA, speaking specifically about them, is that their delegation for more responsibilities down to the division level in the States—they have done that. That has been working out great. We have been getting answers and a lot more decisions made on a lot quicker basis, whether it be design issues, environmental issues or whatever. So I think the delegation of some of the decisions that heretofore had been in Washington level or even at the regional level, giving it to the State FHWA division has worked out extremely well.

Senator JEFFORDS. Ms. Murray?

Ms. Murray. There are actually a couple of things that I would like to cite of things that USDOT has done that have been tremendous. You heard about the TE projects. They are fabulous. I absolutely agree. Some of that is reflective of their approach these days to be more flexible in allowing the State DOTs to determine how money is spent. It no longer has to fit in very rigid rules. That increases our ability to respond to the public, to respond to the environment, to respond to the communities.

Quite frankly, I think it is something that Federal Highway, and certainly USDOT should be complimented for because States have said all along, give us the money, let us make the decision, we will do what is right for the States. I think that has happened.

One program we did not talk about at all is the TCSP program. We have four TCSP projects that we are doing in New Hampshire, and if you want to talk about the ultimate public involvement at the community level, that is those four projects. One of them began 3 years ago in the capital city of Concord. It is not a State DOT project. It is the city's in partnership with us and in partnership with USDOT. The first step was community-wide envisioning. Believe it or not, we turned out over 10,000 people in the course of a summer to come in and talk about, this is what Concord looks like today; what do you want it to look like in the year 2020? They were energized. They were enthusiastic. And New Hampshire has a long tradition of building things on the back of volunteers. Once again, we did it and we got their input.

We are now moving to phase two, where we have said, OK, you have defined the vision, you have said what you want your neighborhoods and your villages within the city to look like. Let's start moving forward and putting things on the ground. Again, the flexi-

bility that Federal Highway and USDOT and in fact Congress in creating this program gave to the States I think is a wonderful opportunity to bring in those local land use discussions. But before I leave that project, I do want to say very quickly that as we set up the board of directors, for lack of a better word, that will be overseeing phase two, we reached out to the environmental community—public, private, State and Federal—and we had a Federal agency that has declined to participate because they do not—the meetings are at night, and they are too far away from home, and they will reserve their comments until phase two is complete and we move to phase three. That is so damaging to the over 10,000 people that have been involved.

The final thing that I would have to say with USDOT is I think along with the State, they got it when you told us, Congress told us to get out there, be more involved, be more inclusive. The flexibility that they now allow the States to make their decision on how their funds are spent and how they interact with the public and the communities is reflective of that. So there are successes.

Senator JEFFORDS. Thank you.

Senator Voinovich?

Senator Voinovich. Thank you, Mr. Chairman.

This is a really important hearing today, and I really have enjoyed getting the different perspectives of those of you here at the table.

My first questions is, would you like us to move on with this before we wait until the end of next year and deal with the reauthorization of TEA, fresh TEA or whatever we are going to call it?

[Laughter.]

Senator Voinovich. Just yes or no. Is there unanimity about moving forward with this and not waiting until the end of next year?

Ms. Murray. If I might, Mr. Chairman, I am going to answer from my perspective, and certainly I can only offer my opinion. I think certainly from my perspective, there is a need to get on with this. We have talked about it, we have talked about it. We are frustrating the public. Quite frankly, on the Interstate 93 project, we have a crash rate that is totally unacceptable. It is not unusual on a daily basis to have an eight to 12 car crash, with injuries, with bodily injuries. The air is affected. Everything in those folks' quality of life was affected, but above all safety. We need to get on with it.

Senator Voinovich. You are just saying, get on with it. All right. Anybody who does not think we should get on with it? Anybody? Ms. Wadhams?

Ms. Wadhams. I feel it is working in Vermont, the way we have approached our historic preservation reviews. I am hesitant about, if you mean get on with it, looking at enacting legislation to open up section 4(f) of the Department of Transportation Act of 1966, because I really do feel that we have proven that you do not need legislative action to address that issue. So my only caution is there are some things I think with good faith effort and good leadership on the part of the people in the agencies of transportation, Federal highways, AASHTO, to really try to come up with good guidance or a regulatory solution, rather than a legislative solution in that case. I think it is hard to mandate change.

I think it is important to—I like the idea of looking at different best case examples and working on those, and finding ways to encourage other States to do what you have heard about today. When I went to a conference in Kentucky a few months ago on transportation and historic preservation, I was swamped with people that were very interested in what we were doing and how to do it and how did you make it work. And people have asked if I could come to their State, or send them information and talk about what it was we did. I am not sure legislation is always the answer to affect streamlining. I think there may be other ways, and I would be very hesitant to open up 4(f) to a legislative change.

Senator Voinovich. Go ahead. Yes, Mr. Kassoff?

Mr. Kassoff. I would like to comment on that, because first, we think it is essential to move on. There are many other issues in reauthorization, particularly funding issues, that could overwhelm this particular issue if we wait.

Senator Voinovich. We ought to spend our time figuring out where to get the money, and the rest of it gets in the . . .

Mr. Kassoff. And just a different perspective on 4(f)—I had the occasion yesterday to be in a meeting with one of Ms. Wadhams' colleagues who is a State historic preservation officer, who offered a different perspective and one that I share, that often historic preservation goals are blocked as a result of 4(f) because the 4(f) tag is so onerous that State agencies would avoid an impact that a private owner could create on that same property without any difficulty, and there would be no mitigation. If 4(f) is looked at in the context of 106, you see sheer duplication and a lot of non-common sense solutions. So I am afraid I have a different perspective on the 4(f) issue.

Senator Voinovich. The thing is that what I would be interested in is the categorizing of these things. No. 1 is, those of you who have had good experiences, getting back to the question I asked the first panel, have there been any regulations, laws that have impeded your ability to achieve what you have wanted to achieve by just sitting at a table and having good interpersonal skills and having consensus and getting everybody at the table? That is one thing. The second thing then becomes, what are the techniques that you have used—Ms. Wadhams—to bring people—now, you have put your historic preservation people over in the Department of Transportation—no?

Ms. Wadhams. No, they have their own historic preservation staff in the . . .

Senator Voinovich. OK, but they have, and they are competent people. In effect, you have kind of given your proxy there because you have the confidence that those people will do a good job and they are there, and that helps out.

I think one of the things that a lot of people do not understand is it takes a lot of time to do these things, doesn't it? I know it took us—we have a transportation track, transportation resource allocation. It took us almost 4 years to put the standards together. Now, the President is looking around for priority projects. All he has to do is come to Ohio. We have got them. We know exactly what they are and we have objective standards in order to determine them, rather than arbitrary, so that the next Governor comes in and says,

"I am going to build that highway." That took a lot of work, of getting everybody involved to agree on what the standards should be.

So the issue then becomes, what are the best practices that you have put in place, Mr. Hales and Ms. Wadhams, and others, that facilitate that? And then the issue then is, is it the Federal Government's responsibility to have seminars, like Ms. Wadhams you went to one in Tennessee about historical preservation, to do that, to get that message out there. In other words, Mr. Chairman, we have to concentrate on the stuff that really impedes the process from going forward, but after that, it looks to me like the magic here in so many areas is how do people get together and do the job. And then the next issue, and I am going to ask you to comment on some of these, is like the National—I am past chairman of the National Governors Association, and one of the things that we created when I was chairman was our best practices. They wanted to call it the Department of Innovations, and I said I am not interested in innovations, because many people announce innovations, and 5 years later nothing has happened. I want to know what has worked. Would it be the National Governors Association or the AASHTO? Somebody has got to get out there in this area, and it may not be the Federal Government, that is going to pull people together. There is enough synergy among various groups here that maybe they could take on that challenge. I think that might do more to move things ahead than the new regs and the laws.

I will stop. Would you comment on what I have just mentioned?

Mr. Hales. I will take a stab at that first, Senator Voinovich.

To your first question, are there laws or Federal law that has really gotten in our way in the 10 years that I have been involved in projects in Portland. The short answer to that question is no, at least in terms of environmental review. Actually, the only Federal requirement that I can think of that really cramped our style on a project was that we built a new street car line in downtown Portland, primarily as a development tool for a new district that we have created there. It is a great real estate success story, as well as a transportation success. That project would not have passed muster through the conventional FTA process because the neighborhood that it was about to serve did not exist yet, so you could not do a ridership estimate, and we wanted to buy vehicles from the Czech Republic, and therefore could not meet the U.S. content requirements for manufacturing. So we built that project with local money. So maybe that is the result the Federal Government would prefer, but if we want to fund those kinds of projects, some kind of small start or—I hate to use that overused word again—innovative projects provision in the next TEA bill I think could encourage those kinds of fairly quickly developed, inexpensive and very effective projects.

To your idea about best practices and some kind of collaborative effort, perhaps through the organizations involved, I think it is a very good idea. I think although I was involved in the National League of Cities and in fact was the President of my State League of Cities, I have not found the conventional structure of the associations, as good as they are, to be a good source of that kind of information exchange because they tend to be too insular—this professional association, that government association. I think some

kind of collaborative effort among them would really be a good idea and I hope we can do that.

Senator Voinovich. Maybe I can do that because I am the only person in the history of the United States who was President of the National League of Cities and chairman of the National Governors Association, so maybe we can get them together and bang their heads and see if we can't get them to work together on this.

Mr. Hales. I suspect they will return your phone calls, Senator. [Laughter.]

Mr. Morefield. If I might, Senator, on the best practices, I think with the Florida Department of Transportation, we try and do that across the board. We try to benchmark other agencies, whether it is a highway agency or a sister agency in-state or out of state, whether it is a financial issue or engineering issue. I think in this case, certainly I have heard enough here today that I have got enough ideas to go back to have our historic officer contact Vermont and talk about certain things. But also in benchmarking, I think you do also have to look at the processes. If you do not continually look at the processes to improve the processes, I think you get a lot of that out when you benchmark. That means you go back and take a look at your processes. I think NEPA is a process; the 4(f) is a process, and the 106 is a process. So I am not saying you need to go out and change it, but I think it does behoove anyone when you are talking about best practices to take a look at the processes you are best practicing, and there may be some legislative changes and/or rule changes, because primarily the only concerns that I have noted over the years—obviously, I do not agree with every, with all due respect, law that Congress or our State legislature passed—but most of the problems that we have is in the agencies that do the implementing rules. What they put into it is not in the law—that gives us a lot of problems.

Senator Voinovich. Efficient transportation decisionmaking process—have you done any projects yet underneath that?

Mr. Morefield. We have got some pilot projects and everyone is going in the system, as I said. As of the middle of next year, we will have to go through this process. As we update the TIPs, we will be doing that.

Senator Voinovich. One other point, if you would continue to comment on it—I was very disturbed that you have indicated that you got everybody together, Ms. Murray, and that the Federal agencies were not willing to sit at the table. Mr. Chairman, that may be a problem because if we are going to gain consensus and get things, it seems to me that if the community is willing to get together at the table, that any Federal agencies that are involved ought to have representation there so that they have input in the beginning of the process. You thought you worked out something good, and they came back and said, no, we do not like this; it didn't do the thing; spend $50 million, it didn't do the thing. It seems to me that if they had been there initially at the time that you started the discussion, that probably would not have occurred—either that or you got it out on the table earlier and then you would have started talking about it, or they would have seen that there were some other things that were there that maybe would have satisfied the wetland problem. Would you comment on that?

Ms. Murray. Yes, Senator, that is a very good observation that you have made. We have monthly meetings with the resource agencies on the State and Federal level—monthly meetings where all of our projects as they develop are discussed. In addition to that, we invite all of the resource agencies to come out as we update our 10-year plan, which we do every 2 years as other States do. We have found that the response from the environmental agencies, whether they be regulatory or private, is minimal to those attempts. We set aside a fair amount of our planning money every year to do what we call corridor studies. As a matter of fact, we have one going on with Vermont and Maine, because we share a lot of things. We have been out in numerous public settings talking about the potential of what is the future of Route 2. The environmental communities have not come to those meetings.

So we are out in the public. We are talking about engaging with them on land use discussions, on what their vision is for the future. We put all this effort into it, and we have been at that one for about 2.5 years. Now, if the resource agencies in turn come back and say, no, we do not agree with that, then I think we have severely let the public down, because they thought they were hearing from one voice.

The other issue that I have seen, unfortunately, is positions that are taken early in a project development by a resource agency, a regulator, do not last to the next phase. That is, again, you talk about a way to waste time, if you get past a certain point, work on a project for 5 years, and then you hear, you did not get the purpose and need right, and you have to go back and start over—that frustration is huge. I do think that you highlighted a real weakness. If we are going to get out there, we are trying to improve how we are doing business. We need the others to engage, make decisions, stick to those decisions, and don't revisit those decisions.

Senator JEFFORDS. Thank you all. It has been very helpful testimony, and this is an extremely important area as we move into the future to make sure we can expedite, as well as do things better.

So thank you, and the hearing is adjourned.

[Whereupon, at 12:12 p.m., the committee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. JON S. CORZINE, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Thank you, Mr. Chairman, for holding these continuing hearings on the reauthorization of the Transportation Equity Act for the 21st Century—TEA–21—and I'd like to join you in welcoming our witnesses.

Mr. Chairman, the issue of expediting the completion of federally funded highway construction and mass transit projects is an important one. I am extremely concerned that this can often be an expensive and time-consuming process that discourages the completion of valuable road and rail projects. As someone who represents the most densely populated State in the Nation, I can state to the need we have for quick help for the traffic problems that we face.

I want to see things go faster. I know that the witnesses appearing before the committee today all want to see things go faster. But we need to make sure that we do not turn our backs on the strides we have made in protecting the environment over the past 30 years—on the land, in the air and in the water.

Congress enacted streamlining provisions in TEA–21. We need to consider the effects of these provisions within the reauthorization process. But we also need to consider the progress that is being made on the State level because it is usually State Departments of Transportation that are responsible for the completion of environ-

mental documents. I was heartened, for example, to see in a report from the Department of Transportation that all 50 States have adopted or initiated agreements for streamlining environmental review. I look forward to hearing from the witnesses today as to what has been accomplished and what can still be done.

Mr. Chairman, in conclusion we need to focus on an inclusive process that considers the views of all stakeholders and brings them all together in an expedited process that does not sacrifice environmental protection. I look forward to working with the committee to see such an approach happen.

STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Thank you, Mr. Chairman, and welcome to our witnesses.

Progress on implementing the TEA–21 Environmental Streamlining provisions, Section 1309, has been a challenge. TEA–21 was authorized over 4 years ago, and implementing regulations have not yet been issued.

On their own initiative, with support from DOT, a number of States have developed improved project delivery and environmental management systems, demonstrating that Section 1309 is not only a laudable goal but a practical reality.

I believe we all recognize that delays in the delivery of highway projects can cause severe economic impact, increased congestion and accidents, and higher construction costs.

In addition to the States and DOT, other Federal agencies, especially those under EPW jurisdiction (Corps, EPA, Fish and Wildlife Service) must do better to make streamlining a priority.

So I am very pleased that President Bush issued this executive order which I believe will make huge strides in implementing the fundamental elements of section 1309, including:

- Integrated review of environmental regulations or concurrent reviews;
- Full and early participation by all relevant agencies;
- Coordinated time schedules; and,
- Dispute resolution procedures.

Mr. Chairman, I ask unanimous consent to include a copy of Executive Order titled "Environmental Stewardship and Transportation Infrastructure Project Reviews," dated September 18, in the record of this hearing.

I would also like to acknowledge today some important work being undertaken by the Western Governor's Association, and led by Governors Leavitt of Utah and Kitzhaber of Oregon, to reform the NEPA process.

This effort is called "Enlibra" and being undertaken in a growing number of States. At the heart of "Enlibra" is a set of principles that I believe could help guide our effort to streamline highway project delivery and improve environmental stewardship.

These principles provide a common-sense approach to making progress on streamlining and improving our protection of the environment.

They emphasize the need to reward results (project construction and environmental stewardship), and not red-tape process and procedures.

They recognize the need to promote collaboration, not polarization; and the need to support national standards yet allow flexibility for local solutions.

They also promote basic conservative principles of sound science and economics.

I ask unanimous consent to include a copy of the Enlibra principles in the record of this hearing.

Lastly, I'd like to make a few remarks about New Hampshire's I–93 highway widening.

The widening of I–93 is the State's highway priority project. It experiences daily rush-hour congestion and there are serious safety concerns.

In 2000, Congress designated I–93 a National Environmental Streamlining Pilot Project.

I'd like to applaud Carol Murray and the other members of the I–93 Board of Directors, which was created to develop a streamlined and environmental sound project.

Your efforts have led to greater trust, reduced delays, and provided for a rapid dispute resolution process.

It is unfortunate, however, that U.S. EPA cannot join the other agencies in either a consensus or negotiated package of wetlands mitigation and continues to demand that DOT purchase over $50 million (dollars) worth of land for conservation.

I do not want to see transportation projects used as a back door to fund Federal conservation programs.

This certainly appears unreasonable, and I hope today's hearing will provide us guidance for how we may resolve this, and other streamlining issues.

ENLIBRA PRINCIPLES

• National Standards, Neighborhood Solutions—Assign Responsibilities at the Right Level

NEPA is basically sound—the Act does not need to be changed. Local areas, however, need flexibility, with accountability, to address local environmental, economic and social conditions.

• Collaboration, Not Polarization—Use Collaborative Processes to Break Down Barriers and Find Solutions

Increase public involvement early in the transportation planning and NEPA process, and close legal loopholes used for disruptive and special interest lawsuits. Collaborative approaches produce longer-term solutions and save money.

• Reward Results, Not Programs—Move to a Performance-Based System

Eliminate unnecessary paperwork and procedures, while rewarding better accountability, environmental protection and faster transportation project delivery.

• Science For Facts, Process for Priorities—Separate Subjective Choices from Objective Data Gathering

Use sound science, engineering and economics to assess the impact of transportation projects on the environment and economy. Increase State and local use of GIS to provide better location information on environmental and historical resources.

• Markets Before Mandates—Pursue Economic Incentives Whenever Appropriate

Market incentives can encourage more cost-effective and sustainable solutions to the environmental impacts of transportation projects

• Change A Heart, Change A Nation—Environmental Understanding is Crucial

Ultimately, environmental protection depends on the transportation choices people make every day. Government has a role in educating people about the impact their transportation choices have on the environment.

• Recognition of Benefits and Costs—Make Sure All Decisions Affecting Infrastructure, Development and Environment are Fully Informed

Decisions should be guided by an assessment of the true environmental and transportation costs and benefits. These assessments, with equal consideration of non-qualitative factors, can illustrate the advantages of different options.

• Solutions Transcend Political Boundaries—Use Appropriate Geographic Boundaries for Environmental Problems

Focusing on the natural boundaries, or watershed, of the transportation project can help insure that the full range of scientific, economic, and political factors and interests are taken into consideration.

STATEMENT OF HON. EMIL H. FRANKEL, ASSISTANT SECRETARY FOR TRANSPORTATION POLICY, U.S. DEPARTMENT OF TRANSPORTATION

Mr. Chairman and members of the committee, thank you for this opportunity to discuss the issues of transportation project delivery and environmental stewardship.

Ensuring that important transportation projects are completed as quickly as possible is one of the top priorities for all of us at the Department of Transportation, as I know it is for members of this committee. Transportation system users too are becoming more and more frustrated with a process they perceive to be overly laborious and cumbersome. Growing congestion is fueling this frustration. This Department has already made great strides in the area of streamlining the project development process while protecting the environment, and the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21) presents an excellent opportunity to review and refine those efforts.

There are a multitude of factors that impact the timing of project delivery, from the planning process to construction techniques to environmental issues. Issues confronted in one project will often vary substantially from the issues confronted in another seemingly similar project. Many problems are local in nature and thus demand local solutions. The Federal Government's role in creating project delays is frequently minor, although occasionally it is not. Unfortunately, the nature and complexity of the issues mean that blanket solutions have proved very elusive. That is not to say that progress cannot be made. In fact, this Department's expansive efforts have brought positive change. Progress has always required great efforts, and the area of transportation project delivery is no different.

While this testimony will focus heavily on the environmental aspect of project delivery, it is important to note that advancements have been made in streamlining

other aspects transportation project development. A few of those advancements are discussed later in the testimony.

Environmental Streamlining

Secretary Mineta noted to this committee back in January that one of the goals of the Department's reauthorization proposal will be to increase the efficiency of our infrastructure while retaining environmental protections that enhance our quality of life. Transportation agencies realize today, more than ever, that environmental stewardship is a critical part of how we do business.

Public expectations and demands for transportation solutions today, not 10 years from now, are understandable, given the magnitude and pervasiveness of America's transportation problems. Equally understandable is the public's desire for environmentally sensitive ways of doing business. Sometimes these two societal goals work in conflict. Environmental streamlining and stewardship is the term used for a new way of doing business that brings together the timely delivery of transportation projects with the protection and enhancement of the environment. In essence, it is a rejection of the false choice so often presented between adding transportation capacity and protecting our environment.

In its simplest terms, environmental streamlining consists of cooperatively establishing realistic project development timeframes among the transportation and environmental agencies, and then working together cooperatively to adhere to those timeframes. Because major transportation projects are affected by dozens of Federal, State, and local environmental requirements administered by a multitude of agencies, improved interagency cooperation is critical to the success of environmental streamlining.

The Department has worked extremely hard to solidify relevant interagency partnerships through a series of actions that include pilot efforts, process reinvention, alternative dispute resolution, and a focus on performance evaluation. We can and will do more.

TEA–21

TEA–21 has also been crucial in encouraging meaningful streamlining and stewardship. The objectives of TEA–21's streamlining section 1309 were to: expedite transportation project delivery; integrate review and permitting processes to identify key decision points and potential conflicts as early as possible; encourage full and early participation by all relevant agencies that must review a highway construction or transit project or issue a permit, license or opinion relating to the project; coordinate time schedules for agencies to act on project decisions; establish dispute resolution procedures to address unresolved project issues; and to improve decisionmaking under the NEPA.

Consistent with the mandate of Section 1309, the Department has taken a series of administrative actions to enhance environmental streamlining. The fiscal year 2002 Department of Transportation Appropriations Conference Report, of November 30, 2001, directed FHWA to report on agency streamlining efforts by January 2, 2002. In January, we submitted a report to Congress that summarized many of the steps the FHWA has taken to enhance environmental streamlining:

From 1999 to 2001, the median time for completing environmental review for projects requiring an Environmental Impact Statement decreased by 1 year (from five and a half years to four and a half years). This reflects respectable progress for projects that are most complex, challenging and have significant impacts. These constitute less than 3 percent of all federally funded surface transportation projects.

This year, FHWA has set internal goals to continue to decrease the review time for all projects requiring rigorous environmental analysis. This would be accomplished through negotiated project timeframes with each State DOT and FHWA division office and consultation with review agencies. FHWA has put an Environmental Data tracking system in place to track review times on an ongoing basis. FWHA expects to have a solid data base within the first year.

Fifty States have adopted initiatives for streamlining that clarify, amend, or reinvent the project development process. At least 24 States have focused their process redesign efforts on integrating planning and National Environment Policy Act (NEPA) activities.

A number of these initiatives have evolved into major process reinventions that FHWA has supported with streamlining funds as well as technical assistance. Not only are environmental concerns integrated into the long range planning process, the processes themselves and the agency reviews and comments are conducted electronically. This cuts review time and makes the web-based process transparent and accessible to the public.

Using TEA–21 authority, 34 States have agreed to provide personnel to State and Federal environmental agencies for the purposes of expediting reviews. The Department is very encouraged by the efforts. FHWA has now finalized guidance for using these arrangements, as well as documented the lessons learned for viewing by all States. The guidance includes a template that other States can easily adapt and modify for their use.

Twenty-nine States have adopted agreements to merge the FHWA NEPA process and the Clean Water Act permitting process administered by the USACOE. This eliminates what can be a duplicative process. FHWA is working with the Corps to modernize merger agreements already in place and update agency policy directives and clarifications that will help foster new NEPA merger agreements.

Forty-one States have created some level of delegated authority for historic resources that allows many projects to be processed quickly. This also frees up Federal and State resources to focus on complex issues. Vermont's efforts in this area are to be commended, and their approach sets the standard nationwide.

FHWA's streamlining website, www.fhwa.dot.gov/environment/strmlng/index.htm, has proven to be a key medium for communication on these topics. It includes an inventory of best practices and a catalogue of State efforts and national activities. A new "Success Story" is featured each month, and feedback from our stakeholders has been very positive. Links to other key sites (e.g., AASHTO Center for Environmental Excellence) will make the website more interactive and provide access to very useful resources.

Successful environmental streamlining requires fostering good working relationships across a number of organizational lines. These relationships allow for the development and establishment of reasonable and realistic schedules for advancing major projects. It is important for the Department to facilitate agreement by Federal agencies on timeframes for conducting reviews and granting approvals. Working together in partnerships, combining a full range of Federal, State, and local officials and interest groups, will lead to reasonable ways to meet the Nation's transportation needs, while being good stewards of the environment. A wonderful example has been Senator Smith's efforts to initiate a successful partnering model in NH that has fostered the examination and exploration of improved and more efficient approaches to mitigation while adhering to deadlines.

Pursuant to a national memorandum of understanding signed among Federal agencies, DOT and other agencies have worked to further progress on a coordinated environmental process to expedite Federal highway and transit projects. The agencies have developed interagency action plans. We are on track for the successful implementation of our 2002 priority items adopted by the Federal Interagency groups. Our activities in this regard include:

1. Securing commitments from Federal agencies to develop national templates for regional general permits, NEPA/404 mergers, National Historic Preservation Act of 1966 Section 106 delegations/testing of alternative procedures, Section 4(f) programmatic agreements, and Endangered Species Act programmatic agreements;

2. Encouraging and supporting watershed-based approaches to environmental stewardship implementation/oversight through a best practices scan, and innovative mitigation pilots.

3. Supporting research priorities that emphasize flexible mitigation for habitat connectivity.

4. Maximizing staff resources using cross training, interagency workshops, development and shared uses of data bases such as GIS maps of environmental resources, tribal interests and transportation facilities;

5. Defining specific FHWA performance measures for streamlining and stewardship. We have invited other Federal agencies to work with us to develop measures that demonstrate how they have aided the implementation of successful project delivery.

6. Continuing to add to our baseline studies on national timeframes for environmental reviews. A supplemental study on major projects completed from 1990–95 is underway. This will validate our historical baseline data and help us to better isolate which variables may add time to the process. We are also expecting an initial assessment of streamlining implementation progress from both environmental and transportation frontline professionals some time this fall. This Gallup Organization managed research project will help define expectations and definitions of success and measures of quality.

In addition, we are implementing actions to streamline the environmental review of airport projects. Secretary Mineta's May 2001 report to Congress on the Environmental Review of Airport Improvement Projects concluded that reducing environmental delays should be addressed in areas of resource, process, product, and interagency coordination. FAA is implementing administrative initiatives outlined in the

report. These include establishing expert teams to expedite environmental reviews for critical airport capacity projects, allocating more resources to environmental reviews, maximizing the use of consultant resources, expanding the list of projects with minimal impacts that don't need detailed environmental review, issuing guidance to streamline reviews, better interagency coordination and cooperation, and a guide to best practices.

Environmental Stewardship

When the first President Bush set a national "no-net loss" wetlands policy to stop a decades-long history of cumulative losses, FHWA set a target of 1.5 acres replaced for every acre adversely affected by highway projects. Our recent performance figures show that we are exceeding that target by a substantial margin, providing over two acres of replacement wetland for every acre taken. To our knowledge, no other public or private entity is setting goals as ambitious as ours or is tracking their wetlands performance as we are.

To date, we have invested over $11 billion dollars to improve air quality in areas that do not, or did not, meet Federal air quality standards under the Congestion Mitigation and Air Quality Improvement Program, or CMAQ. These funds have furthered air quality improvement in a number of very important ways. They have helped to accelerate use of cleaner technologies by retrofitting, or replacing, heavily polluting trucks and buses. They have helped to further Intelligent Transportation Systems on the road and for transit, making our transportation system work better, smarter and cleaner. And they have helped to put in place alternatives to driving alone. No single source of funding has made a greater investment in clean air than CMAQ.

Looking at the human environment, more money has been spent on historic preservation from transportation funds than any other source. Historic preservation often leads to private investment far beyond the transportation investment. For example, the city of Meridian, Mississippi strategically used the $7 million rehabilitation of the Meridian, Mississippi Union Station for reuse as a multi-modal transportation center to leverage over $10 million in private investment in the depot district.

As we look ahead, we see a number of possible environmental stewardship opportunities to pursue in collaboration with transportation and environmental colleagues. We are providing funds and staff assistance to the new American Association of State Highway Transportation Officials (AASHTO) Center for Environmental Excellence. Working in partnership with the Federal Highway Administration (FHWA) and with involvement from other Federal agencies, the Center will promote the use of environmental management systems by transportation agencies, as a systematic way of institutionalizing environmental stewardship.

We have provided Texas with funds to support their streamlining efforts to develop a Geographic Information Systems (GIS) based mapping and environmental management system that is helping State and Federal agencies to devise the best protection, conservation and mitigation strategies for the entire 1,000-mile section of the I–69 North American Free Trade Agreement corridor project within Texas. The Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (USACOE) are consolidating their reviews and comments so that Texas will have just one set of comments from each agency. This action is greatly facilitated by the coordination, training and development of those management efforts we are funding.

We have asked FHWA division offices to help establish at least 30 exemplary ecosystem initiatives around the country during the next 5 years. When we say "exemplary," we are looking for initiatives that raise the bar, that push the boundaries. Such initiatives will result in project delivery efficiencies through mitigation and conservation measures that are defined for regions or corridors and for which credits are applied to types of projects, or within specific transportation corridors.

Endangered species habitat conservation plans fall in this category and so do large-scale studies of migration patterns by large mammals and ways to minimize conflicts between the migration of people on the highways and the migration of animals near and across highways. FHWA is working with Alaska to advance habitat connectivity and GIS data base mapping efforts that will significantly address human and wildlife mortality along critical habitat corridors for major freight, transportation and railroad corridors and effectively plan for future transportation improvements.

FHWA and Federal Lands Highway offices are working with States to develop integrated approaches to transportation and environmental planning and project development at the system level and supporting "context sensitive solutions" at the project level. Many States have embraced or are advancing these approaches. We will continue to facilitate the success of such endeavors.

Context-sensitive solutions are an effort to get all of the players to work together in an integrated fashion to ensure that transportation decisions are fully respectful of the community and the natural environment. In Montana, on US 93, the State Department of Transportation, Indian tribes, and local communities were able to come together with a context sensitive approach. Currently 26 States have some type of context sensitive design activities underway.

Project Construction Innovations

As I discussed above, aside from environmental issues, other problems can delay the completion of a project. Construction of a typical highway project generally takes from one to more than 5 years depending on the complexity, size and controversy of the project. Unforeseen and often uncontrollable circumstances impede construction efficiency. There are, however, some fairly recent and significant advancements that have been made in the ways projects are constructed.

Design/Build

The most significant of these advancements is the design/build construction technique. TEA–21 expanded and clarified the circumstances under which design/build projects may be advanced. At least 30 States have adopted the technique. Under the design/build concept, the contracting agency identifies the end result parameters and establishes the design criteria minimums. The prospective bidders then develop proposals that optimize their construction capabilities. Allowing the project design to be tailored to a contractor's advantage provides flexibility to compensate for cost increases in one area through efficiencies in another. This concept allows the contractor to optimize his work force, equipment and scheduling.

However, along with the increased flexibility, the contractor must also assume greater responsibility and risk. Because both design and construction are performed under the same contract, delays related to design error claims are eliminated, and the potential for other types of claims are greatly reduced. Recently, design/build projects have been authorized to include right-of-way (ROW) acquisition in addition to design and construction, creating a "turnkey" project for the State. Prior to this authorization, necessary ROW for design/build projects was typically provided by the State or local transportation agency. To include ROW acquisition services as part of the design/build approach, it must be allowed by State procedures for procurement of such services. From a State highway agency's perspective, the potential time savings can be substantial.

With generous cooperation from the States of South Carolina and Virginia, and the Transportation Corridor Agency, Orange County, California, the FHWA's Office of Real Estate Services reviewed several design/build projects. We interviewed officials from the State and FHWA Division offices, along with key individuals from the prime contractor's team, to determine "best practices" and the extent of any problems associated with these projects. As a result, the Department is now working with State and local transportation officials on the most effective means and times to implement a design/build approach.

Cost-Plus-Time Bidding

Another innovative construction approach is called cost-plus-time bidding, also referred to as the A+B method. This is a procedure that selects the low bidder based on a monetary combination of the contract bid items (A) and the time (B) needed to complete the critical portion of the project. This procedure is intended to provide a contractual incentive for the contractor to minimize delivery time for high priority and congested roadways by offering incentives for early completion and assessing disincentives for late completion.

Lane Rental

Lane rental is the practice of charging the contractor a fee for occupying lanes or shoulders during construction. Charges are based on hourly or daily rates and can vary with time of day, amount of traffic, and other measures of user costs. Similar to cost-plus-time bidding, lane rental provides strong contractual incentives for early completion.

Major Project Oversight

One cannot have a complete conversation about transportation project delivery without talking about the Department's oversight role. Although TEA–21 directed extensive delegation of approval authorities to the States for most Federal-aid projects, FHWA's oversight role on larger projects was enhanced. Section 1305(b) requires that projects with an estimated total cost of $1 billion or more submit an annual Finance Plan, based on detailed estimates of the cost to complete the project and on reasonable assumptions of future cost increases.

Projects subject to this requirement have been labeled "major" or "mega" projects. However, FHWA includes in the major project category those projects designated "major" projects by senior management due to their complexity or a high level of interest by the public, Congress, or the Administration. Finance plans may be required for such projects even though their estimated total cost is less than $1 billion.

Over the past 10 years, the number of projects greater than $1 billion has grown and, at present, we have identified 14 active major projects across the country, including six that are at the stage of requiring an initial Finance Plan.

FHWA now has the benefit of "lessons learned" from some of the early major projects—construction of the Boston Central Artery/Tunnel (CA/T) project, reconstruction of I–15 in Salt Lake City, and the management of the Alameda Corridor—and we are putting these lessons to work. We have seen that the primary cost drivers of major projects, from the Plans, Specifications, and Estimates stage to completion of construction, are: (1) inflation, since many of these projects take years to complete; (2) phasing of the projects to use available funds; and (3) regional and national economic trends, since these projects are such large economic investments and typically stretch the available technology and industry abilities. We know that the most common factor leading to cost increases and delays for all major projects, especially in 2001–2002, has been the annual adjustment of project schedules to fit actual revenues available. Currently, as a result of the national economic situation and revenue shortfalls, States are readjusting their statewide programs, in some cases stalling major projects.

While cost overruns and schedule delays on major projects occasionally occur, we have seen notable successes as well. The Alameda Corridor project in Los Angeles, California, was a huge success in being completed on schedule and within budget. Also, the I–15 reconstruction project in Salt Lake City, Utah, was completed ahead of schedule, well before the opening of the 2002 Winter Olympic Games. Although the CA/T has been the subject of many controversies, it has resulted in important engineering and technological advances. Engineering innovations included new solutions for tunnel ventilation systems that have also been used to reduce the costs on the Cumberland Gap Tunnel project. When complete, the CA/T will link air, sea, rail, bus, and subway facilities, to facilitate local and regional economic growth, while providing environmental benefits, reducing traffic congestion, and improving traffic safety.

Our approach to improving management of major projects has been to continue to strengthen our oversight of all programs, while issuing certain specific requirements for major projects within the framework of existing laws and taking into account that each major project is unique in its complexity, sponsoring agencies, and contracting plans. This approach is consistent with the overall delivery of the FHWA program as a federally assisted, State-administered program.

FHWA Stewardship and Oversight Policy

Implementation of the restated FHWA Stewardship and Oversight Policy (issued June 2001) underpins all of our major project oversight actions. A key element in implementing the policy is to emphasize that all federally funded projects are subject to Federal oversight, even where State agencies have title 23 project approval authorities. FHWA has also committed to conducting risk assessments with States to identify strengths, areas needing improvement, and then prioritizing oversight activities accordingly. FHWA will trust, but verify. We must have confidence in the quality of a State's products and processes, or we must work with the State to achieve appropriate improvement.

The Plan for Oversight and Management of Major Transportation Projects (issued October 5, 2001), provides that improved management of major projects will rely on the sound implementation of the restated FHWA Stewardship and Oversight Policy, FHWA technical assistance and technology deployment, dissemination of best practices information, industry and agency partnership activities, and specific initiatives for major projects in response to recommendations of the DOT Task Force on the Oversight of Large Infrastructure Projects (Report issued December 2000). The Division offices have lead responsibility for the delivery of FHWA programs and are assisted in oversight of major projects by the Major Project Team within FHWA Headquarters. The Divisions are building on a foundation already in place that consists of existing FHWA/State Stewardship agreements, the documented State project development and financial procedures, and the FHWA Financial Plan Guidance (issued May 2000). In addition, once a project is identified as a "major project" based on Division Office information, the Major Project Team begins tracking the project and increases FHWA Headquarters involvement following the environmental clearance of the selected alternative. Each major project will be reviewed at this stage

for unique features, or unique relationships between the project sponsors, that require additional documentation to clarify responsibilities and ensure that sound planning and management is implemented.

In response to the TEA–21 major project finance plan requirement, FHWA issued Financial Plan Guidance and, since then, the Division Offices and Headquarters have applied this guidance in the review of finance plans on seven projects. Key major project finance plan requirements include: project cost estimates must be prepared in "year of expenditure" dollars; agency accountability must be increased for the proposed financing in the plan; and significant changes to the project scope in the annual finance plan must be accurately disclosed. FHWA requires annual updates to the plans and obtains independent verification of the financial data provided by the States in these plans.

Conclusion

The upcoming reauthorization of the Federal-aid highway program gives us an opportunity to refine the appropriate Federal role in overseeing infrastructure projects, particularly the high-cost projects. As the Secretary has directed, we will focus on the management and performance of the system as a whole, while ensuring appropriate oversight for both project management and program performance.

We will look for ways to encourage well-managed State programs, without adding additional layers of Federal requirements. Our oversight procedures must harmonize with our efforts to streamline project approvals and expedite project delivery.

The bottom line is: improve oversight and accountability for the expenditure of public funds, without negatively impacting the ability of States and local governments to deliver their programs. Together with Congress, we will define what our role should be and how we carry out our responsibilities.

Mr. Chairman and members of the committee, thank you again for the opportunity to testify before you today. I look forward to responding to any questions you may have.

STATEMENT OF JOHN PETER SUAREZ, ASSISTANT ADMINISTRATOR FOR ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. Chairman and members of the committee, I am J.P Suarez, Assistant Administrator for OECA. Thank you for inviting me to appear before you today to discuss project delivery and environmental stewardship under the Transportation Equity Act for the 21st Century (TEA–21). I understand the committee is particularly interested in EPA's contribution to the environmental streamlining called for in Section 1309 of TEA–21.

I am pleased to be here today as this is the first time I have testified before you since my confirmation. I look forward to a productive relationship with this committee and to working with you as you consider reauthorization of the TEA–21 legislation. As you know, I am responsible for EPA's National Environmental Policy Act (NEPA) program. In addition to OECA, other EPA programs have an interest in various TEA–21 provisions, such as those related to congestion management and air quality. My remarks today will focus on how EPA has incorporated the provisions of Section 1309 into the NEPA program.

EPA embraces the streamlining provisions of Section 1309. We are committed to working with our Federal and State partners to better serve the American people with faster yet environmentally sound, transportation decisions. We are bringing our special expertise to bear earlier in the transportation decisionmaking process to improve the quality of analysis, protect the environment, and speed project approvals. We have put new staff in key positions: we hired a manager with Federal Highway Administration (FHWA) experience for EPA's regional NEPA office in California; and, in Texas, another State with a large number of highway projects, the regional office placed an EPA NEPA employee in the Texas Department of Transportation (DOT) office. In several key States, we are able to provide more timely and sustained assistance on State priority projects thanks to the additional personnel funded by State DOTs that Section 1309 allows. While it is too early in the process to measure time savings for many of these efforts, we are confident that we will be able to quantitatively demonstrate the value of these investments in the near future.

Interstate Highway 69, a proposed 1600-mile across-America highway—from Mexico to our border with Canada—is a good example of EPA's current effort to expedite a specific national priority project. Three EPA regions are coordinating with the FHWA and seven State DOTs to identify and resolve environmental issues at the

earliest possible stage. On February 22, 2002, the EPA Regions sent one set of coordinated and consistent pre-Environmental Impact Statement (EIS) technical comments to the many highway offices and Federal agencies working on project design. The EPA regions are also providing technical assistance to the State DOTs with geographic mapping of sensitive resources to improve and streamline the environmental impact analyses. In fact, Arkansas estimates that in one recent case use of GIS and early coordination cut in half the time needed to complete the NEPA process.

While EPA has devoted considerable energy to implementing Section 1309, we realize there needs to be more progress before we have a truly streamlined transportation review process. Both we and our State partners recognize that it takes an up-front investment to produce a pay-off. Initially, having all the stakeholders at the table well ahead of the Draft EIS takes more time on the planning end. However, indications are that well-planned projects do move faster once the environmental documentation is completed. FHWA's statistics show that 1 year has been shaved off the median time to process environmental documents for major projects since passage of TEA–21. And, we are encouraged that newer tools such as geographic information system analysis are starting to have a marked impact on the speed of the environmental analysis.

As we work more closely than ever with FHWA and with the State DOTs, formal agreements are being cooperatively negotiated that set the stage for future early involvement and technical assistance on individual projects. Within a year of TEA–21's enactment, EPA had expanded the model process developed with the mid-Atlantic States, FHWA and our other Federal and State partners to streamline the environmental review of transportation projects. The Mid-Atlantic Transportation and Environment Process, also known as the MATE Process, resulted in a formal agreement that commits all parties to a timely, cost-effective, and environmentally sound transportation project development process. This agreement is supported by specific project development and agreement steps and specified input and concurrence points to avoid future gridlock. The mid-Atlantic States are funding four EPA positions through streamlining agreements between EPA and the individual States.

In addition to the MATE process in the Mid-Atlantic, other EPA regional offices have signed a variety of streamlining agreements tailored to the needs of individual States. For example, last year EPA and the California DOT (CALTRANS) signed an MOU for the review of California's priority transportation projects. TEA–21 substantially increased the number of transportation projects in California, and through this agreement CALTRANS ensures increased EPA early involvement in project planning and development. Early involvement reduces delays at the later stages of project review resulting from interagency disagreements. It also ensures that critical resource issues are identified and analyzed, which can reduce the time lost to third-party litigation on the adequacy of the NEPA documentation. This MOU followed a July 2000 agreement (the Mare Island Accord) which has resulted in improvements such as joint training of EPA and CALTRANS staff. Joint training has long-term benefits by ensuring that the staff in both agencies have a shared understanding of each agency's requirements and the analytical processes that are needed to ensure a review that will meet all statutory and regulatory requirements.

Another outgrowth of the Mare Island Accord is a pilot project to which CALTRANS, EPA, FHWA and the Merced County Association of Governments have committed staff and funding. The Merced Partnership for Integrated Planning will update the STET regional transportation plan taking into account environmental requirements; this project is supported with a geographic information system analysis and is intended to become the model for regional transportation planning California-wide.

In Oregon, EPA and the State have formally agreed to prescribe and implement a specific process for resource agency involvement and streamlining. And, after the Washington State Legislature passed its Environmental Permit Streamlining Act last year, EPA became an active partner in developing and implementing streamlined processes in that State. Additionally, EPA is serving as a cooperating agency with the Kansas DOT on the U.S. 59 project and on the I–70 Second Tier studies in Missouri. EPA and the Minnesota DOT are working under an MOU to streamline the approval process for the 169 Trunk Highway.

Our stronger relationship with the States is exemplified by our participation in streamlining discussions at many of the American Association of State Highway and Transportation Officials (AASHTO) Planning and Environment Committee meetings. We greatly appreciate the State association's invitation to meet and their willingness to discuss our experiences with streamlining. EPA certainly benefits from hearing directly from State DOTs about their successes and frustrations in dealing with us! This level of direct discussion with AASHTO members has come about

since the passage of TEA–21, and we believe results from Congress' emphasis on streamlining. EPA also is participating in the development of AASHTO's Center for Environmental Excellence. This Center holds great potential for sharing expertise across agency and State boundaries on a quick-turn-around basis, another result of the improved collaboration streamlining has engendered.

One very encouraging sign EPA has noted since the passage of TEA–21 fours years ago is the growing endorsement of environmental stewardship by the State DOTs. Half of our State DOT partners are formally supporting AASHTO's Environmental Stewardship Demonstration Program. This program has tremendous potential from an environmental, transportation and financial perspective. New York State, for example, has found that by mulching land adjacent to highways, the State saves mowing costs while preventing stream damage from runoff. The more we can build environmental considerations into all aspects of transportation planning and delivery, the better we will serve the American public by providing environmentally sound transportation solutions.

At the national level, EPA has taken a number of steps to promote streamlining since the passage of Section 1309. A National MOU on Environmental Streamlining set the stage for a number of specific initiatives, including EPA's early involvement in the planning and scoping of projects and EPA's active participation in streamlining pilots. EPA participates in FHWA's streamlining committee, and is working with FHWA to develop guidance and training on streamlining. We have helped train Federal resource agencies on drafting streamlining MOUs with State DOTs to strengthen relationships in the field and improve project management. We continue to encourage our regional offices, where most NEPA reviews are done, to work with their States to obtain funding for positions and technical support. These resources are providing intensive expedited attention to State priority transportation projects.

EPA is also working with FHWA in its effort to develop training for Federal agencies and State DOTs on Alternative Dispute Resolution. This training, expected to start next Spring, will ensure that disagreements during the project review process can be identified and swiftly resolved.

In conclusion, I would like to endorse the critical role NEPA plays in coordinating environmental requirements. NEPA has served the American public well for 30 years by providing full disclosure of the impacts of major Federal actions and requiring an examination of alternative ways to achieve a project's purpose. EPA is committed to streamlining as the way to make NEPA even more effective through a more efficient and timely process.

Thank you for the opportunity to testify today. I would like to work with you as you continue to promote environmental stewardship and streamlining. These efforts are good for the environment and the economy, and they allow EPA to focus our resources where we can achieve the best results.

I look forward to responding to any questions you may have.

RESPONSES OF JOHN PETER SUAREZ TO ADDITIONAL QUESTIONS FROM SENATOR CARPER

Question 1. Can you discuss the relationship that EPA has with the States and the use of Section 1309 funds to provide additional personnel for environmental review of State priority projects?

Response. EPA generally has a good working relationship with the State DOTs. State reaction has varied widely to EPA suggestions to use TEA–21's Section 1309 authority to fund dedicated positions to streamline the environmental review process. Currently, 6 States fund a total of 8 EPA positions, and one State provides funding for EPA technical assistance. Several States are considering increasing the number of Federal positions or providing one for the first time. Some States do not believe that EPA's review creates significant timing issues, and many rely on the concurrence points laid out in the NEPA/Clean Water Act Section 404 merger process to define issues earlier in the process and achieve shorter review timeframes. EPA believes that the more complex or controversial projects benefit from State investment in additional EPA personnel focused on their priority projects, especially in those States with a heavy transportation workload where EPA's resources are spread across a number of projects, and we will continue to pursue these arrangements.

Question 2. Can you discuss the President's Executive Order regarding NEPA and transportation project delivery? How do you think this Order will affect your agency's ability to fulfill its mission?

Response. The Executive Order on Environmental Stewardship and Transportation Infrastructure Project Reviews was signed by the President on September 18,

2002. It sets up a Federal Task Force, including EPA, to expedite the review of selected transportation projects. EPA looks forward to working with our fellow departments and agencies to focus attention on projects of national priority which we hope can serve as models of streamlining for other projects. While the Executive Order will require EPA to focus additional resources on the priority projects in the short term, we expect that the lessons learned from these projects will produce longer term savings as we apply these lessons to streamlining future transportation projects.

RESPONSES OF JOHN PETER SUAREZ TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. What is the process to establish formal agreements between the EPA, the Federal Highway Administration, and State DOTs?

Response. There are formal agreements for streamlining that do not involve transfer of funds as well as those which do. There is no set process for either, but EPA helped the Federal Highway Administration develop guidance for our respective staffs and the State DOTs on establishing formal streamlining agreements. The guidance is on FHWA's website at:

The guidance explains requirements for use of TEA–21's Section 1309 funding authority and suggests how to structure a formal agreement to produce the desired results. A State wishing to use Federal-aid funds to pay for another agency's costs submits a request to FHWA and should have a formal agreement in place with that agency once funds are approved. FHWA's website also has examples of agreements between Federal agencies and State DOTs, and my office maintains a file of current EPA agreements to assist EPA's regions as they develop new ones with States.

Many formal agreements do not involve a transfer of funds and only require the signatures of the agencies involved. In addition to one-on-one agreements with States, such as EPA's wetlands banking agreement with PA and our transportation stewardship agreement with OR, EPA is a signatory to a multi-State agreement, the Mid-Atlantic Transportation and Environmental Streamlining Process (known as MATE). MATE was developed with PA, MD, DE and WV DOTs as well as State and other Federal resource agencies. The MATE agreement applies to the entire project planning and development process and provides for integrated permitting and environmental review processes. MATE was the result of an extensive mapping of the various decision points needed to complete the environmental review of a project and determining when each agency needs to concur to streamline decision-making.

Question *2.* In your testimony, you claimed that some of the benefits of an agreement between the California DOT and the EPA were due to joint training of the Federal and State agency staff. Is this a new innovation? Is it being applied in other agreements? Are there other examples of innovations that you could share with the committee that have streamlined the transportation review process?

Response. While not a new innovation, EPA and its State partners are increasingly recognizing the value of joint training of our staffs. Interagency training helps establish a common knowledge base and provides opportunities for networking and building relationships. Some EPA NEPA training includes staff of other Federal agencies, as well as the State DOTs, providing even greater cross-fertilization.

An important innovation in streamlining is the NEPA/Clean Water Act Section 404 merger process used by EPA, State DOTs and our Federal partners to coordinate early on transportation projects and avoid duplication and reconsideration of issues as a project progresses. This is the key streamlining tool used by many States and EPA where there is no specific streamlining or funding agreement in place. In EPA's Region 5 (upper mid-West), for example, agencies benefit from the concurrence process set up under the merger agreement and several State DOT's use this process routinely to work more efficiently with EPA on their transportation projects. (EPA's Region 5 office notes, though, that staffing and/or travel assistance from the DOTs would allow for more up-front involvement and opportunities for early resolution of issues.)

Question 3. As one of the steps at the national level to promote streamlining, you stated that the EPA is encouraging its regional offices, which mainly do the NEPA reviews, to work with their States to obtain funding for positions and technical support. How big of an issue is State funding in causing transportation review delays? How have States been responding to requests from EPA regional offices for additional funding?

Response. State funding or lack thereof can be a big issue in streamlining the review of transportation projects. In those States which have a large number of

projects underway, or one or more complex or highly controversial projects, having State funding support is critical for EPA to provide early and sustained involvement on State priority projects. EPA has approximately 15 FTE nation-wide devoted to NEPA reviews of highway projects, plus 8 positions funded under Section 1309. In any given year, EPA receives about 100 draft and final EISs for transportation projects and reviews a number of Environmental Assessments. In heavy workload States not providing assistance, EPA finds it difficult to be involved prior to receiving the draft EIS. With little or no EPA involvement prior to the draft EIS, projects may be delayed if EPA's review uncovers issues that could have been resolved during the scoping process for the project. If EPA is involved while projects are being planned, we can bring our expertise to bear and work with DOTs to choose transportation routes and options that minimize environmental impacts and mitigation costs while providing needed transportation solutions.

As noted under Senator Carper Question #1, State DOT response has varied widely to EPA suggestions for additional funding. Those States which (1) have the heaviest workload, (2) have invested in streamlining at the State level and (3) which perceive EPA's review to create timing delays are the most open to funding EPA positions or technical assistance. As other States see the benefits the States providing funding are achieving, it is likely that more will do so. In addition to the 8 positions and one State's funding of EPA technical assistance, several other States are considering increasing the number of funded positions or providing one for the first time. In the meantime, EPA will continue to promote streamlining and look for ways to achieve greater efficiencies with our current resources. Reauthorization of Highway and Transit Programs:

STATEMENT OF HON. KENNETH M. MEAD INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION

Mr. Chairman and members of the committee: We appreciate the opportunity to participate in the committee's preparation for reauthorization. I commend the committee for examining project delivery and environmental streamlining issues. Although meeting environmental requirements can take a significant amount of time, delays can occur throughout any project's planning, design, and construction phases for any number of reasons. We know of no panacea that will prevent all problems. However, our work has shown that effective management and oversight can help prevent avoidable problems, and mitigate the cost increases and schedule delays when problems do occur.

Today, I want to discuss a series of steps that can be taken in the reauthorization to improve management and oversight, and facilitate the delivery of projects to taxpayers approximately on budget, on schedule, and free from fraud. These steps are (1) refocusing Federal Highway Administration's (FHWA's) oversight to ensure State programs operate effectively and projects of national significance are well managed, (2) promoting the use of proven project management tools, and (3) strengthening efforts to prevent fraud, waste, and abuse. Of course, whether moneys are lost to cost overruns, schedule slippage, or fraud, the result is the same—fewer resources remain for transportation projects.

The Transportation Equity Act for the 21st Century (TEA–21) provided record levels of transportation funding for highways and transit, with the investment almost doubling, from $23 billion in fiscal year (FY) 1997 to nearly $39 billion this fiscal year. The combined Federal, State and local investment in highways and transit during the 6-year period of TEA–21 will exceed $500 billion—an average expenditure of more than $225 million a day.

Although the recent economic downturn has reduced Federal and State transportation funding streams, the demand for investments in transportation infrastructure remains great. For example, the 14 active FHWA large projects are estimated to cost more than $39 billion. FHWA also has identified another 21 large projects on the drawing board that are expected to cost over $32 billion, and 22 large corridor projects that will cost over $44 billion. For fiscal year 2003, the Federal Transit Administration (FTA) is requesting funding for 34 new starts projects valued at a total cost of $21.2 billion.

Managing the construction of large projects, especially in densely populated urban areas, has become much more difficult over the last several decades. Specifically, project managers are faced with such factors as having to maintain traffic flow and commerce during construction; meet environmental and historic preservation requirements; and incorporate intermodal capabilities. Financing large projects has also become a much more difficult proposition because it can often involve complex

financial techniques, such as structured bonding, innovative financing mechanisms, and private equity investments.

These issues affect not only billion dollar projects, but often those in the hundreds of millions of dollars as well. Changing conditions have materially affected project delivery and have wide-ranging implications for the approaches and staffing of FHWA, FTA, the States, and grantees. However, improving project management and delivery can provide significant benefits. For example, increasing the efficiency with which $500 billion is spent by only 1 percent provides an additional $5 billion—an amount equal to 4 of the 14 active FHWA large projects.

The States have generally developed the capability to meet their responsibilities, and we have reviewed a number of large projects that stand as examples of good project management—projects such as Utah's I–15, New Jersey's Hudson Bergen Light Rail project, and the Alameda Corridor in California. In contrast, we have reviewed projects in which management and oversight were ineffective, leading to significant cost increases, financing problems, schedule delays, and technical or construction difficulties. These projects include the Central Artery, the Woodrow Wilson Bridge, the Springfield Interchange in Virginia, Puerto Rico's Tren Urbano, the Los Angeles Metro Red Line, and the Seattle Central Link. In each of those cases, project management has agreed to take action to correct the deficiencies we reported. We are in the process of conducting follow-up work on several of the projects.

Our testimony today is based on audit reports we have issued on 18 large highway and transit projects, our ongoing work, as well as significant criminal investigations we carried out with the Justice Department.

Overall, we see several opportunities to improve project delivery in the reauthorization by:

- Refocusing FHWA's oversight to ensure State programs operate effectively and projects of national significance are well managed.
- Recognizing that the interstate system was largely completed, and that States and localities know better what is needed for their citizens, Congress delegated responsibility for project selection and execution to the States during the 1980's and 1990's. The States have improved their capability to manage their transportation programs, including engineering expertise. However, FHWA has historically continued to focus most heavily on oversight of engineering and contract issues, rather than on oversight of management and financial issues. To a large extent, FHWA defers to the States for both the implementation and oversight of federally funded transportation programs. Although FHWA has taken several steps to improve its stewardship it has not completed the transition from its traditional role of reviewing and approving contract level actions, to a new higher-level role of conducting reviews to ensure the effectiveness of the States' processes in areas that are major project drivers, such as financing, controlling project-level costs, schedule performance, transportation planning, and maintaining accountability over funds.

Because FHWA remains focused on detailed engineering activities, rather than developing a more multi-disciplinary staff and higher level approach to oversight, it has sometimes missed larger management issues. For example, FHWA approved thousands of design changes on the Central Artery, but was caught unaware when the project's cost increased by $1.4 billion.

Among the actions that would promote more timely and efficient project delivery are:

- Clarifying FHWA's role to ensure it is focused on the programs and processes in which States use Federal highway funding, rather than on detailed, contract level reviews and approvals. On projects costing more than $1 billion, FHWA must have clear direction to monitor and ensure these projects of national significance are kept on time and on budget.
- Delegating detailed contract and project actions to the States and refocusing FHWA on independently monitoring State management processes, rather than approving detailed contract level actions. For example, FHWA still performs many detailed contract administration actions, such as approving contract change orders and the location and wording of highway signs.
- Requiring FHWA to report on the skills and competencies it needs to implement a process and program oriented oversight program. Reflecting its historical focus on engineering issues, the current FHWA staff mix is dominated by engineers (see Chart). Engineering skills will remain important, but on today's projects a more multidisciplinary staff will be needed. This is not to suggest FHWA needs more staff. A strategy for achieving a more multidisciplinary approach to oversight activities within current staffing levels could include a mix of actions such as hiring staff with private sector project management skills, that is, financing, program analysis,

and cost estimating; streamlining and delegating project-level approvals to the States so staff time can be refocused on overseeing higher-level management and financial issues.

- On a selected basis, allowing FHWA to emulate FTA's approach to overseeing large, significant, projects through project management oversight contractors (PMOCs) and financial management oversight contractors (FMOCs). This approach helped FTA become one of only a few agencies to get off the General Accounting Office's "High Risk List." The use of PMOCs and FMOCs needs further fine tuning, which we are working with FTA on, but overall it is a sound approach to project oversight.
- Promoting the use of proven project management tools. In reviewing large projects, we have identified a number of tools that can help managers keep projects approximately on time and on budget. These tools include reliable costs estimates, project finance plans, achievable State transportation program plans, and integrated master schedules. When managers look to attract investors to participate in financing large infrastructure projects, reliable information is essential to make appropriate disclosures. Finally, information is critical for policymakers as they decide which projects would be the best use of resources to address transportation problems and promote economic development.

We have found several troubled highway and transit projects and programs in which these tools were not used, or were not used effectively. For example, several large projects were not using the full capability of their schedule tools, and thus, did not have the information needed to deal with the inevitable schedule conflicts that arise in complex projects employing multiple contractors.

Actions that could promote more timely and efficient project delivery include:

- Expanding the use of project finance plans to include other projects that can strain a State's capability. Finance plans provide senior program and oversight officials with the comprehensive information needed to make appropriate financial decisions regarding the projects. Our work has shown that requiring finance plans for projects costing more than $1 billion in TEA–21 was a very wise decision on the part of Congress.

On the other hand, projects costing less than $1 billion can also burden a State's management resources. The threshold for requiring plans could be reduced to $500 million. In States that have smaller highway programs, projects costing less than $500 million may be difficult to undertake. An alternate threshold could be to require finance plans for projects costing more than half a State's apportionment. We also suggest, however, that there be some limits on finance plan requirements, such as exempting projects with minimal Federal participation or any project less than $100 million regardless of the percentage of State apportionment. FHWA should continue to approve the plans for each project costing more than $1 billion, and should review States' processes for preparing finance plans on other projects.

- Requiring FHWA to establish baseline cost estimating standards for all projects exceeding $100 million or 50 percent of a State's annual apportionment, and to ensure that cost growth on large projects is monitored and controlled. Presently, FHWA has established no detailed standards for preparing cost estimates on projects under $1 billion.
- Requiring large projects to use integrated resource loaded schedule tools and earned value project measurement techniques. Given the complexity typical of large projects, problems with one contractor can have a domino effect that delays the overall project delivery. Integrated, resource loaded schedules can help to identify schedule conflicts and prevent or mitigate delays, thereby reducing cost increases.
- Requiring FHWA to develop and implement systems to provide timely information on the performance of State programs and large projects. FHWA's information system tracks only costs by individual project segment and each entry overwrites previous data. Consequently, to develop nationwide reports, such as identifying the status of large projects, FHWA must request data from each State and combine the data manually. Having timely, consistent information would enable FHWA to better analyze trends, such as might be found by comparing program-wide statistics on State planning, project delays, or cost increases beyond initial estimates on large-dollar highway projects.
- Improving efforts to prevent fraud, waste, and abuse. Congress, the Federal Government, and State governments are all concerned with preventing fraud and abuse in transportation projects. Secretary Mineta has also recognized that DOT needs to develop better mechanisms to prevent and detect fraud, waste, and abuse. As he has said on numerous occasions "My credo on waste, fraud and abuse is simple: If the project calls for concrete and it's a 10-sack job, we at [the Department of Transportation] DOT are going to be sure we don't end up with a 7-sack job."

Our work does not suggest abuse on a scale such as was experienced in the 1950's and 1960's. Nonetheless, in the last 3 years, since the increases in funding in TEA–21, we have seen significant increases in our fraud case work and judicial actions involving highways and transit. Overall, from 1999 to 2001, indictments based on our highway and transit fraud investigations increased from 12 to 39; convictions increased from 12 to 26; and monetary recoveries increased from $15.8 million to $43.2 million (see chart). Those include some of the biggest cases in the history of the highway program. At present, we have 106 pending investigations of contract and grant fraud involving highway and transit projects in 37 States.

The types of fraud we are commonly seeing today include activities such as bid rigging, bribery and kickbacks, false claims, product substitution, and disadvantaged business enterprises (DBEs). For example:

- This month (September), two construction companies pleaded guilty to separate charges of making false statements to the Government in their bids on separate Federal highway construction projects in North Carolina. The companies had shared their bid prices with an unnamed competitor after certifying that they would not disclose bid prices to any other bidder or competitor before the sealed bid opening. The two contractors subsequently were awarded contracts for about $1.6 million and $3 million. Sentencing is pending, but each company faces a maximum corporate fine of $500,000 that may be increased to twice the gain derived from the crime or twice the loss suffered by the victims of the crime, if either amount is greater than the statutory minimum.
- One of the most significant highway fraud cases occurred in Illinois. The scheme, which ran from the mid–1980's until 1996, involved both fraud and bribery. The owners of two companies and several of their employees altered equipment in their production plant to overstate the amount of materials (like asphalt) delivered to various highway projects. To conceal their activities, they bribed the State engineer by building the engineer's summer home. As a result, FHWA permanently debarred six companies and individuals from participating in federally funded road construction projects. In addition, the participants had to pay about $15 million in fines and restitution and faced sentences ranging from 3 years probation to 21 months in jail.
- Two minority business enterprises (MBEs) admitted they acted as fronts for contractors on public projects. This was one of the largest MBE frauds in U.S. history, involving approximately 60 fraudulent MBE subcontracts with a total value of over $40 million. Approximately 46 subcontracts totaling $26 million were on contracts let by Department of Transportation grantees, including projects to repave area highways and rehabilitate transit stations.

The States are the first line of defense in preventing such fraud, and we have been working closely with a number of State Inspectors General and State auditors on our fraud investigations. The Office of Inspector General, FHWA, and FTA have implemented many initiatives to protect major investments in infrastructure programs. For example, we co-sponsored two National Fraud Conferences on Highway Construction and Related Programs with the American Association of State Highway & Transportation Officials (AASHTO), American Public Transportation Association (APTA) Internal Audit Committee, FHWA and FTA, and the Missouri and Georgia Departments of Transportation. Secretary Mineta personally addressed the conference we held this past May to emphasize the importance of fraud prevention. We have also increased the number of special agents working fulltime on fraud investigations involving highway and transit infrastructure programs. Finally, we provided fraud awareness briefings to over 10,500 Federal, State, and local officials, law enforcement agencies, and industry organizations.

Preventing losses to fraud will make additional resources available for improving project delivery. Some States and even large transit authorities have established Offices of Inspector General or Offices of Audit to detect and prevent fraud and abuse. In our work, we have heard from several State officials that the pressure to fund "concrete and steel" projects sometimes makes it difficult to provide resources for oversight and fraud prevention. During the reauthorization, Congress should consider ways to help States fortify their oversight and fraud prevention efforts with dedicated funding, separate from funds used for constructing transportation projects.

A possible source of funding may be to allow States to retain monetary recoveries resulting from Federal transportation infrastructure enforcement actions. Normally, fines and recoveries from such judgments are returned to the Federal Treasury. Since the States programs are damaged by the fraud that leads to the enforcement action, sharing in the recoveries would help them restore their programs and provide support for further fraud deterrence efforts.

An example of this occurred in a civil settlement with Contech Construction Products, Inc., and Ispat-Inland, Inc., which was a case involving product substitution in the State of Louisiana. The companies substituted sub-standard polymer-coated steel culvert pipe used in highway and road construction projects from 1992 through 1997. Under the settlement agreement, the United States and the State of Louisiana shared in a $30 million recovery.

That concludes my prepared remarks. I would be glad to answer any questions you may have.

RESPONSES OF KENNETH MEAD TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. In your written testimony, you cite three examples (Utah's I–15, New Jersey's Hudson Bergen Light Rail Project, and the Alameda Corridor in California) of good project management. Could you provide the committee with your insights into why these projects were well managed? Are there themes of good management practices that are common among these projects?

Response. These projects are examples of good management in that they were completed substantially on time, on budget, and with no known major instances of fraud or corruption. Our reviews found no significant problems or deviations from good management practice, although we did make suggestions to improve project controls in several instances. We did note some common characteristics which, we believe, contributed to their overall success.

First, all three projects prepared finance plans or analyses that contained financial data similar to finance plans. In two cases, the projects provided this detailed information about costs, funding sources, cash-flows, schedules even though they were not required to do so. We have identified finance plans as a key management tool that helps projects stay on track.

We also found that reliable and even conservatively developed cost estimates was a common management practice in these projects. The cost estimates consistently included reasonable estimates for all anticipated cost elements, and reflected appropriate contingency reserve to account for risks.

These projects also applied disciplined management practices, including controls over costs and schedules and detailed tracking and reporting of progress compared to plans. The I–15 project created an internal audit function that reviewed controls to ensure they operated effectively. The Alameda Corridor Project even hired an internal auditor who reported directly to the agency director, rather than to a division manager.

Each of the projects also used, in one form or another, a "design-build" contracting approach. Under design-build, one contractor is selected to both design and construct the project. This is in contrast to the more traditional approach of hiring one contractor to design the project, and then soliciting bids from other contractors to build the project as designed ("design-bid-build"). One of the benefits of design-build contracting is that, by using only one contractor, the conflicts and delays that result from disagreements between multiple contractors can be reduced. Design build is not a panacea because we have identified other design build projects that have encountered problems. However, it appears that, properly managed, the design build concept has significant potential.

Question *2.* Given the constraints of making major personnel changes over a short time, what actions can the Federal Highway Administration take to improve the quality of oversight that FHWA provides? What long-term skill sets need to be in place at FHWA and how can we get those in place?

Response. DOT has begun the process of improve the quality of FHWA's oversight. In June 2001 FHWA issued its Stewardship and Oversight Policy and, in October 2001, an action plan for implementing that policy. The policy calls for FHWA Division Offices to conduct risk assessments of State programs and to periodically review State management processes to ensure they are effective. The most important short-term action for FHWA is to implement its new policy effectively.

Another near term action that would improve the quality of FHWA's oversight would be to begin to improve the agency's management information systems. Reliable data to support in-depth analyses of program performance is essential to improving oversight. However, over the years, we have found that FHWA lacks the data needed to understand the reasons for project delays and cost increases on highway projects. For example, FHWA's information system cannot track changes in project costs or the reasons for cost increases. For example, FHWA was unable to answer Congress when it requested that FHWA identify projects of $10 million or more that had cost increases of 25 percent or more.

Turning to the skill sets, engineering skills will remain important, but FHWA needs to strengthen its capability in other important areas such as financial planning and budgeting, controlling project-level costs, program analysis, transportation planning, and maintaining accountability over funds. For example, complex financing approaches such equity financing and grant anticipation notes require sophisticated finance skills. To determine the needed skills will require FHWA to re-examine the activities it should be performing and to analyze the types of skills and number of people needed to perform the required functions. Once required skill levels are identified, FHWA should develop a staffing plan to effectively meet the needs of the agency.

A strategy to obtain the necessary skills should include a mix of actions such as hiring staff with private sector project management skills such as financing, program analysis, and cost estimating; streamlining and delegating project-level approvals to the States so staff time can be refocused on overseeing higher-level management and financial issues; and perhaps adapting FTA's approach of hiring contractors to provide needed expertise.

Question 3. What are your thoughts on the mission of the FRA? What improvements need to be made to FRA if Congress was to make a major thrust of its reauthorization effort the revitalization of rail freight and passenger rail?

Response. FRA's stated mission is to promote "safe, environmentally sound, successful railroad transportation to meet current and future needs of all customers." Because economic and competitive issues, including entry and exit from markets and infrastructure investments have, in the past, been the province of the Interstate Commerce Commission and the Surface Transportation Board, FRA's focus has tended to be on railroad transportation safety and research.

Any approach to improving rail freight and passenger services would need to include significant investments to expand existing rail infrastructure. If Congress were to assign FRA responsibility for directing major Federal involvement in railroad infrastructure investment, FRA would need to develop the capability to provide effective stewardship and oversight of those investments. FRA is not currently a grant-making institution in the mold of the Federal Transit Administration or the Federal Highway Administration. As a result, if infrastructure investments were made through grants, FRA's capacity for and expertise in analyzing, approving, and overseeing grants would need to be strengthened. Furthermore, the best practices we have noted in other surface grant-making programs, such as requirements for finance plans and continuous project management and financial oversight, should be essential elements of any new FRA programs.

United States General Accounting Office

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Testimony

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HIGHWAY INFRASTRUCTURE

Preliminary Information on the Timely Completion of Highway Construction Projects

Statement of Katherine Siggerud
Acting Director, Physical Infrastructure Issues



GAO-02-1067T

Mr. Chairman and Members of the Committee:

We appreciate the opportunity to testify today on the timely completion of highway projects that receive federal financial assistance from the Federal Highway Administration (FHWA) under the Transportation Equity Act for the 21st Century (TEA-21). My testimony today will discuss (1) the time involved in planning, gaining approval for, and constructing federally financed highway projects; (2) events that arise that affect completion time; and (3) federal and state initiatives to improve the completion times of highway projects.

The United States is the most mobile nation on the planet. Constructing, improving, and repairing roads and bridges is fundamental to meeting the nation's mobility needs to facilitate commerce, national defense, and pleasure use and to promote economic growth. Therefore, it is important that highway projects using federal financial support are completed in as timely a manner as possible. My statement presents preliminary results of our ongoing work for this committee on the construction of new roads. My statement is based on our review of federal laws and regulations governing the construction of federally funded highway projects; studies and other analyses of the time it takes to complete new federally financed roads; and discussions with various federal agency officials who have responsibilities relating to the construction of federally financed roads, transportation engineering organizations, transportation professional associations, and state transportation officials in seven states. We also reviewed the time it took to complete six new highway construction projects in California, Florida, and Texas.

Federal and state governments do not maintain information centrally (or, in some cases, at all) on the time it takes to complete highway projects; and there is no accepted measuring stick with which to gauge whether project performance is timely. Our discussion of the typical amount of time it takes to complete major construction projects that involve building new roads is based on a best estimate prepared by FHWA. According to FHWA, it based its estimate on the professional judgment of its staff and several state departments of transportation. We also discussed typical times to complete major new highway construction projects with several professional associations and state departments of transportation. In those instances where they had anecdotal information, their estimates fell within the FHWA time frames. (See app. I for additional details, including how we picked the six projects to review.) We are continuing to examine this issue and expect to report to you on the final results of our work in Spring 2003, to aid in your consideration of the reauthorization of TEA-21.

In summary:

- According to FHWA, and based on its professional judgment, it typically takes from 9 to 19 years to plan, gain approval for, and construct a new, major federally funded highway project that has significant environmental impacts. However, these projects constitute only about 3 percent of all federally funded projects, according to FHWA. These highway projects are often carried out in four phases. (See table 1.)

Table 1: Typical Time Necessary to Complete a Federally Financed Major New Construction Highway Project

Phase	Time to complete, in years
Planning	4–5
Preliminary design and environmental review	1–5
Final design and right-of-way acquisition	2–3
Construction	2–6
Total	**9–19**

Note: The durations of the phases are approximate. The preliminary design/environmental review steps and the final design/right-of-way acquisition steps often overlap.

Source: FHWA.

The time required varies with the size of the project, its complexity, and the public interest in the project. Some projects may take as few as 3 years or as many as 20 years or more to complete. The six new highway construction projects that we reviewed ranged from a $1.7 million project in Florida to upgrade an existing dirt road to a two-lane paved road, which took 8 years to complete, to a $50 million project to build a six-lane, 15 mile divided highway in Texas, which took over 15 years to complete (excluding the planning phase, for which information was not available). Constructing a new, major roadway typically takes this long to complete because there can be as many as 200 major steps involved throughout a project's life, with approvals or input required from a number of federal, state, and other stakeholders.

- Not surprisingly, officials in federal and state agencies and other knowledgeable organizations indicate that delivering larger, more complex or controversial projects may take longer to complete than is typical for most highway projects. In addition to needing more time because of their size and complexity, they often take longer to complete because they must comply with more federal and state requirements and because of the public interest that they may generate. A survey of 33 state departments of transportation conducted by the American Association of State Highway

and Transportation Officials agree that larger projects take longer to complete.[1] However, both our work and the association's survey are based on anecdotal information and officials' memories, as no federal or state baseline information exists on how long highway projects take. While there are many reasons for new highway construction projects to take a long time to complete, most studies on the topic focused on the timely resolution of environmental issues to improve project completion times, rather than examining all aspects of highway projects. The officials we contacted generally stated that environmental reviews resulted in better project decisions; but reaching those decisions was difficult and time consuming, complicated by such factors as incomplete permit applications, limited resources at environmental agencies, and environmental opposition to projects.

- Federal and state agencies have undertaken several initiatives to improve completion times for highway construction projects. Most of these initiatives address opportunities for reducing the time required to obtain environmental approvals. For example, FHWA is working with federal agencies that conduct environmental and historic preservation reviews to promote uniform practices and to clarify and update guidance. At the state level, according to FHWA, 34 states are using interagency funding agreements to hire additional staff at state and federal environmental agencies to facilitate environmental reviews and approval. With respect to nonenvironmental issues, North Carolina and Texas, for example, are identifying utilities that need to be moved earlier in the design phase than was previously done. This is intended to reduce delays during the construction phase. Texas and Florida are providing monetary incentives to contractors to finish construction more quickly.

Background

In fiscal year 2001, FHWA obligated over $20 billion to the states for roadway projects.[2] Generally, states are required to use their own funds to pay up to 20 percent of the project costs. Federally funded highway projects vary in size, from new lane striping to resurfacing an existing road

[1]TransTech Management, Inc., *Environmental Streamlining: A Report on Delays Associated with the Categorical Exclusion and Environmental Assessment Processes* (Washington, D.C.: Oct. 2000).

[2]Most of the funding for roadway projects comes from the Highway Trust Fund. The Highway Trust Fund is derived from highway user taxes such as excise taxes on motor fuels, tires, and the sale of trucks and trailers, and from taxes on the use of heavy vehicles.

to building a new road or interchange. Most federally funded highway projects are minor rehabilitation or reconstruction projects rather than major new road construction projects. Of the approximately 27,000 miles of roadway projects funded in 2000 (latest data available), about 26,000 miles (96 percent) involved either the addition of capacity, preservation, or improvements (such as widening lanes, resurfacing, and rehabilitation of roadways). Only about 1,100 miles of new road construction projects were underway.

Although federal, state, and local governments all have a role in the construction of federally financed highway projects, the state department of transportation is typically the focal point for these activities. It is responsible for setting the transportation goals for the state. To do so, it works with the state's transportation organizations and local governments and metropolitan planning organizations.[3] State departments of transportation are responsible for planning safe and efficient transportation between cities and towns in the state. They are also responsible for designing most projects, acquiring property for highway projects, and awarding contracts for highway construction. Local governments also carry out many transportation planning functions, such as scheduling improvements and maintenance for local streets and roads. Citizens and community action organizations also generally have the opportunity to provide their views and have them considered.

At the federal level, FHWA is the primary agency involved in transportation project decisionmaking. FHWA oversees the transportation planning and project activities of state departments of transportation and metropolitan planning organizations by approving state transportation plans, certifying that states have met requirements involving environmental protection, and approving acquisition of property for certain state highway projects. FHWA also provides advice and training on transportation topics ranging from pavement technology to efficient operations of highway systems, and it provides funding to the states for transportation planning and projects. Because any transportation project using federal funding must be examined for potential effects on the environment before federal decisions are made, FHWA also works with other federal agencies and state, local, and tribal governments; public and private organizations; and the public to understand a project's potential

[3]Among other things, metropolitan planning organizations propose short- and long-term solutions to transportation and transportation-related concerns.

impact on the environment and historic properties.[4] Other federal agencies with environmental and historic preservation responsibilities that often are affected by federally funded highway projects include

- the Environmental Protection Agency (air and water quality; wetlands preservation);
- the Fish and Wildlife Service (endangered species) and the Bureau of Land Management (may own lands on which a highway is to be constructed) within the Department of the Interior;
- National Marine Fisheries Service (for example, effects on fish and spawning grounds) within the Department of Commerce;
- the Army Corps of Engineers (effects on wetlands);
- the Coast Guard (bridge and navigation responsibilities); and
- the Advisory Council on Historic Preservation (protecting historic sites).

Concerned about how long the completion of highway projects takes, Congress included provisions in TEA-21 to streamline environmental review. These provisions require FHWA to identify and work with federal agencies that have environmental and historic preservation jurisdiction over highway and transit projects to cooperatively establish realistic project development time frames among the transportation and environmental agencies and to work with these agencies to adhere to those time frames. Because transportation projects are also affected by state and local environmental requirements, TEA-21 allows individual states to participate in these streamlining initiatives, as long as all affected

[4]Environmental review is governed by the National Environmental Policy Act of 1969, which established a national environmental policy requiring that any project using federal funding or approval, including transportation projects, examine the effects of the proposal and alternative choices on the environment and historic properties before a federal decision is made.

For federally funded highway projects that FHWA determines will have a significant impact on the environment, FHWA must prepare a statement that describes the project, characterizes the surrounding environment, analyzes the environmental effects of all reasonable construction alternatives, and indicates plans for complying with applicable environmental laws and mitigating environmental damage. Other federal agencies with responsibilities for these laws, such as the Environmental Protection Agency, Army Corps of Engineers, and Fish and Wildlife Service, often cooperate in the preparation of these statements. If it is clearly known that a highway project will not individually or cumulatively have significant environmental impacts, FHWA issues a statement indicating this. However, if it is not initially clear whether significant impacts would occur, FHWA must conduct additional analysis. If significant impacts are then identified, FHWA must prepare a statement for significant impacts as described above. Otherwise, FHWA issues a statement that it found no significant impacts.

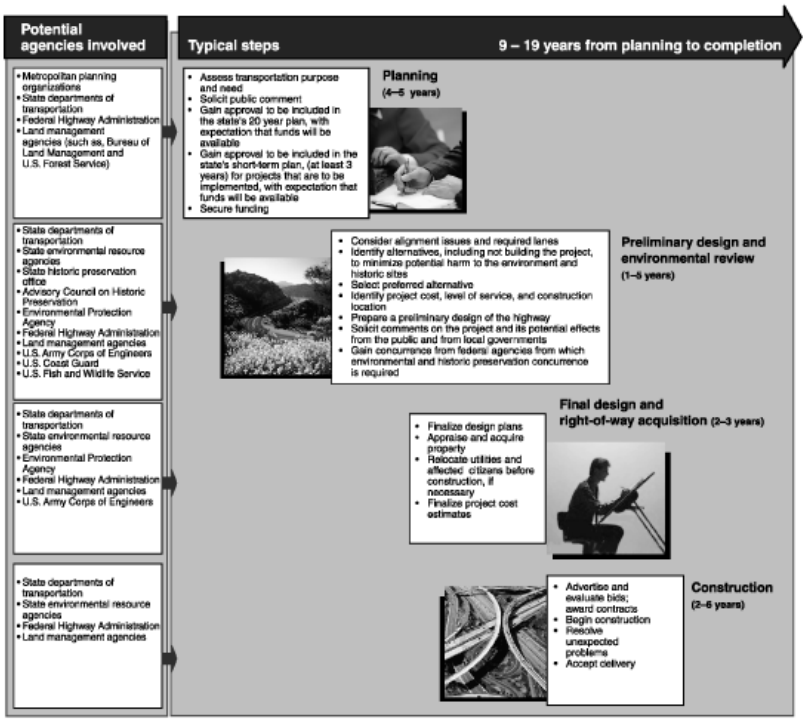
states' agencies participate. Finally, FHWA can approve state requests to use their federal-aid highway and mass transit funds to provide additional federal environmental personnel to help expedite environmental reviews.

Time to Complete Highway Projects

According to FHWA, and based on its professional judgment, planning, gaining approval for, and constructing a federally funded major highway project that involves new construction and has a significant environmental impact typically takes from 9 to 19 years. However, these projects constitute about 3 percent of all federally funded projects, according to FHWA. Some projects may take as few as 3 years or as many as 20 years or more to complete. The six new construction projects that we reviewed did not all meet FHWA's criteria yet fell within the time range FHWA estimates that it takes to complete more complex projects. These six projects ranged from 8 years to upgrade an existing dirt road in Florida to a two-lane paved road to over 15 years to build a six-lane, 15 mile divided highway in Texas (excluding the planning phases on both projects, for which information was not available).

Completing a new, major highway construction project takes a number of years because of the many tasks, requirements, approvals, and stakeholders involved. As many as 200 major steps can be involved in developing a transportation project from the identification of project need to the start of construction, depending on the project type and complexity. (See fig. 1.) Smaller projects (such as new lane striping) as well as larger projects (such as constructing a new highway) must go through many steps that require multiple stakeholder reviews and approvals. Because most federally funded highway construction projects are minor rehabilitation or reconstruction projects rather than major new road construction projects, these projects generally will not require extensive planning studies and will not have significant environmental impacts. As a result, according to FHWA, most federally funded highway construction projects advance from planning to construction within 1 year but may take up to 4–6 years, depending on the individual project's characteristics.

Figure 1: Typical Amount of Time Involved in Planning, Approving, and Building a Major New Highway Project



Note: The durations of the phases are approximate. The preliminary design/environmental review steps and the final design/right-of-way acquisition steps often overlap.

Source: FHWA.

According to FHWA, the planning phase for a major new construction project typically takes from 4 to 5 years. In this phase, most projects must first be identified in long-range (for example, covering a 20 year period) and short-range (for example, covering a 3 to 5 year period) state transportation plans.[5] Planners look at transportation alternatives and work with the public to select the alternatives that make the most sense for their areas and that are consistent with federal requirements, such as helping to adhere to air quality standards for the area. Short-range plans may have some citizen involvement and must be approved by state and local transportation officials as well as FHWA. States and metropolitan areas must demonstrate that funding is available for the projects included in the short-range plans. Finally, the length of the planning phase for a project will depend on whether the project is located in an urbanized area that does not meet federal air quality standards.[6]

The preliminary design and environmental review phase typically takes from 1 to 5 years depending on the complexity of the design and possible environmental impacts that must be considered, according to FHWA. During preliminary design, states identify the preliminary engineering issues, proposed alignment of the roadway, cost, and project details, such as turn-lane identification. The proposed project and alternatives to it are examined for any impacts on the natural environment (such as on endangered species) and public health and welfare (such as on safety and historic preservation). These environmental reviews require state and FHWA officials to address and comply with as many as 60 federal laws, as well as applicable state laws. More complex projects require more time for the completion of preliminary designs and environmental reviews. Transportation and environmental officials told us that reaching a decision on how to address projects with significant environmental impacts has taken several years. A 2001 FHWA study on the amount of time required for environmental reviews of projects with significant environmental impacts found that the average amount of time taken to complete these

[5]TEA-21 requires a Statewide Transportation Improvement Program or a metropolitan area's Transportation Improvement Program that contains individual transportation projects. FHWA requires the development of these improvement programs on at least a 2 year cycle.

[6]The Environmental Protection Agency sets maximum safe amounts of pollution that a region or state can have in the air. How much pollution is allowed from cars, trucks, and buses to the air will vary depending on the area's climate, wind, and other pollution sources and factors.

reviews in 1998 was about 5 1/2 years.[7] In comparison, these officials told us that projects in which the environmental impact was initially unclear and later determined to be insignificant took less time. These officials also told us that completing environmental reviews for projects that FHWA had determined as having no significant environmental impact from the start of the review process, including those categories of projects statutorily excluded from environmental review (for example, landscaping or installation of road signs), took only a matter of months. The previously cited anecdotal survey of 33 state departments of transportation conducted by the American Association of State Highway and Transportation Officials in 2000 found that reviews involving projects for which the environmental impact was determined to be insignificant or the initial environmental impact was unclear took an average of nearly 2 years and about 3 1/2 years, respectively. FHWA has found that 91 percent of federally funded roadway projects have no significant environmental impact and, in another 6 percent of the projects, the initial impact was unclear.

Final design and acquiring the right of way for a major new highway construction project typically takes from 2 to 3 years, according to FHWA. During this phase, state departments of transportation must develop detailed engineering plans consistent with environmental documents and updated environmental studies, and must finalize cost estimates. If a significant amount of time has passed since the preliminary design work was performed, right-of-way maps and other information may need to be updated. Acquiring property for the project includes determining any restrictions to state ownership of the property; determining the identities of property owners; making offers to property owners based on appraisal price; negotiating a purchase price; and sometimes invoking eminent domain.[8] This phase may take a significant amount of time, especially if residents must be relocated. Utilities must also be located, marked, and surveyed, which can be complicated if there are many underground utilities that require professional engineers, geologists, and licensed land surveyors for determining the exact location of utilities.

[7]Federal Highway Administration, *Evaluating the Performance of Environmental Streamlining: Development of a NEPA Baseline for Measuring Continuous Performance* (Washington, D.C.: Jan. 2001).

[8]Eminent domain is the right of a government to take private property for public use in exchange for just compensation by virtue of the sovereign power over all lands within its jurisdiction.

According to FHWA, the construction phase typically takes from 2 to 6 years. To begin construction, the state department of transportation must request and evaluate bids on the project and award a contract. Projects that receive federal-aid highway funds require FHWA concurrence on the award. During construction, the contractor and the state must resolve any unexpected problems that may arise, such as removal of hazardous waste discovered at the construction site. Once satisfied that construction has been carried out as agreed to with the contractor, the state must approve the final completion of construction.[9]

Many Events May Affect Project Completion Time

Not surprisingly, officials in federal and state agencies and other knowledgeable organizations indicate that larger, more complex or controversial projects take longer to complete than is usual for most highway projects. This is because large, complex projects are subject to more requirements, involve more federal stakeholders, and attract more public interest. For example, in the previously cited survey of 33 state departments of transportation, projects that involve many federal agencies took longer to complete than projects requiring only state-level review. The survey reported that state-only reviews typically occur for simpler, less complicated projects, which involve fewer stakeholders. However, both the information we collected and the state survey are anecdotal and based on interviewees' memories, because states do not maintain centralized information on project completion times. State officials told us that an effort to capture those data systematically would require resources that the state departments of transportation could use more productively to complete projects.

Although the six medium-sized and large highway projects in California, Florida, and Texas that we reviewed did not meet all of FHWA's criteria for a major project, they still took from nearly 7 years to over 15 years to complete, excluding the planning phase for which data were not available. (See table 2.) The time required to complete these six projects fell within the typical time FHWA has estimated that it takes to complete more complex projects. Only two of the six projects, both in California, were required to complete the preparation of an environmental impact statement.

[9]In some cases, FHWA approves the final completion of construction.

Table 2: Duration of Six Medium-sized and Large New Construction Highway Projects in California, Florida, and Texas

Dollars in millions

		Project duration				
Project	Total cost	Planning	Preliminary design and environmental review	Final design and right-of-way acquisition	Construction	Total[a]
Medium-sized project						
State Route 168 (California)	**$29.9**	N/A	3 years, 8 months	3 years, 4 months	2 years, 3 months	9 years, 4 months
Fort Green/Ona Road (Florida)	**1.7**	N/A	2 years, 7 months	4 years, 5 months	1 year, 6 months	8 years, 3 months
State Highway 146 (Texas)	**16.7**	N/A	4 years, 4 months	4 years, 5 months	2 years, 10 months	9 years, 8 months
Large project						
State Route 198 (California)	**42.9**	N/A	4 years	6 years, 8 months	3 years, 6 months	14 years, 3 months
State Road 115 (Florida)	**2.2**	N/A	1 year, 7 months	1 year, 2 months	2 years, 6 months	6 years, 7 months
U.S. Highway 290 (Texas)	**50.1**	N/A	9 years, 8 months	10 years	3 years, 1 month	15 years, 3 months

N/A – not available.

[a]Total time may not equal the sum of each phase. In some instances total time is less than the sum of each phase because phases overlap, most noticeably with the two projects in Texas. In addition, the State Route 115 project in Florida was a spin-off of an existing project. As a result, there is a 15-month gap between the end of the preliminary design and environmental review phase and the start of the final design and right-of-way acquisition phase for this spin-off project.

Source: GAO analysis of state documentation and discussions with state department of transportation officials.

Another way of assessing project timeliness is to compare how long it takes to complete a project with how long state transportation officials expected completion to take. For the six projects we reviewed, state officials established milestones for each phase of the project (excluding the planning phase, for which state officials could not provide information) but not always for the project overall.[10] We attempted to compare the time it took to complete each phase against the time expected for the projects that we reviewed. For the two California projects, the project phases were generally completed within a year of established time frames. However, aspects of the two projects in Texas took substantially longer to complete than planned. For example, the

[10]Florida officials could not provide information on planned completion times for the phases of the two projects we reviewed. Therefore, we could not determine if project phases were completed within planned time frames.

preliminary design and environmental review phase for the U.S. 290 project took 6 years and 7 months longer to complete than planned. In addition, the right-of-way acquisition for this project took 4 years and 7 months longer to complete than planned. For the Texas State Highway 146 project, the preliminary design and environmental review phase took 2 years and 8 months longer to complete than planned, and the right-of-way acquisition took 2 years longer to complete than planned. State officials were able to provide a qualitative recollection or in some cases documentation of events that affected their ability to complete highway projects on time. (See table 3.) For example, three of the six projects encountered problems in both the final design and right-of-way acquisition phase and in the construction phase.

Table 3: Events Affecting Selected Projects

Project	Planning	Preliminary design and environmental review	Final design and right-of-way acquisition	Construction
State Route 198 (California)	Funding shortages	No events cited	Following earthquakes, project shelved in favor of seismic retrofit work around the state	Weather delays; contract change orders; contractor performance issues
State Route 168 (California)	Not available*	No events cited	No events cited	No events cited
Fort Green/Ona Road (Florida)	Not available*	No events cited	Contractor had to devote time and resources to other ongoing projects; redesigns on account of drainage problems; property owners resisted right-of-way acquisition	Quality issues with paving material used; poor contractor performance; weather delays
State Road 115 (Florida)	No events cited	No events cited	No events cited	Weather delays; vibration damage complaints from adjacent homeowners necessitated change in construction equipment
State Highway 146 (Texas)	No events cited	Design changes to accommodate large truck vertical clearance necessitated changes to schematics and environmental documents	Lengthy process to hire design consultant; parcels of land had numerous title problems; one property owner died during negotiations leading to probate issues; unidentified natural gas line	No events cited
U.S. Highway 290 (Texas)	No events cited	Various access design changes to accommodate historic property; wetlands previously undiscovered at the site had to be addressed	Property owners refused state's purchase offer necessitating condemnation; utility adjustments	Slope stability problems required an extensive redesign effort

*State officials could not provide this information.

Source: GAO review of project documentation and discussion with state department of transportation officials.

Most studies we identified on timely completion of highway projects have examined the timely resolution of environmental issues for improving project completion times. For example, the previously cited 2001 FHWA study indicated that some larger, more complex projects tend to take longer than is typical in the preliminary design and environmental review phase. In an attempt to establish a baseline for evaluating project completion times, FHWA analyzed the time required for 37 projects with significant environmental impacts to complete the environmental review process. (As noted above, projects of this class are usually major projects rather than small, less complex ones.) This analysis indicated that the average amount of time taken to complete these reviews was 5 years and 7 months—exceeding the 5 years that a "typical" major highway project was expected to take for the entire preliminary design and environmental review phase. According to FHWA, these types of projects constitute only about 3 percent of all federally funded highway projects. Most federally funded projects are minor rehabilitation or reconstruction projects that do not have significant environmental impacts.

The survey of 33 state departments of transportation conducted in 2000 for the American Association of State Highway and Transportation Officials indicated that state departments of transportation may underestimate the time that completing an environmental review would require. The survey indicated that the environmental reviews for 31 to 48 percent of projects with no significant environmental impacts, and for 43 to 64 percent of projects with potential environmental impacts, took longer to complete than expected. According to the survey results, these projects took three times longer than planned to complete federal environmental review requirements related to public lands and historic resources, historic resources and cultural resources, and wetlands.

Federal and state transportation officials and transportation engineering organizations identified the timely resolution of environmental issues as providing the greatest opportunity for reducing the time it takes to complete highway projects. These officials generally stated that environmental reviews resulted in better project decisions, but that reaching the decisions was difficult and time consuming. For example, officials with the Army Corps of Engineers in Texas told us that the permit applications that it receives are sometimes incomplete or inaccurate, resulting in added time to process environmental permits related to waterways. In addition, officials with the Fish and Wildlife Service and the California Department of Transportation identified staffing shortfalls and workloads at the Fish and Wildlife Service as contributing to increased

time to perform environmental consultations. Finally, officials with the Environmental Protection Agency stated that public opposition to major transportation projects can result in greater scrutiny of environmental analyses or the proposed mitigation of environmental impacts, and therefore increases the length of the environmental review phase.

Initiatives to Improve the Timely Completion of Highway Projects

Federal and state agencies have undertaken several initiatives to improve completion times for highway construction projects. Most of these initiatives address environmental review; however, some states have undertaken initiatives to improve completion times in other aspects of a project, such as construction. Generally, the impact of these initiatives is unclear because of the brevity of time they have been in place.

At the federal level, FHWA environmental streamlining efforts have included working with federal agencies involved in environmental and historic preservation reviews to conduct agency-specific training workshops in 2001 and 2002. FHWA has conducted these workshops for field staff to promote uniform practices and to clarify and update guidance. In addition, FHWA has started tracking the time to complete environmental reviews of federally funded highway projects this year. A recent FHWA report indicated that since the enactment of the TEA-21 environmental streamlining provisions in 1998, the average review time for projects with significant environmental impacts has decreased from 70 months to 62 months.[11] FHWA officials told us that the improved review times could be a result of such things as reinvented processes, programmatic agreements, and accelerated review times. FHWA has also developed guidance for states on how to use federal-aid highway funds to reimburse federal agencies that meet agreed-upon targets for environmental reviews. FHWA has catalogued environmental streamlining best practices and publicized them on its Web site.

State departments of transportation are using interagency funding agreements to hire additional staff at state and federal environmental agencies to facilitate environmental review and approval.[12] According to FHWA, 34 states are using these agreements. A 2001 survey by the

[11]Federal Highway Administration, *Highway and Transit Environmental Streamlining Progress Summary* (Washington, D.C.: Feb. 2002).

[12]Under these agreements, state departments of transportation are providing funding or positions to agencies that are involved in environmental and historic preservation reviews.

American Association of State Highway and Transportation Officials indicated that the people in these positions made permit reviews more efficient and consistent, improved communication between agencies, and fostered greater trust and understanding, thus facilitating project approvals and making the process less controversial.[13]

Forty-one states have some level of delegated authority for historic resources that allows them to process many projects quickly, according to FHWA. For example, the Vermont Agency of Transportation has an agreement with the state historic preservation office that allows the transportation department rather than the state historic preservation office to enforce historic preservation requirements. According to Vermont transportation agency officials, this agreement has resulted in, among other things, expedited permit acquisition, enhanced public participation, effective internal and inter-agency communication, and the best possible treatment of historic properties. These officials estimate that this agreement has shaved weeks from routine projects and will shave months from more complex ones.

Outside of the environmental review process, states such as Florida, North Carolina, and Texas are identifying utilities in certain urban areas earlier in the design phase, in order to avoid delays during construction. Texas and Florida have also developed strategies to accelerate construction for some projects by increasing contractor incentives for early completion, and Florida has documented savings in time and cost from this approach.

Mr. Chairman, this concludes my prepared statement. I would be pleased to answer any questions that you or Members of the Committee may have.

[13]Venner Consulting, AASHTO Standing Committee on the Environment, Natural Resources Subcommittee internal survey and white paper, July 2001.

Contacts and Acknowledgments

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Appendix I: Scope and Methodology

To perform our work, we reviewed laws and regulations governing the construction of federally financed highway projects. We discussed these requirements, the time required to complete projects, and initiatives to reduce this time with officials from FHWA, the Advisory Council on Historic Preservation, the Environmental Protection Agency, the Army Corps of Engineers, the Coast Guard, the Fish and Wildlife Service, the American Association of State Highway and Transportation Officials, the American Road and Transportation Builders Association, the American Society of Civil Engineers, private transportation engineering firms, and others. We also interviewed officials from California, Florida, North Carolina, Texas, Vermont, Washington, and Wisconsin departments of transportation about highway project completion times and initiatives to improve the timely completion of these projects. We chose these states either because they spent the most federal-aid highway funds or because officials we interviewed identified these states as making efforts to reduce project time. We also reviewed federal and private studies on highway project completion.

We reviewed the time it took to complete six new highway construction projects in California, Florida, and Texas. We selected three of the four states that spent the most National Highway System and Surface Transportation Program Funds in fiscal year 2000 (latest data available). These represent the primary sources of federal funds for new road construction. In each state, we selected two new construction projects that were completed between June 30, 1999, and June 30, 2002. In each state we selected the largest project (in terms of federal funds received) and a medium-sized project. In selecting these projects, we had no knowledge of the project itself or of how long it took to complete. We did not independently verify the information in the FHWA information system that contained these data. For the six projects, we obtained documentation and interviewed state department of transportation officials to determine how the projects were planned, approved, and carried out.

We conducted our work from May 2002 through September 2002 in accordance with generally accepted government auditing standards.

RESPONSE FROM KATHERINE SIGGERUD TO ADDITIONAL QUESTIONS FROM SENATOR CARPER

Question: In your testimony, you note wide diversity in the time needed to complete environmental review depending on the scope of the project. You also note a general agreement that the environmental review process improves project decisions, though it can be time-consuming. Are there broad measures that Congress can apply to improve the process, or will gains be driven by allowing more flexibility and innovation at the State level, within the context of strong Federal oversight and financial partnership?

Response. The General Accounting Office will be issuing a report to Senator Jeffords in March, 2003. In this report, we will outline promising approaches to improve the process of highway delivery and reduce the time required to complete highway projects. Our report will focus on the environmental review process, as well as other phases of highway projects, including planning, design and construction.

Once we have finished our analysis, I will be able to provide a more detailed response to your question.

STATEMENT OF CAROL ANN MURRAY, COMMISSIONER, NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

Mr. Chairman, members of the Senate Environment and Public Works Committee and certainly, Senator Smith, good morning.

Thank you for the opportunity to be here today to talk about environmental streamlining. For the record I am Carol Murray, actually, let me correct that, for my Mom that I lost a month ago, I am Carol Ann Murray, the Commissioner of the New Hampshire Department of Transportation. The subject of environmental streamlining is a very important, difficult topic. One that has no silver bullet solution that I can identify and isolate.

I can readily identify the reason that I and my counterparts nationally consider this so significant. The public has asked the transportation agencies to provide this nation with the mobility critical for our quality of life and economic vitality. The same public also wants the environment preserved and protected. The only way to accomplish these twin goals is for transportation and environmental agencies to work cooperatively. This public looks to all these agencies to implement the policy direction provided by elected officials with an open, trusting, balanced, communicative spirit.

I am not convinced that the public's vision, or that of their elected officials, is being implemented very well by the various public agencies involved. The concept of environmental streamlining was not conceived to put environmental preservation and enhancement as a secondary or minor interest in the development of public transportation projects, but rather to encourage early discussion, involvement and decisionmaking by the agencies with environmental and transportation duties. If the public agencies could work to provide the best-balanced projects in a timely way, then the public's voice is being heard.

Over the last two reauthorization bills, Congress set a new direction for transportation. Transportation agencies moved into a new era. With some resistance, we realized that mobility for the future was not just highways: choices in modes of transportation and connections between modes are now a focus. Congress also said that to develop the best projects for this country, the participation of the local communities, regional planning agencies and the public must be encouraged and their voice heeded.

This evolution in how State transportation departments work came hard to those of us used to doing designs by the book and approaching the public with our well designed, but off the shelf, standard highway solutions.

What we in the transportation business have found is that Congress was right in the policy direction they gave us. After a decade of increasingly successful implementation we are believers. We are cutting ribbons and celebrating projects that have been developed with more thoughtful consideration of the transportation users' needs and the local communities' vision for their future, and in balance with the natural and cultural environment they are built in.

I do believe that over the last two decades the transportation community has changed and become better. While I would like to say that we have got it all perfect, that would certainly not be true. We need to continue to listen, learn and, I think, we are ready to do that with an acceptance that was not there before ISTEA and the lessons learned since.

What is a frustrating is the reluctance of the environmental community to recognize this change. It is disheartening that the community has not championed and joined our early involvement and commitment to transportation project planning. We have found reluctance to engage in working toward a mobility solution that balances the various public needs in a fiscally responsible way.

You have all heard about the Interstate 93 widening project in New Hampshire and Senator Smith's work to bring streamlining to a reality with this project. As agreed, policy level staff from all the public regulatory agencies met as decision points were approached. Early agreement was reached to operate in an open, trustful and professional manner.

The group has met a number of times over the past 2 years. The culmination of this work is the draft environmental statement to be published this week. Then on September 9, I received a letter from the EPA that discounts the work accomplished in the streamlining process. Primary reasons given were that only the regulatory agencies were involved, and not the private environmental groups and the 18 communities that may experience secondary growth pressure even though they are not

directly on the Interstate. This letter came despite the four dozen public meetings held as this project has developed; with all meetings publicly notice well in advance, with individual notices to the specific environmental groups.

This project impacts an estimated 70 acres of wetland over 19 miles of widening of an existing Interstate highway. Proposed mitigation for this project includes 650 acres of land purchase and wetland creation at a cost estimated to be $15.0 million, plus a $3.0 million technical assistance program for local communities to assist in developing local land use regulations that reflect their future vision for their communities.

The proposed mitigation package was severely criticized in the letter from EPA because, and this is a quote, "while of importance to the towns, it does not have high ecological value". The EPA letter also says that (again I quote) "current State and Federal wetland regulations and typical zoning rules have generally not been effective . . ."

While the debate about local, State and Federal roles in land use, transportation, and secondary impacts is an engaging debate, I believe that is a public policy decision that Congress, State Legislatures, municipalities and the public should decide, not government employees, particularly those far removed from the project area.

The EPA submits that a mitigation package of approximately 2300 acres at a cost of upwards of $50 million is needed. The reason cited is secondary impacts that may occur due to the project; not the direct impacts which they agree are of relatively minor consequence. Additionally, to their way of thinking, the highway widening should include the concurrent construction of transit options beyond the enhanced bus service already planned to be implemented and rail potential currently provided for in the project.

All these proposed environmental mitigation elements are, I think, good things. The question is whether or not it is the responsibility of this project to pay for all of them? And, in fact, because New Hampshire has done a very good job in providing a high quality of life in all arenas including environmental protection, mobility and economic prosperity, people will come here even without Interstate 93 being widened.

Why environmental streamlining? Because all agency implementers of elected officials' laws need to work together to effectively and in a fiscally responsible way to respond to public needs in a balanced way.

The transportation agencies, after ISTEA and TEA–21, learned that we don't know all the answers. The designers and builders of our Interstate highway system achieved a wonder, but in hindsight it might have been done differently. So Congress passed ISTEA and TEA–21. And now in 2002 it seems that the transportation projects in the environmental view are seen as a financial resource to implement conservation projects.

Early involvement in transportation project planning by all involved is needed. But, additionally, mutual respect for professional responsibilities, fiscal reality and, overall, an understanding that we need to make honest decisions that respects the public's will as envisioned by our elected leaders.

The EPA letter that I mentioned earlier States that mitigation costs should be up to 20 percent of the total project cost. In a time when we are all struggling to fund the public's transportation needs, a decision by a government employee to direct funding to a nontransportation purpose is inappropriate.

What do we need to meet the public's goal of providing mobility for quality of life and economic vitality while protecting and preserving the environment? This is best achieved if the principals envisioned by Congress for streamlining are implemented.

Above all, we need a process that includes early involvement that is consistent, trust based and cooperative; a process that is streamlined, effective, balanced, public transportation delivery which unfortunately is not what we are experiencing today.

Hopefully the next reauthorization will produce a streamlined process that follows the direction of Congress and meets the public's expectations.

I am happy to answer any questions, and again I thank you for this opportunity.

STATEMENT OF KEN MOREFIELD, ASSISTANT SECRETARY FOR TRANSPORTATION POLICY, FLORIDA DEPARTMENT OF TRANSPORTATION

Mr. Chairman, it is my pleasure to appear before the committee today to present the views of the Florida Department of Transportation (FDOT) concerning the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21). This committee is to be commended for the extensive hearings that have been held in preparation for legislative action next year.

Florida's natural resources and pristine environment are what make us unique among the States. We are indeed fortunate to be home to the Nation's oldest city, St. Augustine, the Nation's largest restoration project in history, America's Everglades, and some of the most endangered large terrestrial and marine mammals in the world. It is the policy of the Florida Department of Transportation to help preserve and enhance Florida's natural, physical, cultural and social environment as we develop, implement and maintain transportation facilities and services.

My testimony today will address "Project Delivery and Environmental Stewardship". Section 1309 of TEA–21 has provided the impetus for State and Federal agencies to look for ways to improve the delivery of transportation projects while protecting our environment. The Federal Highway Administration along with the Federal Transit Administration have worked with us and many other Federal, State, and local agencies to develop a new process we call the "Efficient Transportation Decision Making Process" or "ETDM". I am pleased to report that we are virtually finished developing the new process. Training on the new process is scheduled to begin in January 2003 with completion by the end of June. We expect to begin full statewide implementation by July 2003.

This new process has not been developed by the Florida Department of Transportation working in isolation. It began on February 3, 2000 when over 20 Federal, State, and local agencies met and pledged their support of an effort to examine how transportation decisions are made in Florida and to develop an improved process. A multi-agency working group including representatives of Metropolitan Planning Organizations was then formed and met several times during the year. Later, nine Task Work Groups worked on specific issues related to implementation of the new process.

In December 2001, Federal, State, and local agencies gathered at an "Executive Summit" and signed a Memorandum of Understanding endorsing the ETDM process and pledging their continued support for the full development and implementation of the process in Florida. I am equally proud of the assistance we received from one of our environmental organizations, 1000 Friends of Florida, as they hosted five meetings around the State to explain the process to non-governmental organizations.

We believe our ETDM process is fully responsive to the direction of Section 1309 and the National Environmental Policy Act. We have been pleased to brief your committee staff and others on our process, but we do not promote it as one that will fit every State. In fact, Florida's environmental laws, our own mix of State and local agencies, and other differences led us to an early conclusion that the best way to address improved project delivery and efficient decisionmaking was within our own efforts, and not through a "one-size-fits-all" approach.

Section 1309 of TEA–21 called for change. Key changes requested by Congress included:

- Early and continuous agency and public involvement
- Integrated environmental review and permitting processes
- Early approvals in the planning process
- Coordinated time schedules for agency involvement
- Effective dispute resolution mechanisms

Florida's ETDM process accomplishes all these objectives and more. The State of Florida is fortunate to have a very rich data base of information about our resources. We have collected that information at the University of Florida GeoPlan Center in Gainesville, Florida. This high technology digital data base tool allows agencies and the public to access project planning information over the Internet. It provides the foundation for our ETDM process and is called the "Environmental Screening Tool".

This tool enables us to perform two "screening events" which document agency and community inputs much earlier in our transportation planning process. We call these screening events the "Planning Screen" and the "Programming Screen". Modification of project plans in response to these early screening events will enable us to avoid or reduce costly changes late in the process. These screening events will provide information that will allow agencies to be engaged in the thoughtful exchange necessary to properly balance land use, environmental protection and mobility needs.

The primary purpose for the "Planning Screen" is to provide decisionmakers with better information to stage transportation improvements in the Cost Feasible Long Range Transportation Plan. The "Programming Screen" provides an opportunity to identify project issues and the need for technical studies prior to the project advancing into our Work Program. The NEPA process begins at the "Programming Screen" with a class of action determination that leads to environmental documentation and

construction permits. A fundamental premise of our process is that it builds upon earlier analyses rather than reopening all issues at every step of the process.

The screening events will be performed by Federal, State, and local agencies working together as an Environmental Technical Advisory Team. We will have one team in each of our seven geographic Districts. Each team will be responsible for agency review and feedback as projects are developed. Community Outreach Coordinators within FDOT will seek input from the affected community and post the input received so that agencies are aware of community concerns.

Project planning information is entered into the Environmental Screening Tool by Metropolitan Planning Organizations (or by FDOT for our rural areas). Standardized analyses will then be performed on these planned projects and the results are then made available to agencies through the Internet. All agencies will perform their reviews on a coordinated time schedule and enter the agencies' official comments about the impact on the resources protected by their agency. The agency will be able to suggest changes to project concepts through the feedback portion of the data base system. At the same time, the opinions of the affected community are also posted in the feedback portion of the system. The results are visible to the agencies, non-governmental organizations and the public. Everyone will have access to the same information.

In summary, Florida is about to implement a new way of doing business. We believe the Efficient Transportation Decision Making Process meets all the objectives this committee set forth in TEA–21. We are convinced that this new process will provide for earlier and concurrent agency reviews resulting in a reduction in the time required to plan projects and achieve earlier permit approval. Further benefits include improved public participation in the transportation planning process, a reduction in the cost of planning and building projects, and, most importantly, improved decisions.

Thank you for the opportunity to share Florida's efforts on project delivery and environmental stewardship. I will be pleased to address any questions you may have.

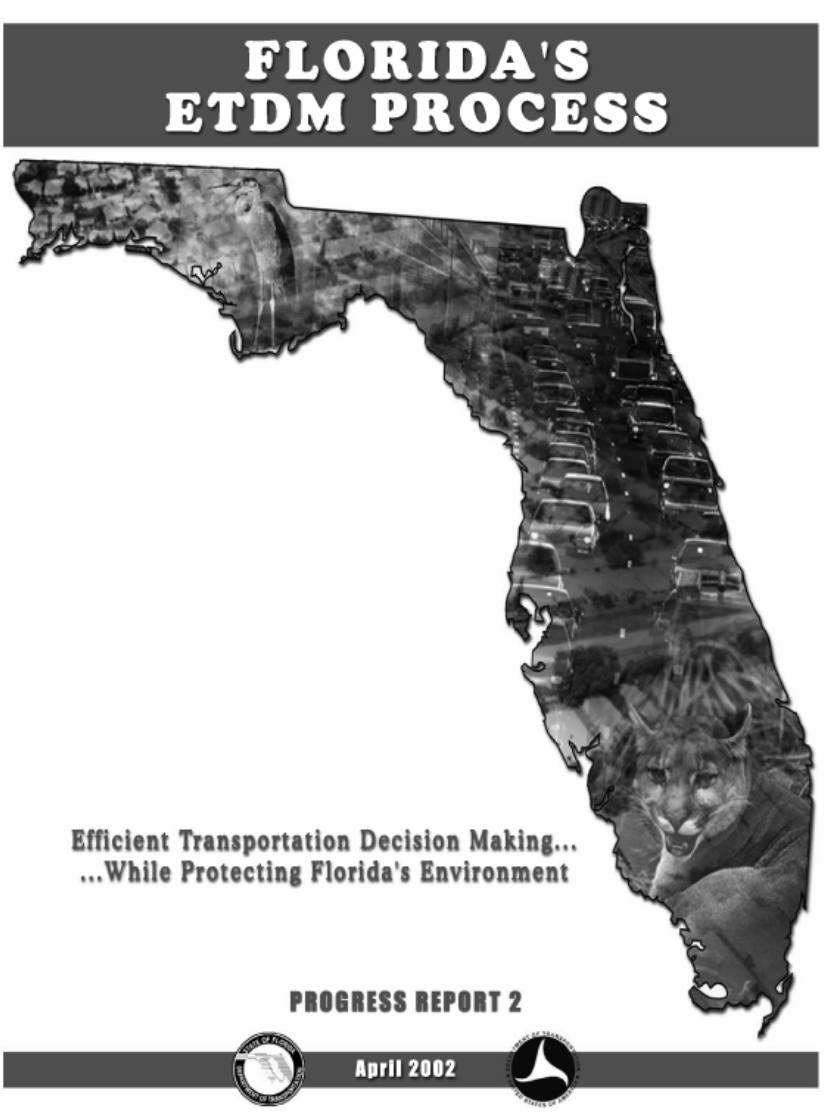
RESPONSES OF KEN MOREFIELD TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. The proposed Efficient Transportation Decision Making Process seems to be an innovative approach to making better decisions. FDOT has invested a large amount of time and resources to bring this program to this stage. Since this process is a departure for how business is being done, how is FDOT dealing with the institutional and cultural changes that will have to happen within FDOT and within the Federal, State, and local agencies involved in ETDM?

Response. The following are past and present actions to bring about change within FDOT and other participating agencies:

- FDOT began our first meeting with Federal, State, and local agency heads stating that we were willing to change our old way of doing business and partner with these agencies in developing a new more efficient transportation process. Our challenge to these leaders was to be willing to change the way their agencies operate to improve the process for transportation projects.
- A Memorandum of Agreement was signed by all participating agency heads to support, develop, and implement this new process. Also, there has been consistent and continuous communication with these agencies.
- The Manager of our Central Environmental Management Office is meeting with the management of each of our District Office to discuss what will be required of their offices and their Metropolitan Planning Organization (MPO) counterparts.
- An ETDM Manual is being developed to provide operating procedures for FDOT and other agencies involved in this process in order to change how we will do business in the future.
- Extensive training of the Manual and this process will be completed within a 6-month period of time in order to begin implementation of this process within all of the agencies. Each of the seven geographic FDOT District Offices will host training to include the agencies, MPOs, and their own District personnel who will serve on the Environmental Technical Advisory Team. This will allow each agency to see the roles of others and how collective involvement of all members will improve decisions efficiently.
- Agency Operating Agreements are being developed that will describe how each agency's operational processes will be practiced to accommodate this new process. Also, separate agreements are being developed to provide funding assistance to agencies for additional personnel and equipment needs where applicable so that agencies can be effective in partnering with FDOT.

• Electronic technology will bring about better coordination with agencies creating consistency as agencies change their operations to complement this new process.



FLORIDA'S ETDM PROCESS PROGRESS REPORT 2

EXECUTIVE SUMMARY

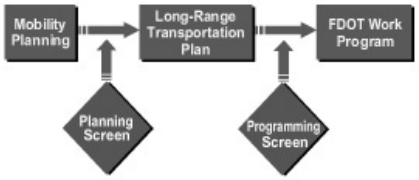
The Florida Department of Transportation (FDOT), working in conjunction with the Federal Highway Administration and other federal, state, and local agencies, is developing a refined and improved methodology for effecting improved transportation decisions. Initially called "streamlining" in response to Section 1309 of the Transportation Equity Act for the 21st Century (TEA 21), the FDOT process redefines how the State of Florida will accomplish transportation planning and project development within its current statutes and regulations. This report is the second progress report describing the state of development of the new process-The Efficient Transportation Decision-Making Process (The ETDM Process). This report includes the process refinements and changes noted below.

Significant Updates from Progress Report No. 1

- Agencies endorse MOU to implement the ETDM Process.
- ETAT and ETDM Coordinator roles and responsibilities defined.
- Planning and Project Development steps further defined.
- Process for community outreach and involvement defined.
- Environmental Screening Tool further developed.
- Dispute resolution process defined.
- Agency Operating Agreements being developed.
- Implementation strategy and schedule in place.

The ETDM Process creates linkages between land use, transportation, and environmental resource planning initiatives through early, interactive agency and community involvement, which is expected to improve decisions and greatly reduce the time, effort, and cost to affect transportation decisions. Efficiency is gained by two screening events and an efficient permitting process built into the current transportation planning and project development process. The screening events are the "Planning" and "Programming" Screens.

An Environmental Technical Advisory Team (ETAT) performs these screenings. The ETAT consists of planning, consultation, and resource protection agencies. Each agency will appoint their ETAT representative with responsibility to coordinate transportation reviews within their respective agency. They will then provide agency responses to the transportation planning entity (FDOT and the Metropolitan Planning Organization [MPO]). This response will be advisory during the early phases of transportation planning. The ETAT member's role transitions as a project proceeds from planning to project development. The ETAT member's role then shifts to coordination within the agency to issue an opinion or permit the project.



Screening is conducted by the agency ETAT representatives appointed for each FDOT District. Agency Operating Agreements (AOAs) are being created between FDOT, FHWA and each agency to address the specific details about ETDM implementation. The AOAs will also document agreed dispute resolution methods.

The following describes ETAT screening input at two stages in the planning and project development phases of a project.

Planning Screen: This screen allows agencies to comment on the impact of projects very early in the planning process. This will enable planners to adjust project concepts to avoid or minimize adverse impacts and to consider mitigation alternatives and improve estimation of project costs. Secondary and cumulative effects will be evaluated on a project and system-wide basis in connection with the Planning Screen. The interrelationship between land use, ecosystem management, and mobility plans could then be considered in integrated agency planning.

Programming Screen: This screen occurs before projects enter the FDOT Work Program and initiates the National Environmental Policy Act (NEPA) process for projects that have not been categorically excluded. ETAT input provides "agency scoping" requirements to satisfy NEPA and other pertinent laws, etc., that are addressed during the NEPA process. ("NEPA" is used throughout this report to collectively refer to all applicable laws.)

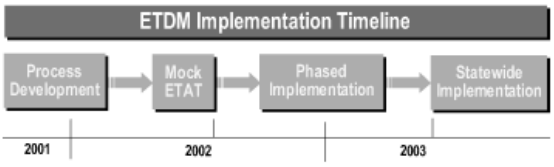
Permit Coordination: ETAT members coordinate with FDOT's project managers during project development and coordinate within their agency to issue construction permits simultaneously with the federal NEPA Record of Decision.

An electronic database system will provide the vehicle for information exchange to and from ETAT members regarding project plans, impacts, and agency recommendations or requirements. The database system will be housed at the University of Florida GeoPlan Center. All project and resource data will reside in the GeoPlan Center's Florida Geographic Data Library (FGDL). The platform will be the current version of ESRI Geographic Information System (GIS) software. All GIS analyses will be performed within the FGDL system so agency ETAT members will only need an Internet connection to view and comment on GIS results.

The database system will house responses from ETAT members as well as inputs documented from the public. That input will be summarized in virtually automated reports produced from the GIS database system. These reports will capture the essential detail that must be addressed as a consequence of ETAT and community input during planning and project development.

The ETAT concept was developed to create linkages and communication with agencies responsible for protecting resources. Protection of the affected community, however, is accomplished by coordination of transportation plans through a Community Outreach Network. This network is the responsibility of the FDOT District Community Impacts Assessment (CIA) Coordinator.

During a Summit held in December 2001, federal and state agency heads signed a Memorandum of Understand-



ing supporting the continued development and implementation of the ETDM Process.



Agency participants, FDOT, the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA) believe that Florida's ETDM Process is a better way to plan and implement transportation projects. Agency involvement will occur earlier in planning and will largely be evaluated through efficient electronic information exchange. Secondary and cumulative impact analysis and evaluation will occur early in planning on a system-wide basis. Environmental evaluations will be focused on key issues and proceed years earlier than in today's practice. Agency interaction and internal coordination by their ETAT members will lead to earlier permits and avoidance of late project changes.

The ETDM Process has been in development since early 2000 and has involved significant effort by agency participants. The development work is ongoing, and the new process is expected to be available for use in the summer 2002. The ETDM Process will be tested with a "Mock ETAT" during the spring 2002. Based on this experience, the process will be refined and then documented as an FDOT procedure that will complement the current Project Development and Environment (PD&E) Manual as well as MPO and statewide planning procedures.

CONTEXT FOR ETDM PROCESS

Planners, engineers, environmental scientists, and government officials have raised concern about the level of effort, time, and cost associated with the environmental review and approval process for transportation projects. Stories abound about long delays in implementing projects, the difficulty of one agency's change affecting another's decision, and the high cost associated with rework when an agency denial for a permit requires restarting the environmental review process.

The environmental provisions in Section 1309 of the Transportation Equity Act for the 21st Century (TEA-21) reflect Congress' concern about delays, unnecessary duplication of effort, and added costs often associated with the current process for reviewing and approving transportation projects. Called "Environmental Streamlining," this legislation challenged FHWA and FTA to implement an improved, more efficient transportation planning and environmental review process.

The objective of Environmental Streamlining is to improve interagency coordination, more effectively address environmental concerns, and reduce costly delays in the environmental review process. In addition to the need for predictable, expedient timeframes within which resource agencies conduct their roles in the process, there is also a need for increased, meaningful activity from the federal resource agencies. The advantage of more intensive federal resource agency involvement is that agencies' input is more useful in project decision making the earlier it occurs in the process. The timeliness and quality of the projects are improved, and environmental issues can more easily be resolved.

TEA-21 Streamlining Objectives

- Establish an integrated review and permitting process;
- Integrate environmental review and approvals early in the transportation planning process;
- Encourage full and early participation by agencies;
- Establish coordinated time schedules for agency action; and
- Establish dispute-resolution mechanisms.

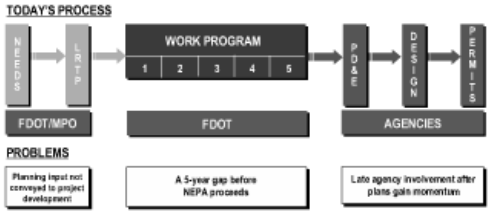
In the fall of 1999, Florida was selected as a pilot state for developing and implementing a streamlined planning and project development process. Florida was considered an ideal pilot state due to its strong state environmental laws that must be meshed with federal laws and processes. In response, FDOT, working with FHWA, FTA, and other federal, state, and local agencies committed to evaluating Florida's current transportation planning and project development and environmental processes and identifying ways to make these processes more efficient.

THE PROBLEM

In Florida's current transportation planning process, mobility needs are identified by MPOs and FDOT in response to the development thresholds allowed under approved Local Government Comprehensive Plans. During the comprehensive planning process, minimal consideration is given to the potential direct, secondary, and cumulative impacts of transportation or land use decisions on the community's social and natural resources.

MPOs and FDOT identify transportation improvement priorities for inclusion in a Long Range Transportation Plan (LRTP) with little input from environmental resource agencies. The majority of agency input does not occur until later in the project development process, sometimes decades after it has been decided that a transportation facility is needed and significant funds expended. Substantial environmental impacts that could influence the priority of a project are not considered. Often, the purpose and need for the project has not been adequately defined.

The priority projects then enter the FDOT Work Program and remain there for five years before any substantial planning and environmental analyses are conducted. By the time a project enters the project development phase, it has gained so much public momentum that a decision not to build the project due to substantial environmental or social impacts is almost never made. Instead, mitigation strategies are identified. In summary, land use, transportation, and ecosystem preservation decisions are not truly balanced to support a community vision. The following figure shows some of the problems with Florida's current planning and project development processes.

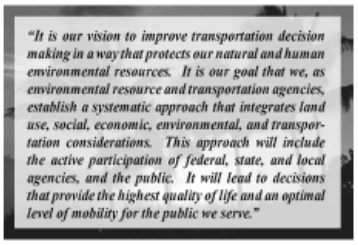


METHODOLOGY - THE PROCESS TO DEVELOP THE PROCESS

Opening Summit on Environmental Streamlining

On February 3, 2000, leaders from 23 federal, state, and local transportation and resource protection agencies participated in a summit meeting on environmental streamlining. The purpose of the summit was to initiate a

statewide coordinated effort to improve Florida's planning and project development processes. The agency leaders committed their support and assigned responsibility to key staff who then worked with FDOT to form a shared vision for Florida's transportation decision making process:



Following the summit meeting, a working group consisting of over 50 representatives from over 28 agencies worked together with FDOT and FHWA in a series of multi-agency meetings to accomplish their shared vision.

Multi-Agency Meetings

The working group team participated in eight multi-agency workshops between February 2000 and November 2000 to examine the current planning process and develop a more efficient process while still protecting Florida's environment. This collaborative approach to redefine the existing planning and project development processes was characterized by "out of the box" thinking by the team. Initially, these workshops were informational. Planning participants became informed of the Department's Work Program and Project Development & Environmental (PD&E) processes. Project Development and resource agency participants were similarly informed about the planning processes performed by MPOs and by FDOT. Together, the agencies identified problems with the current processes, and the team identified the following characteristics of a streamlined environmental review process:

- Earlier agency involvement in the planning process,
- Complete and accurate information for improved decision making,
- Improved access to information,
- Better and continuous communication among agencies and with the public,
- More efficient and concurrent project reviews, and
- Complete and timely permit applications.

During the subsequent team workshops, the working group developed a conceptual process that included the above characteristics. The team named the new process the "Efficient Transportation Decision Making Process" (ETDM Process).

The workshop participants then focused on developing and refining the ETDM Process. A key issue was how the ETDM Process could produce construction permits earlier in project development. Since implementation issues were focused on planning and permitting, two expanded focus groups were formed.

Focus Groups

Two focus groups were formed to further develop and refine the planning and permitting phases of the new process. The Planning Focus Group consisted of the planners from the working group plus an expanded roster of representatives from various federal, state, and local planning agencies. The Permitting Focus Group consisted of an expanded group of project development professionals and agency representatives involved in the FHWA, NEPA, and permitting processes. The focus groups conducted workshops in December 2000 and January 2001 and provided recommendations to improve the conceptual ETDM Process.

Task Work Groups

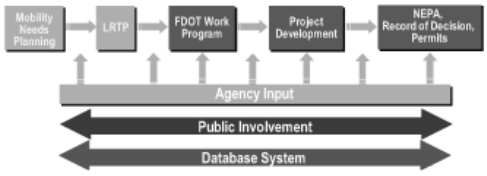
Recommendations resulting from the Planning and Permitting focus group meetings identified several issues requiring further work to define how the new process will be implemented. To address these issues, nine task work groups were created consisting of experienced specialists and practitioners who were charged with developing the specific details about how the ETDM Process works. The task work groups and objectives are listed below:

By the fall of 2001, the task work groups developed findings and recommendations to further refine the specifics of the ETDM Process, and to define the content of Agency Operating Agreements and an ETDM Procedures Manual. The following sections present the status of the ETDM Process as well as the path to statewide implementation.

Task Work Group	*Objective*
Environmental Permits	1. Develop a process to obtain construction permits simultaneously with the NEPA record of decision (ROD). 2. Achieve concurrent and simplified notices where feasible. 3. Develop criteria for categorically excluding certain projects from permitting.
Two-Year State Transportation Improvement Plan (STIP)	1. Evaluate the feasibility of implementing a two-year STIP and a two-year Transportation Improvement Program (TIP) development cycle. 2. Determine the steps required to implement this 2-year planning cycle with FDOT.
Programming NEPA Projects	1. Develop a method for proceeding with environmental studies earlier in the FDOT, Five-Year Work Program.
NEPA Decision Making Process	1. Determine how project development will be accomplished in the ETDM Process. 2. Determine the method for achieving agency consultation during project development.
Planning Document Evaluation	1. Develop recommendations for key documents that should be a part of the ETDM Process and create a linkage to project development. 2. Describe the timing during the planning process, the content, and the audience for the documents.
Secondary and Cumulative Impacts	1. Create a framework in the ETDM Process for conducting secondary and cumulative impact assessments that incorporates needed data from land use, transportation, and resource protection plans.
Bridge Program	1. Investigate and document how the FDOT bridge program enters the Five-Year Work Program. 2. Recommend a method for interfacing the bridge program with the ETDM Process.
Cultural Resources	1. Investigate and document how to complete archaeological and historical assessments for transportation projects more efficiently and earlier in the project development process. 2. Ensure how appropriate identification, avoidance, minimization, and mitigation of Native American issues are considered and documented.
Community Impact Assessment (CIA)	1. Document how CIA and Public Involvement are accomplished in the ETDM Process.

THE EFFICIENT TRANSPORTATION DECISION MAKING PROCESS

Florida's ETDM Process redefines how the State will accomplish transportation planning and project development within its current statutes and regulations. The ETDM Process will bring agency and community interaction forward into the early stages of transportation planning. Efficiency is gained in the new process by two agency screening events built into the current transportation planning process. The screening events are the Planning Screen and the Programming Screen, which are conducted years earlier in the overall process than at present. This early agency involvement coupled with continuous community impact assessment and involvement is expected to improve the quality of decisions made during planning and reduce challenges during NEPA and permitting. This interaction will continue throughout the life of a project to ensure that mobility needs are balanced with land use decisions and ecosystem management and preservation. In this new process, resource avoidance and minimization options and strategies are identified earlier, and cost impacts for these strategies can be considered in establishing transportation plan priorities. Agency interaction during project development will allow permitting to be concurrent with the end of the federal NEPA process.



Key features of the ETDM Process include:

- Early agency and community involvement;
- Continuous public representation;
- Early identification of avoidance and mitigation strategies;
- Integrated planning between agencies;
- Reduced duplication of effort;
- Linkages between land use, transportation, and environment;
- Earlier assessment of secondary and cumulative Impacts;
- Access to comprehensive data in standardized formats;
- Earlier project approvals;
- Fewer projects subject to detailed reviews;
- Reviews focused on the key issues;
- Timely dispute resolution;
- Permit issuance linked to NEPA reviews; and
- Maximized use of technology for coordination.

Early Involvement - The Key to Success

Environmental Technical Advisory Team (ETAT)

Agency interaction will occur throughout the life of a project - from concept to concrete - to ensure that transportation decisions are balanced with social, land use, and ecosystem preservation decisions. This will be accomplished through an Environmental Technical Advisory Team (ETAT). An ETAT, consisting of planning, consultation, and resource protection agencies, will be established with each agency appointing a representative with responsibility to coordinate and perform all agency actions to satisfy the agency statutory responsibility with respect to the planning and implementation of transportation projects. This responsibility will require diverse and excellent skills, especially the ability to function effectively within the agency and to coordinate with other agencies on the ETAT.

One ETAT will be established for each of the seven geographic FDOT Districts. The ETAT will consist of representatives from agencies with statutory responsibility for approval and consultation on mobility projects and other transportation and governmental agencies. Agency heads will be responsible for appointing their ETAT members, who will be the point of interaction with that agency on transportation decision-making. One or more ETAT representatives may be appointed depending on agency requirements and geographic considerations.

Potential ETAT Representatives

- Federal Highway Administration
- Federal Transit Administration
- Federal Rail Administration
- National Marine Fisheries Service
- National Park Service
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Florida Department of Agriculture and Consumer Services
- Florida Department of Community Affairs
- Florida Department of Environmental Protection
- Florida Department of State
- Florida Department of Transportation
- Florida Fish and Wildlife Conservation Commission
- MPOs within FDOT District (one representative per MPO)
- Local Resource Agencies
- Regional Planning Councils
- Water Management Districts
- Native American Tribal Governments
- Local Planning Agencies

The ETAT representative will have delegated agency authority and responsibility to coordinate internally and represent agency positions. The role of the ETAT changes from advisory during planning to coordinator during project development, which includes permitting. During planning, the ETAT will advise the MPO in urban areas and the FDOT in non-MPO areas of potential project impacts to the natural and human environment, consistent with their agency's regulatory and planning program. Recommendations on how to avoid, minimize, or mitigate these impacts will be provided. The ETAT will also evaluate and provide comments on secondary and cumulative effects of a transportation improvement project for the resource that their agency is responsible for protecting. The ETAT's role is advisory during planning. Final decision making for establishing project priorities still lies within the transportation planning agency.

As a project advances into the project development and design phases, the ETAT will continue to provide project input and technical assistance to the project sponsor (e.g., FDOT, local government, transit authority) to satisfy agency permit requirements. This will include identifying, defining, and participating in technical studies needed for permitting decisions. ETAT members will be responsible for coordinating within their agencies to accomplish construction permitting concurrent with the completion of the federal NEPA process.

The ETAT is the mechanism for engaging agencies in the ETDM Process. It is equally important in this process to engage the affected community by providing timely information and effective methods for the public to participate. This will be accomplished in the ETDM Process through a Community Outreach Network.

Community Outreach Network

Each FDOT District Secretary has appointed a Community Impacts Assessment (CIA) Coordinator, who is the

conduit for the flow of information between transportation planners and the affected community. This person will be responsible for coordination with the District ETDM Coordinator to ensure the public's interests are known and represented. It is expected that the CIA Coordinator will compile Community Outreach Networks with the help of MPOs and local governments to engage the public in the transportation planning process.

The Community Outreach Network represents the public in non-MPO areas and complements the MPO Citizens Advisory Committee in urbanized areas. This is done by outreach to neighborhoods and other organized community groups. Representatives from social agencies may also participate through the Local Social Advisory Committee. The overall purpose of this network is to provide an avenue for two-way flow of information regarding transportation plans and effects on the community.

ETDM Coordinator

The District ETDM Coordinators will be responsible for the full implementation of Florida's ETDM Process, overall interagency and public involvement coordination, and for ensuring compliance with AOAs. This will include performing the following key coordination activities:

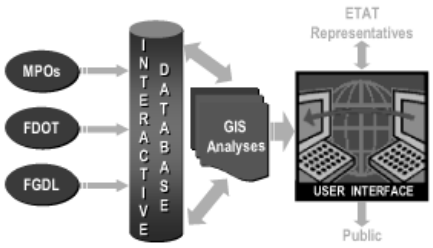
- Coordinates input of project planning data for the ETDM Process;
- Ensures timely ETAT reviews;
- Ensures timely information flow with the CIA Coordinator, the Community Outreach Network, and the Local Social Advisory Committee;
- Ensures that transportation projects and technical studies are developed in full compliance with NEPA and all environmental permit requirements;
- Prepares or delegates preparation of summary reports of ETAT and Community Outreach Network responses;
- Conducts ETDM training and provides technical assistance to ETAT members; and
- Coordinates permitting process with all agencies.

Agency interaction during planning and project development will be accomplished largely through an interactive Geographic Information System (GIS), which will allow ETAT members to conduct environmental screenings on projects and transmit agency comments from their desktop computers. This will be accomplished by the Environmental Screening Tool.

Environmental Screening Tool

The Environmental Screening Tool is an Internet-accessible GIS application that creates linkages between ETAT members and The Florida Geographic Data Library (FGDL) housed at the GeoPlan Center at the University of Florida. The GeoPlan Center at the University of Florida will be responsible for managing and maintaining the environmental resource data within the FGDL. The Center has staff and faculty who are experts in using GIS for environmental management and transportation planning applications.

The Environmental Screening Tool application provides tools to input and update information about transportation projects, perform standardized GIS analyses, gather and report comments by the ETAT members, and provide read-only information to the public. The following diagram schematically displays the concept for the ETDM Internet-accessible GIS database system:



Data Entry

The GIS data input consists of environmental resource information and project planning information. Environmental resource information is provided by resource protection agencies which input their data to the FGDL. The environmental resource data is updated via the FGDL according to operating agreements with each agency. The ETAT member reviews the information in the FGDL to verify the most current information is available.

Project planning information is provided by MPOs and by FDOT in non-MPO areas. The Environmental Screening Tool provides three mechanisms for entering transportation project planning information into the ETDM database:

- **Interactive Data Entry Forms** - Forms enable MPOs and FDOT to draw project segments on an aerial photograph and enter information describing the project via on-line forms. These tools are intended to assist MPOs and FDOT to enter information that is not available electronically.
- **Extraction Tool for State Highways** - Allows FDOT staff to input planned improvements to roadways that are stored in the FDOT digital base map. The Tool allows planners to point at the beginning and end points along the roadway. Data entry forms are pre-populated with information extracted from the database so users can update and add to the information. When complete, the project information is loaded into the ETDM database.
- **GIS File Transfer** - Intended for MPOs or FDOT planners who have project plans in GIS format already and need to transfer their data to the ETDM database. This input tool allows the existing GIS data to be readily translated and transferred to the ETDM database. This minimizes redundant data entry.

Standardized Analyses

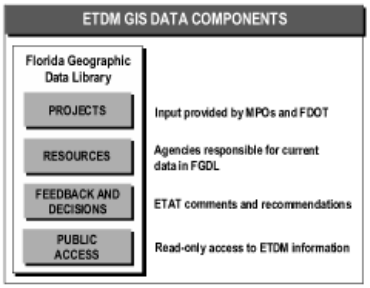
As the projects are loaded into the ETDM database, standardized GIS analyses are automatically performed to identify potential impacts to environmental resources. These analyses have been prescribed by the resource agencies performing the ETAT review on each specific resource issue. The analyses compare the location of proposed projects with the locations of environmental resources and provide quantitative results for consideration by the ETAT. The results are displayed in the ETAT Review module along with issue-specific maps displaying the project and environmental resources. Data layers, types of analyses, and graphic or tabular outputs were also prescribed by the agencies responsible for each issue through a series of workshops conducted in the fall 2001.

ETAT members access the information by Internet connection to the Department's ETDM website. "Point and click" simplicity is a feature of this system that allows agency ETAT members access to the ETDM database and GIS analysis results without the cost of high-end computer facilities, costly software, and the specialized skills of a GIS analyst.

Internet Access to the FGDL

- Incorporates point-and-click simplicity for access to results,
- Avoids costly computer expense for agencies, and
- Achieves consistency of formats and reviews.

The Environmental Screening Tool includes interactive mapping tools, forms for adding comments during the Planning and Programming Screen phases of the ETDM process, and summary reports of ETAT comments. These reports are also available through a public access web site, which enables the public to view and query the information. Four data components compose the Environmental Screening Tool and are diagramed and described below.



Project Description Data

The Project Description data will describe the candidate transportation projects for which the MPO and the FDOT require project impact evaluations. The MPO in urban areas and the FDOT in non-MPO areas will be responsible for developing the following information to describe each candidate project and uploading this data into the Project Description data of the Environmental Screening Tool:

- Project identification number,
- Project name (e.g., roadway, transit facility),
- Logical project termini (from/to),
- Brief description of initial project concept, and
- Initial purpose and need statement.

The project termini, description, and purpose and need statement may evolve over time - through the planning and project development phases of the project - as the ETAT and District or MPO planners gain knowledge about project issues. Initially, the purpose and need statement should include the following information for each candidate project:

- Travel demand (traffic or ridership projections, volume/capacity ratio),
- Modal options,
- Agency-expressed needs (e.g., emergency evacuation, freight mobility), and
- Community-expressed needs.

Environmental Resource Data

The Environmental Resource data of the screening tool will include the data layers required by the ETAT members to perform environmental impact analyses on each mobility project. Each agency on the ETAT will be responsible for sending their updated data layers (including the location of priority resource protection areas) required for project analyses to the GeoPlan Center. These will include prioritized resource protection areas and species recovery plans for each resource agency. The Center will be responsible for ensuring that the latest available data layers are in a standard format and are accessible by all ETAT members.

Feedback and Decision Data

The Feedback and Decision data will contain the results of the ETAT project impact evaluations performed during the Planning and Programming Screens. This will include the following information about each candidate mobility project:

- Comments from each ETAT member about the purpose and need statement;
- Degree of impact of a proposed transportation project to the resource each ETAT member is responsible for protecting and/or managing;
- Comments and recommendations from each ETAT member about project impacts;
- Project scoping recommendations, including required technical studies; and
- Carry forward summary of community issues, concerns, and commitments made throughout the public involvement process.

Public Access

The public will be provided read-only access to key project information allowing the general public and non-government organizations to view project data. The project information available to the public and non-government organizations will include the project description, sum-

marized GIS analysis graphics, summarized results of the ETAT project impact analyses, previously submitted public comments, and other information to assist formulation of comments on the project.

The public and non-government organizations will not have the ability to submit comments using the Environmental Screening Tool. Comments can be submitted to the project sponsor in writing or verbally at a public workshop, hearing, or other locally identified method to receive public input. The District CIA Coordinator will be responsible for engaging and documenting input from the affected community through Community Outreach Networks.

During the planning phase of a project, the MPO in urban areas and the FDOT in non-MPO areas will be responsible for entering public comments received through their public involvement efforts into the Public Access data component. During the project development phase, the project sponsor (FDOT, Local Government, and Transit Agency) will be responsible for loading public comments into the database.

MOBILITY PLANNING

The intent of the ETDM Process is that the long-range planning process in non-MPO rural areas mirrors the planning process in the MPO urban areas of the state. This will provide for consistency among planning documents developed during the planning process with standardized formats and reporting procedures throughout the State. The planning phase of the ETDM Process is conceptually shown in the following figure.

Long Range Transportation Plan Development

Urban Area Planning

MPOs, which represent larger urban areas, are required to update long range transportation plans at a maximum of every three years in air quality non-attainment and maintenance areas and every five years in air quality attainment areas. The primary purpose of the long range transportation plan is to guide the development of transportation systems to serve the travel demands of existing development and new growth, as envisioned by and balanced with goals of other Local Government Comprehensive Plans, over a minimum 20-year period.

Rural Area Planning

In non-MPO areas, FDOT in consultation with local governments, has the responsibility of planning for future transportation systems. The Florida Intrastate Highway System (FIHS) Plan is developed by the FDOT to identify the mobility needs on the major regional state roads throughout Florida. At the local level, the Transportation Elements of the Local Government Comprehensive Plans identify the mobility needs within each county and municipality.

In the ETDM Process, the MPOs in urban areas and the FDOT in non-MPO areas will be responsible for identifying the mobility needs required to support projected growth and development in the region. The description and location of these candidate mobility projects will be electronically uploaded by the project sponsor into the Project Description Data component of the Environmental Screening Tool for review by the ETAT. The ETAT will conduct project impact analyses for each candidate project.



ETAT Planning Screen

This project impact analysis, called the Planning Screen, allows for early identification of environmental issues that could influence the priority, alignment, and/or future features of candidate projects. This system-level analysis also identifies resource protection areas that could influence future land use and transportation decisions in the comprehensive planning process. The results of the Planning Screen analysis will be documented in a Planning Summary Report which will be posted in the Feedback and Decision Data component of the ETDM database.

The Planning Screen is conducted on a maximum three-year cycle in MPO air quality non-attainment and maintenance areas and on a maximum five-year cycle in all other areas, consistent with the federal requirements for updating MPO long range transportation plans and Local Government Comprehensive Plans. The primary purpose of this screen is to assist the MPOs in urban areas and the FDOT in non-MPO areas to prioritize transportation projects by providing resource agency input that identifies issues that could influence transportation planning decisions.

In the Planning Screen, GeoPlan electronically uploads project description data received from the MPO and FDOT into the web-based Environmental Screening Tool and performs the standardized automated GIS analyses of the data for ETAT review.

The ETAT is electronically notified to conduct an assessment of the potential direct, secondary, and cumulative impacts that each candidate mobility project will have on the social or natural resource that their agency is responsible for protecting and/or managing. The ETAT will have 45 days to conduct their project impact evaluations and electronically submit their input to the ETDM database.

Potential Project Impacts

Social Resources

- Land Use
- Community Cohesion
- Community Impact Assessment
- Economic Resources
- Safety
- Mobility
- Civil Rights
- Relocations
- Noise
- Air Quality

Natural Environmental Resources

- Wetlands
- Wildlife and Habitat
- Water Quality and Quantity
- Aquatic Preserves
- Outstanding Florida Waters
- Sole Source Aquifers
- Wild and Scenic Rivers
- Floodplains
- Coastal Zone Consistency
- Coastal Barrier Islands
- Contaminated Sites

Cultural Resources

- Section 4(f) Lands
- Historic Sites/Districts
- Archaeological Sites
- Recreation Areas

Secondary and Cumulative Impacts

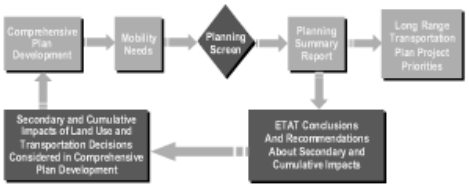
The Community Outreach Network will also be notified to perform their assessment of potential community impacts. Their evaluations will be submitted to the MPO in urban areas and the FDOT in non-urban areas for posting to the ETDM database.

The District ETDM Coordinator will verify that all input has been received from the ETAT and the Community Outreach Network. The Environmental Screening Tool will automatically date and time stamp all ETAT and public involvement comments for future reference.

Secondary and Cumulative Impacts

> *Secondary impacts are the indirect effects of a proposed action that occur later in time and are reasonably certain to occur. Cumulative effects are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.*

In the ETDM Process, secondary and cumulative impacts of land use and transportation decisions will be evaluated at the system level during the comprehensive plan development process as shown below. Understanding the secondary and cumulative impacts of proposed actions early in the planning process is expected to lead to improved balance between transportation, land use, and environmental resource management decisions. This analysis will be performed by ETAT during the Planning Screen.



The FDOT ETDM Coordinator will review the ETAT comments on potential secondary and cumulative impacts, summarize these results, and develop recommendations for addressing the stated impacts. The cumulative impacts will be based on a review of potential direct and secondary impacts related to both the baseline quality of environmental and community resources and the level of change that a future land use plan or planned transportation improvements could facilitate. This summary statement will be posted in the ETDM database. The summary of ETAT comments on secondary and cumulative impacts will comprise a portion of the Planning Summary Report.

Analysis of Public Involvement Feedback

The MPO in urban areas and the FDOT in non-MPO areas will be responsible for compiling and analyzing all system-wide and project-specific public comments received from the Community Outreach Network. The comments will be summarized and entered into a standard report format. The report will be electronically submitted to the District ETDM Coordinator for posting in the ETDM database. Community input will be a portion of the Planning Summary Report.

Planning Summary Report

A Planning Summary Report will summarize key recommendations and conclusions for the direct, secondary, and cumulative impacts identified by the ETAT and the Community Outreach Network in the Planning Screen. The District ETDM Coordinator will be responsible for preparation of the summary report and posting it in the ETDM database. Standardized and automated report output forms will provide an efficient and accurate method of documentation. The Planning Summary Report will be available electronically to resource agencies and to the public.

Planning Summary Report Contents

- Project description,
- Purpose and need statement,
- Agency comments,
- GIS mapping,
- Secondary and cumulative impacts evaluations,
- Public involvement comments, and
- Preliminary project concept based on agency and public input.

The report will contain agency and community information needed by the MPOs and the FDOT to prioritize transportation improvement projects in the LRTP, Florida Intrastate Highway System (FIHS) Plan, and the FDOT Work Program. The report will also be provided to the planners responsible for developing Local Government Comprehensive Plans. It will contain identified issues and recommendations regarding potential secondary and cumulative impacts to assist comprehensive planners in more effectively balancing land use decisions with ecosystem protection, community mobility needs, and the human environment.

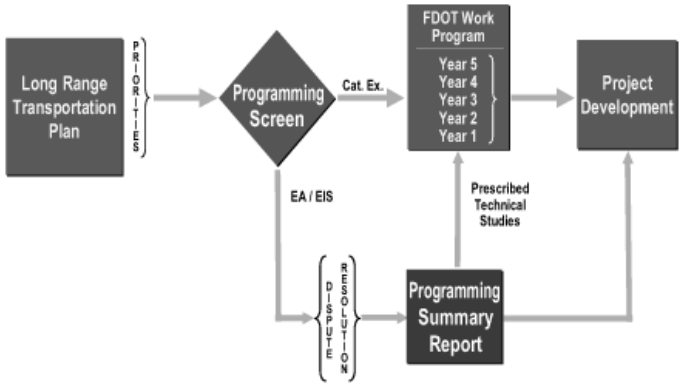
PROJECT DEVELOPMENT

Programming Transportation Priorities

Limited funding at the federal, state, and local levels necessitates that transportation improvements be prioritized to best serve the mobility needs of our citizens. In urban areas, MPOs are primarily responsible for prioritizing transportation improvement projects. The MPOs identify these priorities through project evaluation criteria used in the LRTP development process, public involvement, and interagency coordination and with guidance from their advisory committees. The FDOT and local governments establish bridge replacement and FIHS project priorities in the non-MPO areas for annual approval by the FDOT Executive Board. These project priorities, along with the MPO and local government priorities, are used to guide the development of the FDOT Work Program. Before priority projects will be eligible for inclusion in the FDOT Work Program, a Programming Screen will be performed by ETAT.

Programming Screen

In the Programming Screen, ETAT representatives will review the Environmental Screening Tool information for priority projects and assist FDOT in scoping technical studies necessary to satisfy NEPA and obtain project permits during the project development phase. ETAT comments will be entered directly into the Feedback and Decision Data portion of the ETDM database.



Advance Notification

The NEPA process begins at the Programming Screen with the development of the Advance Notification (AN). The FDOT District ETDM Coordinator will be responsible for assembling the AN package of information in preparation for the Programming Screen. This process is the method used by FDOT to inform federal, state, and local agencies of a proposed action and to give notice of the Department's intent to apply for federal aid on a project.

The AN package consists of a transmittal letter, application for federal assistance (when applicable), department project fact sheet, and location map. Part of the AN package will be produced as a "standard report" from a query generated from the ETDM database. The AN package will be available electronically to the ETAT and distributed to other appropriate federal agencies, central units of State government, local agencies, and American Indian tribes, as appropriate.

Class of Action Determination

Compliance with NEPA requires that the type of required environmental documentation be agreed upon in consultation with FHWA/FTA. This agreement is called the "Class of Action Determination" and will be made by the FHWA/FTA ETAT member in consultation with the FDOT ETDM Coordinator. Their decision will determine whether a project can be categorically excluded from NEPA or whether the project requires further environmental analyses and documentation to achieve required permits. This decision by FHWA and FTA is based on the issues and comments provided by the ETAT in the Planning Screen.

Activities classified as Categorical Exclusions will advance to the design phase and will be programmed by FDOT. Interagency agreements between federal, state, and local agencies will define categorically excluded activities using FHWA/FTA regulations as the basis.

Project Scoping

The primary purpose of the Programming Screen is for the ETAT to conduct "project scoping." Project scoping entails the identification of environmental and social issues that require further study during project development and the methodology for analyzing those issues. The Programming Screen also provides the opportunity for ETAT members to elect "no further involvement" if the project has limited or no impacts on the resource that their agency is responsible for managing or protecting.

After notification by the FDOT ETDM Coordinator that the Environmental Screening Tool has been loaded with new projects entering the work program, each ETAT member will conduct the following activities during the Programming Screen:

- Acceptance of the Purpose and Need Statement: The ETAT member may provide comments to clarify the purpose and need statement.
- Update Environmental Impact Reviews: Environmental analyses conducted during the Planning Screen may need to be updated if new data or project issues warrant further evaluation. The ETAT member may also elect "no further involvement" if participation is not statutorily required.
- Identification of Required Technical Studies: The ETAT will participate in project scoping to identify and define studies that should be conducted during project development to satisfy NEPA and permits requirements.

The ETAT will electronically submit analysis results to FDOT for use in programming the technical studies and subsequent project phases into the FDOT Five-Year Work Program. The FDOT ETDM Coordinator may elect to conduct one or more face-to-face meetings with any or all ETAT members to discuss specific project issues, including secondary and cumulative impacts, during project scoping.

ETDM Dispute Resolution Process

> ***ETDM PROCESS COMMITMENT***
>
> ***Significant unresolved disputes must proceed through Dispute Resolution prior to programming.***

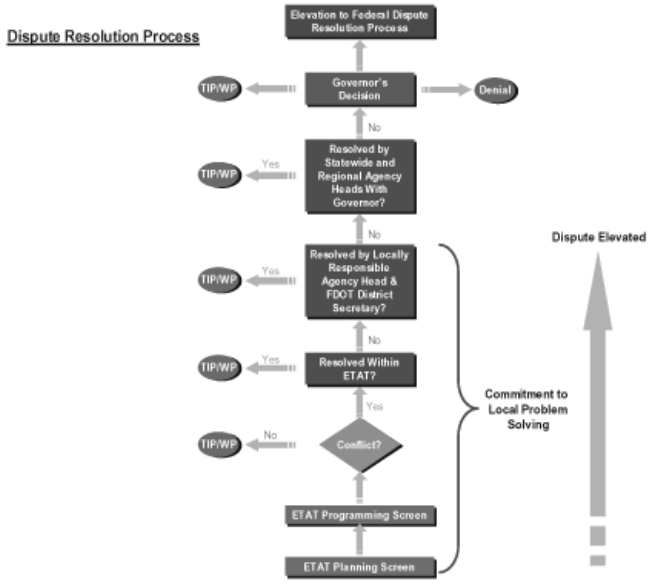
Identification of potential disputes will begin with the Planning Screen. Responses by ETAT will document the potential for a dispute relative to a candidate project's affect on a resource. When this occurs, the ETAT representatives and the District ETDM Coordinator are encouraged to consult and resolve the dispute, during the planning process, before the approval of the relevant LRTP or FIHS Plan.

Ongoing unresolved issues that require Dispute Resolution in the ETDM Process will be flagged by ETAT during the Programming Screen. Agency Operating Agreements (AOAs) and addenda will contain criteria that identify the basis and methodology for flagging a dispute.

The Memorandum of Understanding signed in December 2001 by state and federal agencies requires that project disputes be resolved before projects are eligible for programming by FDOT.

The ETDM Dispute Resolution Process is shown in the diagram below. This process focuses on resolution of disputes locally prior to elevation within agencies or to the Governor.

For each dispute in the ETDM Process, the ETDM Coordinator will first attempt to resolve the conflict or issue



at the agency staff level. The ETDM Coordinator will have the authority to make agency commitments, such as requiring specific technical studies to evaluate project alternatives or mitigation options during the project development phase. If the conflict cannot be resolved by the ETDM Coordinator, then the dispute will elevate to an Informal Dispute Resolution Process within the ETAT.

The Informal Dispute Resolution Process involves a subteam of the ETAT including those agencies with identified concerns for a transportation project. The ETAT subteam may undertake the following actions to address identified conflicts and issues: 1) resolve the issue or conflict through consultation and commemorate the resolution; 2) complete a feasibility or technical study for ETAT review; 3) advance project into the FDOT Work Program with identified issues to be addressed during project development.

Significant disputes which cannot be resolved locally within ETAT will enter Formal Dispute Resolution which involves elevation within agencies.

Programming Summary Report

A Programming Summary Report will be prepared for each project as a transition document to the project development phase. The following key components will make up this report:

Programming Summary Report Contents

- Project description and logical termini,
- Purpose and need statement,
- Class of action determination,
- Agency comments,
- Affected community comments,
- Preliminary project concept,
- Required technical studies to achieve NEPA compliance and project permit,
- Reasonable alternatives for further study,
- Dismissed alternatives with reasons, and
- Dispute resolution issues.

The community input and ETAT analyses, commentary, and documentation contained in the Environmental Screening Tool will provide the base information required for the Programming Summary Report. Standardized and automated report output forms will provide an efficient and accurate method of documentation.

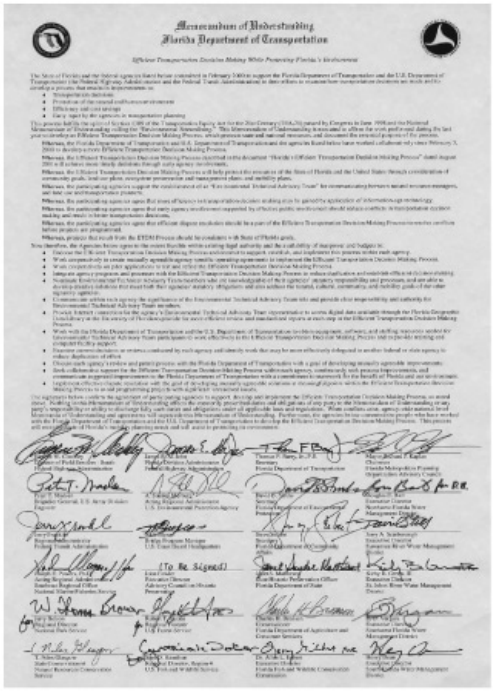
The ETDM Coordinator will be responsible for the preparation and posting of all Programming Summary Reports in the ETDM database. These reports will be electronically available to all ETAT representatives and the FDOT design engineers. The reports will be the transition document which transmits agency and community planning input for FDOT use in subsequent project development and design phases.

ETDM AGREEMENTS

Memorandum of Understanding

On December 14, 2001, federal and state agencies involved with the transportation planning decisions in Florida signed a Memorandum of Understanding agreeing to support the continued development and implementation of the ETDM Process in Florida. The agencies endorsed the process concept and agreed to support, establish, and implement the ETDM Process within their respective agencies to the extent feasible within existing legal authority, staffing, and budget.





Memorandum of Understanding
Florida Department of Transportation

Efficient Transportation Decision Making While Preserving Florida's Environment

Agency Operating Agreements (AOAs)

Agency Operating Agreements (AOAs) are currently in review or under development and are anticipated to be executed within the next six months. It is the intent of these AOAs to implement the ETDM Process for all transportation projects in Florida that require coordination, consultation, and compliance approval from transportation and environmental resource and regulatory agencies. Topics addressed in the AOAs include the project information and agency reviews necessary to complete the Planning and Programming Screens. The AOAs also document the resource analyses and technical reports necessary to obtain NEPA approval and project permits during the Project Development Phase. Mutually agreeable changes to operating procedures will be developed within agencies to document procedures supporting Florida's ETDM Process.

The Path Forward

Final preparations are underway through the spring 2002 to allow FDOT to begin using the ETDM Process in July 2002. It is planned that a "metered implementation" will proceed at that time with ETDM Coordinators within each FDOT District rolling out the new process to MPOs and District planners as warranted by their readiness and status of their planning cycle. MPOs initiating the needs assessment phase of their long range transportation plan update, for example, would be a priority to begin using the new process. Full statewide implementation is anticipated by July 2003.

The preparations include the following:

- Completing development of the Environmental Screening Tool;
- Completing the ETDM Procedures Guide which will be used by District planners, MPOs, and resource agencies;
- Developing training materials for agencies and consultants; and
- Testing the effectiveness of the new process with a "Mock ETAT."

Each of these implementation issues is described further in the following paragraphs.

Environmental Screening Tool

Activities planned through the spring 2002 include programming the final elements of the Environmental Screening Tool and finalizing preparation of the User's Guide as well as preparation of on-line documentation. This User's Guide will be included in the Procedure Guide. The GIS team will then train and work with the "Mock ETAT" during system testing and will make final refinements to the system and User's Guide prior to implementation.

ETDM Procedure Guide

Volume I of FDOT's Project Development and Environment Manual (the two-volume PD&E Manual) will be supplemented and eventually replaced by the ETDM Procedure Guide that will describe the steps and actions needed to accomplish efficient transportation decision-making within this new process. The Procedure Guide will detail, for example, the activities needed to accomplish the "Planning Screen," "Programming Screen," and the activities and timeline during "Project Development" that will lead to issuance of construction permits and the federal Record of Decision.

This Procedure Guide will draw from the results of task work groups that considered the specific actions needed to implement the ETDM Process.

The Procedure Guide will include a User's Guide for the Environmental Screening Tool as well as procedures for engaging input from the affected community.

Training

Training on the intent of the new process and procedures to be used will be required within FDOT, resource agencies, and MPOs. Some of the work to be performed within FDOT or by MPOs may be performed under General Consulting Contracts or other contract arrangements with consulting firms. Those consulting firms will also require training in the process.

Training materials and a training syllabus will be developed to support this preparatory activity. All training for Department, agency, and MPO personnel plus consultants will proceed shortly following the start of the Department's 2002/2003 fiscal year. ETDM Coordinators in each District will sequence the training depending on their perspective of the Department's needs and the degree of readiness for the entity involved. For example, an MPO that is not currently performing an LRTP update may be a lower training priority than an MPO which is starting its LRTP update.

It is planned that bulk training sessions will be held initially to introduce the process and describe the procedures to be used. Hands-on training will then be available as people engaged in the process begin using the Environmental Screening Tool and Procedure Guide. The goal of this training effort is to minimize the potential frustration that can occur as new procedures are implemented.

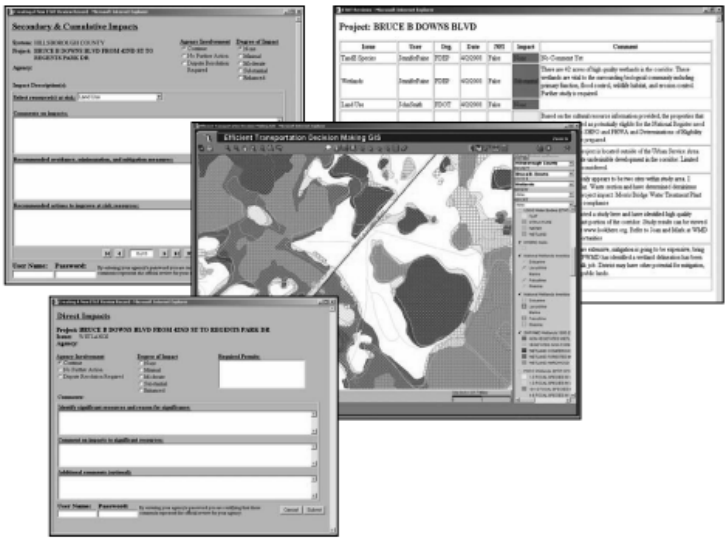
Testing the ETDM Process

Initially it was planned to conduct a series of "pilot applications" to test the Environmental Screening Tool and to allow more time for the FDOT Districts to adjust to a "new way of doing business." During meetings with the Districts in the latter portion of 2001, however, the FDOT Central Environmental Management Office met enthusiasm for proceeding with implementation. As a consequence, it was decided to accelerate preparations and to begin using the new process during the summer of 2002. The concept of pilot applications has subsequently been replaced by "Mock ETAT" testing to reduce the testing time required.

Late in the spring of 2002, the ETDM Procedure Guide and Environmental Screening Tool will be tested by a "Mock ETAT." The FDOT and "Mock ETAT" will meet with the ETDM project team members for a two-day orientation period during which participants will be instructed in the use of the Environmental Screening Tool and Procedure Manual. This will be an abbreviated version of the ETDM training which will be provided to other participants since the "Mock ETAT" members will be knowledgeable of the background and intent that produced the ETDM Process.

"Mock ETAT" members will then perform the Planning Screen and Programming Screen involved with an MPO LRTP update and for selected project priorities within the LRTP. ETDM project team members will be available to the "Mock ETAT" through this test to provide hands-on help with the system and to collect feedback on suggested improvements.

The Procedure Manual will be modified to incorporate input from the "Mock ETAT" prior to implementation within Districts beginning in July 2002.



Examples from Environmental Screening Tool

STATEMENT OF EMILY WADHAMS, VERMONT STATE HISTORIC PRESERVATION OFFICER

Mr. Chairman and members of the committee, thank you for inviting me to provide testimony today on the approach Vermont has taken to expedite historic preservation reviews of transportation projects. My name is Emily Wadhams. I am the Vermont State Historic Preservation Officer. I am also on the Board of Directors of the National Conference of State Historic Preservation Officers and am an Advisor to the National Trust for Historic Preservation. Although I am not speaking on behalf of these national organizations, I have been working closely with them on the issues I'll be addressing this morning.

I appreciate the opportunity to testify today and especially want to thank Senator Jeffords for the invitation. We in Vermont have long looked to Senator Jeffords as a leader in historic preservation. History is important to Vermonters, and Senator Jeffords has done a lot to help the citizens of Vermont preserve our State as a special place. He has recognized and supported the importance of landmarks like covered bridges and barns with national legislation that helps preserve these icons for all Americans. And he has championed our small towns and villages with his leadership on postal service policy that keeps post offices active as vital community centers.

In Vermont, my office collaborated with State and Federal transportation officials to improve the way we review the impacts of transportation projects on historic and archeological resources. In brief, we developed an agreement known officially as a Programmatic Agreement, or PA, that creates an alternative review process for transportation projects under Section 106 of the National Historic Preservation Act. Although Section 106 regulations encourage programmatic agreements, Vermont is the only State to have developed such a comprehensive document. Under the agreement, the State Historic Preservation Officer has delegated the review and sign-off authority to qualified historic preservation professionals within the Vermont Agency of Transportation for all State and Federal transportation undertakings. After almost 2 years of experience with the PA, I can report that the success of this approach has far exceeded our expectations.

Background

Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of their undertakings on historic and archeological resources. In Vermont, as in other States, transportation safety and efficiency goals have often collided with historic preservation goals, sometimes delaying projects, and pitting State DOT's against State Historic Preservation Offices (SHPOs) in battles over the preservation of cultural resources. Mistrust among the parties to the process was common, and it often turned into a 'blame game' of whose fault it was that projects were being delayed. In the end both sides lost—project schedules lengthened, costs increased, and cultural resources were destroyed. Vermont, like most States, was mired in the problem. We were hearing from communities that they were not being heard and that changes were being made in the name of improving roads that were ruining the character of their towns.

Vermonters believe that it is possible to change things for the better, that if you bring together the right people and talk about a problem, you can fix it. In the mid 1990's, Vermont started talking about how to solve the Section 106 review problem for transportation projects. Many of the most pressing—and adversarial—projects involved historic metal truss bridge replacements, and so we focused first on a survey of these bridges—which ones were most important, which ones were good candidates for preservation, which ones had to be removed, and was it feasible to reuse some elsewhere? The Vermont Agency of Transportation and the Vermont State Historic Preservation Office both committed time and money to answer the questions and produced a consensus bridge plan, formalized into a programmatic agreement for bridges. Although many bridges have been saved in place and continue to serve vehicular traffic, AOT developed a Historic Bridge Program to relocate and restore important bridges. In Hinesburg, Vermont, a small pony truss has been reused to cross a stream on a heavily used community pedestrian and bike path. In Arlington, a bypassed metal truss bridge next to a fishing access on the famed Battenkill trout stream became a fishing platform accessible for people with disabilities.

Another collaborative effort also occurred at the same time. This was the development of the Vermont Design Standards (1996) and a new community review process designed to create more flexibility and creativity in designing transportation projects and to increase community input early in the planning process. One of the first beneficiaries of the new Standards was the town of Underhill where citizens fought for and won a "footprint" replacement bridge, a bridge that matched the dimensions of the old bridge as well as the small scale of the community. The success of these efforts led to broader discussions about how to streamline all Section 106 reviews and better protect cultural resources in transportation planning.

These projects changed our relationship with the Agency of Transportation. We began working on the premise that we shared the same two goals—to improve the review process to allow AOT to do it's job, and to be good stewards of the State's historic resources. The trust that evolved led to the creation of a general Programmatic Agreement, or PA, that emerged in 2000. The PA delegates Section 106 sign-off authority to the Agency of Transportation itself, for its own projects, a radical concept. The PA relies on qualified historic preservation professionals within AOT to ensure appropriate consideration of historic and archeological resources in

transportation project planning. AOT now files a final comment with the SHPO, and there is a specified timeframe for the SHPO to ask questions or disagree. AOT and SHPO staff worked together to create the PA Manual that clarified or developed procedures and other guidance to define how resources should be evaluated and treated in the Section 106 process. That effort allowed us to discuss, debate, and agree on exactly how the Section 106 process would work under the PA, which set the overall tone of the process, but did not provide details. The first annual evaluation of the PA process proclaimed it a resounding success. Thirty other States have requested copies so that they may consider it for their jurisdictions.

What has changed—Increased stewardship

Preservationists have long thought that consideration of historic and archeological resources early in project planning could eliminate many potential adverse effects on those resources in transportation projects. The PA promotes early consideration by sanctioning AOT historic preservation staff to actively and authoritatively participate in that early planning to avoid adverse effects. Formerly, when preservation issues came up late in the project planning process, it was often difficult and expensive to redesign to avoid adverse effects, and resources were lost.

Reduces project and process delays

The PA has reduced delays in the review process dramatically. AOT estimates that review of routine projects has been shortened by weeks, and complex projects, by months or more. The PA exempts from review a long list of activities with little potential to affect historic and archeological resources. The time-consuming exchange of memos, telephone calls and frequent meetings have been eliminated between the SHPO and AOT staff.

Increases amount and range of public involvement

The PA Manual prescribes opportunities for broad public involvement and comment on the issues covered by Section 106, piggybacked on the Agency's existing public process. The Manual requires that the Agency reach out to certain interested constituencies and inform them about their opportunity to comment, thereby enhancing the public's ability to understand and comment on affected historic and archeological resources. The PA also stresses public education about historic and archeological resources, both as projects occur and as mitigation.

Enhances interagency coordination

The PA also called for interagency cooperation on other innovative non-regulatory projects, and several are currently underway which will benefit Vermonters: AOT now co-sponsors our annual State-wide historic preservation conference and Vermont Archeology Month; it is working with us to develop a data base of historic resources, refine a GIS-based predictive model for archeological sites; and is considering helping us update our long-neglected State survey of historic sites. And I'll throw in a plug for more capacity for State historic preservation offices here. The appropriation to Department of Interior's Historic Preservation Fund, which provides Federal funding to State historic preservation offices to do all the things we are mandated to do under Federal law,—survey work, regulatory reviews, historic tax credit reviews, provide technical assistance, and so on—has seen only minor increases in the last 30 years. In Vermont, we have not been able to invest in the infrastructure—good data base, historic sites surveys and GIS mapping—to allow information about historic resources to be integrated into State, local and Federal planning processes. Any way that the Historic Preservation Fund can be increased or enhancement dollars earmarked to assist us with this process would greatly improve our ability to be better stewards of these resources while improving the historic preservation offices' regulatory review process.

Increases Agency's stewardship role

The key to success of the Vermont Programmatic Agreement has been a willingness on AOT's part to take its mandated responsibility toward historic preservation seriously. In the past, it was too easy for AOT to say the State historic preservation office was "making them" do something. With the new process, historic preservation concerns are more naturally integrated into the agency's thinking in the earliest stages of project development, not as an afterthought or a burden. In addition, the Agency of Transportation has now begun to develop projects, like a new railroad depot initiative to rehabilitate the State-owned railroad depots that probably wouldn't have happened without this new integration of historic resource protection into their day-to-day activities.

Role of Enhancements Programs

Without the enactment of ISTEA and TEA–21—the enhancement programs that began in 1991, I'm not sure we would be where we are today. Congress made a clear statement with the enhancements program that built upon on the 1966 National Historic Preservation Act. It said that 'yes' in 1966 we were serious about making sure that federally funded highway projects and other Federal undertakings couldn't ignore the impacts of interstate highways and other transportation projects on our nation's historic resources. Now, with the enhancements program, Congress has also made a commitment to those "activities that enhance community benefits of transportation investments". Enhancements are engines of change and natural partnership builders. They enhance the natural and built environments through which roads pass. Vermont's Agency of Transportation's major responsibility is to repair and builds roads and bridges for safe and efficient travel. But it also takes its environmental responsibilities seriously. AASHTO honored the Vermont enhancements program as one of the four best in America in a 2000 competition.

We have come a long way toward recognizing the importance of stewardship. We still need better policies to address important issues like limiting truck length and weight on the National Highway System roads, changing Federal funding policy to encourage, not discourage retention of historic bridges, and provide funding that will allow for the retention of unpaved scenic roads, for example. Also badly needed are changes to the enhancements program that remove serious impediments in applying for scenic easement acquisitions. Vermont is making a major effort to gain scenic or conservation easements at interstate exits to help communities address growth and traffic concerns. The current program, which will not allow for an appraisal or negotiated purchase price until after the enhancements grant has been awarded, make this almost impossible.

In Vermont our "new and improved" approach to regulatory reviews is working. I believe it works because we have a citizenry that values the resources we strive to protect, we have legislators in Washington who recognize the importance of protecting these resources for future generations of Vermonters, we have a Governor who has worked hard to protect our downtowns, village centers and scenic landscapes, we have supportive leadership within our Agency of Transportation, and we have a Federal Highway Administration staff that has been a strong partner in these efforts. Our mutual goal has been to address issues of safety and efficiency in a modern transportation system in a way that enhances and does not compromise the special characteristics of the State we love.

Section 4(f)

I strongly believe that the approach we're taken in Vermont to improve the regulatory process can also work with the protections established in Section 4(f) of the Department of Transportation Act. 4(f) prohibits the use of historic sites and public lands unless there is no prudent and feasible alternative. It is viewed by some as being rigid and cumbersome and sometimes results in solutions that don't make sense especially with smaller projects. In Vermont, 4(f) is rarely a problem, because AOT's historic preservation staff flags adverse effects very early on in the planning process and can work to either avoid the adverse effect or go through the required alternatives analysis early on. I think almost everyone who works with 4(f) agrees that improvements to the process could be made. But changing the statute would be drastic and unnecessary and open the door to weakening the protections created by the law. The success of the Vermont example to expedite reviews under Section 106 can be applied to improving the 4(f) process. As we learned with our project, willing partners committed to making the process work effectively, can devise a regulatory or procedural solution to address the problem. In Vermont, I believe we have shown that with a collaborative approach, everyone wins—projects get built, resources get protected and the public is better served.

Thank you.

ATTACHMENTS

1.) Manual of Standards and Guidelines, in accordance with the Programmatic Agreement among the VAOT, FHWA, ACHP, VSHPO regarding the Implementation of the Federal-Aid Highway Program in Vermont (12/28/0). Manual includes the Programmatic Agreement as Appendix A.

2.) Better Historic Preservation Reviews for Road Projects, National Trust for Historic Preservation, 2002

RESPONSES OF EMILY WADHAMS TO ADDITIONAL QUESTION FROM SENATOR JEFFORDS

Question 1. Transportation agencies and associations are recommending that Congress make changes to Section 4(f). They contend that Section 106 can in many cases take the place of 4(f). In your testimony, you mentioned that this was not a good idea. Why would transportation agencies seek such changes? Please expand upon your concerns over this proposed change.

Response. Section 4(f) has always provided a greater level of protection than Section 106 because it prohibits damage or destruction of historic resources unless there is no prudent and feasible alternative. Section 106 provides a process for considering alternatives to damage or destruction, but not a mandate to avoid them. Large-scale transportation projects have the potential to damage or destroy significant numbers of historic and archeological resources. The extra protection provided by 4(f) beyond Section 106 (which applies generally to all Federal agencies) highlighted a specific public concern for potential environmental impacts of such transportation projects. The presence of 4(f) has flagged consideration of historic resources as a priority for State transportation agencies across the country, and has resulted in early planning for their preservation in transportation projects where possible. In some cases, where Section 106 has failed to protect resources where it was feasible to do so, 4(f) has done the job. From what I have heard from transportation agencies and organizations around the country, there is legitimate concern that there is sometimes redundancy between 4(f) and Section 106, especially on minor projects. That redundancy can contribute to project delays. However, I believe that there is an easier and faster way to address that problem than changing the law and then spending many months on developing implementing regulations and training. Section 4(f) protection for historic resources is too important to lose. But we can streamline the process to avoid unnecessary duplication and delays through administrative action, specifically through Programmatic Agreements (PA's).

State or regional multi-State Programmatic Agreements (PA's) could allow Section 106 reviews to satisfy 4(f) requirements for minor takes and other projects where there is concurrence on an appropriate outcome. States could tailor PA's to reflect their resource base, typical kinds of undertakings, and staff capacity and procedures. The Exempt List feature of a PA could include types of projects unlikely to affect historic resources because of their size and nature, and/or categories of Section 106 determinations, like "No Historic Properties Affected", that all parties agreed on. Likewise, the Standard Mitigation Measures feature of a PA could provide a menu for mitigating adverse effects in meaningful ways, without the added time and expense of developing separate mitigation on each individual project with an adverse effect. Vermont operates under a similar PA for Section 106 review of transportation undertakings (described in my September 19th testimony), and we have found it to be very successful at both streamlining reviews and protecting resources.

I have heard complaints about a one-size-fits-all approach to 4(f) alternatives analyses that results in unnecessary extra work on smaller projects. We believe that either in a PA or in administrative guidance from FHWA, it would be possible to relate the depth of an alternatives analysis to the scale of a project and its potential effect. Common sense could prevail.

The goal of streamlining historic resource reviews for transportation projects could be achieved quickly and effectively through a PA approach. Many Federal and State agencies have experience in creative problem-solving through PA's, and the Vermont Division for Historic Preservation would be happy to contribute to such an effort. Please let us know if we can help.

Manual of Standards and Guidelines

In Accordance with the
PROGRAMMATIC AGREEMENT
AMONG THE FEDERAL HIGHWAY ADMINISTRATION, THE VERMONT AGENCY
OF TRANSPORTATION, THE ADVISORY COUNCIL ON HISTORIC
PRESERVATION, AND THE VERMONT STATE HISTORIC PRESERVATION
OFFICER REGARDING IMPLEMENTATION OF THE FEDERAL-AID HIGHWAY
PROGRAM IN VERMONT







HISTORIC BRIDGE PRESERVATION
EASEMENT AGREEMENT
BETWEEN
STATE OF VERMONT
AGENCY OF TRANSPORTATION
AND
TOWNS OF BROOKLINE AND NEWFANE

Bridge No. 19 Town Highway No. 1





VTrans Working to Get You There
VERMONT AGENCY OF TRANSPORTATION

MANUAL OF STANDARDS AND GUIDELINES

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5. Supplementary Review

Appendices

(A) Programmatic Agreement Regarding Implementation of the Federal-Aid Highway Program in Vermont (PA)
(B) Advisory Council for Historic Preservation 36 CFR 800
- Protection of Historic Properties
- Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites; Final Rule and Notice
(B) ACT 250 Criteria

1 APPLICABILITY AND SCOPE

Laws, Regulations, Guidelines

- Programmatic Agreement Among the Federal Highway Administration, the Vermont Agency of Transportation, the Advisory Council on Historic Preservation, and the Vermont State Historic Preservation Officer Regarding Implementation of the Federal-Aid Highway Program in Vermont (AOT PA)

Key Definitions

Implementation

In 1997, the Vermont Agency of Transportation (VAOT), the Vermont Division for Historic Preservation (VDHP), and the Federal Highway Administration (FHWA) began discussing how we could improve the Section 106 process for transportation projects in Vermont. Could we make the process easier, faster, more effective, less redundant, while maintaining an appropriate level of protection for historic and archeological resources? The results were something of a revolution, and are embodied in the Programmatic Agreement (PA) signed on April 5, 2000. It is the first agreement of its kind in the country, and may become a model for other states to follow.

The basic premise of the PA is that VAOT will conduct reviews of its own projects, using qualified historic preservation and archeological professionals on VAOT staff , without further review or input by VDHP and the Vermont State Historic Preservation Officer (SHPO) except in rare instances. It is expected that the PA will enhance early project planning to avoid or minimize impact to historic and archeological resources, will result in more timely and predictable reviews, and will enhance public support for projects. The Manual is a guide to implementing the PA. It interprets and provides more detail on the provisions of the PA. Like the PA, it is the result of a lengthy collaborative effort among VAOT, VDHP and FHWA.

The Manual sets out the qualifications for the VAOT review staff, procedures for project reviews, provisions for soliciting and responding to public comment, standards for evaluating and documenting projects, an annual reporting process, and guidance on using standard mitigation measures and addressing emergency situations and unanticipated discoveries. The Manual is meant to provide guidance for professional evaluation and documentation by historic preservation and archeological professionals employed as staff or consultants for VAOT. The PA and the Manual rely on the sound professional judgement of the VAOT historic preservation and archeological professionals. The guidance in the Manual cannot substitute for professional knowledge and experience.

Documentation

2(A) EMPLOYMENT OF QUALIFIED PERSONNEL

Laws, Regulations, Guidelines

- 36 CFR 61, Appendix A (Professional Qualifications and Standards)
- VT Personnel Dept., Job Specifications
- April, 2000 Federal-Aid Highway Program Programmatic Agreement

Key Definitions

- Archaeology Officer: Qualified professional staff responsible for implementing the provisions of the Programmatic Agreement.
- Historic Preservation Officer: Qualified professional staff responsible for implementing the provisions of the Programmatic Agreement.

Implementation

- Archaeology and Historic Preservation Officers will be experienced professionals in their fields. At a minimum, Officers will have Master's degrees in their respective fields, five years of professional experience, and an understanding of and experience applying the NR criteria and the Secretary's Standards. A Ph.D. may substitute for experience on a six months per semester basis. Consult the Dept. of Personnel job descriptions for full statement of qualifications.

- **Hiring procedure:** Standard hiring procedure assisted by SHPO. SHPO will be consulted by providing written comments for each candidate selected for an interview.

- **Absence of Officers:** In the case of prolonged absence of an officer, VAOT will appoint an acting officer meeting position qualifications.

Documentation

2(B) MANUAL OF ANCILLARY STANDARDS AND GUIDELINES

Laws, Regulations, Guidelines

- Programmatic Agreement Among the Federal Highway Administration, the Vermont Agency of Transportation, the Advisory Council on Historic Preservation, and the Vermont State Historic Preservation Officer Regarding Implementation of the Federal-Aid Highway Program in Vermont (AOT PA)

Key Definitions

Implementation

The AOT PA was signed on April 5, 2000, but it stipulated that the PA would not take effect until an accompanying Manual was completed and accepted by the parties. Work began immediately to create a Manual to implement the provisions of the PA. Under the direction of SHPO Emily Wadhams and VAOT Director of Technical Services John Perkins, the parties established a steering committee to guide development of the Manual. The committee was composed of AOT staff - Scott Newman, Scott Gurley, Duncan Wilkie, Jen Russell, and John Narowski, SHPO staff – Nancy Boone, Giovanna Peebles, Scott Dillon, and Sue Jamele, and FHWA staff – Rob Sikora. MaryAnn Nabor, then of the Advisory Council and currently the FHPO at FHWA, also provided input as questions arose.

Principal authors of the Manual were Scott Newman and Nancy Boone. Generally, they drafted sections of the Manual, corresponding to the sections of the PA, and reviewed them in detail with the steering committee. Some sections of the Manual that dealt primarily with archeological resources were drafted by Jen Russell and Giovanna Peebles. The steering committee spent many hours discussing and reviewing draft sections of the document, and the authors revised the sections in response to committee comments and concerns, and reviewed them again with the committee. This work occurred between April and December 2000. The Manual was completed at the end of December 2000, and accepted by the parties in December, 2000.

Documentation

2(C) COORDINATION OF PROJECT REVIEW AMONG VAOT DIVISIONS

Laws, Regulations, Guidelines

- National Historic Preservation Act , 36 CFR 800
- VAOT Structures Project Development Process Manual
- VAOT Structures Project Development Process Flowchart
- VAOT Local Transportation Facilities Guidebook
- VAOT Programmatic Agreement for Paving and Minor Highway Projects
- VAOT 10/1/99 Paving PA Review – Revised Review Process
- Exempt Activities listed in 4/5/00 VAOT PA Appendix
- VAOT Programmatic Agreement for Projects Involving Historic Bridges
- VAOT Draft Criteria for Evaluation of Concrete Bridges and Guidelines for Project Review
- VAOT Surveys of RR lines and structures.
- VAOT Environmental Permit Process for Town Transportation Projects
- VAOT Environmental Permit Requirements for Federal-Aid Town Highway and Bridge Projects

Key Definitions

Implementation

Federally assisted transportation activities administered by the VAOT and constituting undertakings under 36 CFR 800 fall under separate divisions of the agency. Some have established coordination procedures for Section 106 review, and some are handled in a less formal way at this time. All coordination efforts are periodically reviewed and updated, and revised procedures will be added to the Manual at the time of its annual review.

The VAOT Environmental Specialists (one for each of four regions) obtain and provide lists of programmed projects from all Divisions to the VAOT Officers. Provision of lists remains the responsibility for project managers in each Division. Individual requests for Section 106 review come directly from project managers. Based on the VAOT project schedule and Agency requirements, Officers prioritize and conduct project reviews and are responsible for final approval for all projects. The specialists ensure all environmental reviews required for the NEPA process, including Section 106 are completed and forward the NEPA document to FHWA. Project data is entered into the VAOT environmental database where the permitting progress of all projects can be tracked.

The following is a brief description of undertakings by Division, and a summary of VAOT Section 106 coordination protocols as of 12/2000.

Office of the Secretary

- Special Projects Division
  Projects are few in number but very large, time consuming projects with the capacity for extensive impacts to historic properties. Examples include the Bennington Bypass and Chittenden County Circumferential Highway projects. Projects may be in planning and construction for decades, and Act 250 will normally apply. Projects are normally handled by consultants; special situations will call for input from Officers and may be controversial. Officers will ensure early and ongoing coordination with the project managers which is essential to keeping these projects on track and avoiding unanticipated Section 106 concerns. Officers will review projects, direct changes as needed, and proceed with final approval.

Technical Services Division

- **Right-Of-Way**
  Projects typically include the sale, lease, or exchange of VAOT -owned surplus lands. These transfers are reviewed for the possible application of easements on historic properties within the parcels as appropriate. Information regarding these projects is forwarded to environmental specialists for distribution to the Officers for review and final approval.

- **Utilities**
  Projects include the installation or modification of utilities infrastructure where this work is the primary or sole component of the project: aerial and buried power lines, fiberoptics, water lines etc. Information regarding these projects is forwarded to environmental specialists for distribution to the Officers for review and final approval.

Maintenance Division

- **Aviation**
  Projects include airport infrastructure improvements including runway expansions and work to facilities – some of which may be historic buildings or structures. Archaeological properties may be impacted. It is the responsibility of Aviation project managers to provide information on all proposed projects to the VAOT Environmental Section showing area of potential affect, existing buildings and structures and proposed scope of work including all ground disturbances. The Officers will offer guidance on proceeding with required historic preservation review, likely including an initial request for project maps, plans, and identification of the resources. Once required information is in hand, Officers will review projects, direct changes as needed, and proceed with final approval. Site visits are generally recommended.

- **Maintenance Districts**
  Includes maintenance and upgrading of existing transportation infrastructure and confined to the right-of-way – including guardrail, signage, sight distance projects, bridges and culverts, ditches, bridge washing, water repellant, emergency repairs, and minor bridge repairs. Projects can come in individually, or listed in groups such as "betterment projects," "fast squad" projects, or statewide programs. It is the responsibility of District Administrators to provide information on all proposed projects to the VAOT Environmental Section showing area of potential effect, existing buildings and structures and proposed scope of work including all ground disturbances. The Officers will offer guidance on proceeding with required historic preservation review, likely including an initial request for project maps, plans, and identification of the resources. Once required information is in hand, Officers will review projects, direct changes as needed, and proceed with final approval. Site visits are generally recommended.

Project Development Division

In general, Section 106, Act 250, and VT 22 VSA reviews follow process described in the Project Development Process Manual (pp. 28), and Dec 22, 1997 Project Development Process Flowchart. Program-specific procedures are stipulated for the following sections of the Project Development Division:

- **Construction**
  Archaeology and Historic Preservation Officers schedule annual meetings with each of four construction area engineers to review construction issues. Meetings with project Resident Engineers are requested on an as-needed basis. Pre-construction meetings are mandated in the special provision sections of contracts as required by the Archaeology Officer or Historic Preservation Officer. These meetings are held to ensure that conditions of the Section 106 formal comment letters and other permits are implemented.

- **Local Transportation Facilities**
  Wide array of locally administered projects including transportation enhancements, building rehabilitation, bike/ped facilities, scenic easements, etc. The Local Transportation Facilities Guidebook provides thorough and specific guidance for LTF, local officials, and their consultants on the steps required for Section 106 compliance. Refer to sections 3-26 to 3-46 for environmental review process. It is the responsibility of the VAOT LTF project managers to provide the environmental section with lists of projects and scope of work descriptions, to ensure that qualified professionals are conducting resource ID and effect determinations as required, and to ensure that all review steps undertaken by their local officials and their consultants are carried out in accordance with the guidebook. Once required information is in hand, Officers will review consultants reports, direct changes as needed, and proceed with final approval.

- **Pavement Management**
  Most paving projects (95%) are reviewed under 2/1/96 Programmatic Agreement for Paving and Minor Highway Projects by consultants on retainer with VAOT Engineering subcontractors. Consultants undertake complete

review of projects under PA per 10/1/99 Paving PA Review – Revised Review Process, attach archaeology clearance from VAOT Archaeology Officer, and forward to VAOT Historic Preservation Officer for review and final approval. Consultants should consult Exempt Activities listed in 4/5/00 PA Appendix, which supercedes the Paving PA where the former is inconsistent with the latter.

- **Roadway and Traffic Design**
  Projects can be lengthy and complex. Officers will ensure early and ongoing coordination with Roadway project managers on design questions where significant impacts are possible to historic properties. It is the responsibility of Roadway project managers to provide information on all proposed projects to the VAOT Environmental Section showing area of potential affect, existing buildings and structures and proposed scope of work including all ground disturbances. Programmatic Agreement for Paving and Minor Highway Projects may apply. See Project Development Process and Flowchart. Once required information is in hand, Officers will review projects, direct changes as needed, and proceed with final approval.

- **Structures**
  Projects are frequently complex with potential for significant impact to historic properties. Programmatic Agreement for Projects Involving Historic Bridges may apply. See also Draft Criteria for Evaluation and Guidelines for Project Review. Requires early and ongoing coordination with Structures project managers on design questions where impacts are possible to historic properties. It is the responsibility of Structures Division project managers to provide information on all proposed projects to the VAOT Environmental Section showing area of potential affect, existing buildings and structures and proposed scope of work including all ground disturbances.Once required information is in hand, Officers will review projects, direct changes as needed, and proceed with final approval. See Project Development Process and Flowchart.

Rail Division

Projects may impact historic RR buildings (including 11 VAOT-owned depots), bridges, culverts and lines - most of which qualify as historic districts. Rail project managers advise environmental section of projects with historic resources present. Early and ongoing coordination is necessary to provide for Section 106 review. It is the responsibility of Rail Division project managers to provide information on all proposed projects to the VAOT Environmental Section showing area of potential affect, existing buildings and structures and proposed scope of work including all ground disturbances. Emphasis is given to the protection and preservation of historic RR depots as required by 22 VSA 14. The Programmatic Agreement for Paving and Minor Highway Projects and Exempt Activities listed in 4/5/00 PA Appendix may apply to minor RR related projects. Once required information is in hand, Officers will review projects, direct changes as needed, and proceed with final approval. Consult VAOT surveys of RR lines and structures.

Documentation

Permitting progress and related comments are entered into project files and the environmental database. Separate lists are maintained for projects not entered in database (e.g. enhancement projects, district maintenance projects).

Examples of recommended education and outreach projects:

- VAOT web site and Consultant Web Sites
- Temporary exhibits
- Traveling exhibits
- Permanent exhibits
- Lecture series
- Non-technical booklets
- Vermont Life Magazine article or news bulletin
- Videos
- Press releases
- Community archaeology projects using adult and youth volunteers (Field Schools, Summer Camps)
- Education curricula
- TV programs
- Lecture – slide show
- CD Rom
- Interactive virtual tours
- Digital publications
- Interpretive signage
- Site tours
- Site brochures
- Innovative programs see [Section 2(I)]

2(D) EDUCATION

Laws, Regulations, Guidelines

- Guidelines for Archaeological Studies (1989)

Key Definitions

- *CLG Commission* : Certified Local Government Historic Preservation Commissions certified through the National Park Service's Certified Local Government Program.

Implementation

- VAOT will provide a significant public education and interpretation component in its undertakings whenever appropriate.
- The goal of the public education effort is to provide information about newly identified resources, their historic context, and/or other similar resources in order to foster understanding of the significance of resources affected by an VAOT project.
- Education and outreach should be directed toward property owners, the town (both local government and community groups), educators, students and the general public, as appropriate.
- VAOT will require its consultants to submit site information as appropriate to the VAOT web site as well as consultant web sites.
- To the greatest extent possible, education outreach projects and programs should be conducted in consultation with the local community and other interested parties both during planning and implementation.
- Education and outreach activities will be coordinated with Native Americans as appropriate.
- The VT SHPO Guidelines for Archaeological Studies (1989) state that "all archaeological studies carried out in Vermont should interpret project results for the public benefit and present those findings to the public." The expected level of education and outreach differs for each study phase and is dependent on project size and results. The Guidelines offer some examples of education and outreach projects but archaeological consultants are encouraged to adopt new and innovative methods as well. The following incorporates recent advances in technology to offer as tools for public education and outreach within the general policy of the 1989 Guidelines.

Additional Guidance for Archeological Public Education Projects:

- Exceptional sites may require education and outreach after the Phase I study.
- Historic archaeological sites may be suited to different types of education and outreach efforts than prehistoric sites.
- Education and outreach activities will be coordinated with Native Americans as appropriate.

Education Specific to the Landowner:

- Site information will be provided to the landowner. Written information should include the Non-Technical Summary, Site Survey Form, and a site map if available.
- Additional site information will be provided to the landowner as it becomes available (including, for example, site reports, non-technical publications, etc.)
- A public meeting for site landowners and other interested persons may be appropriate depending on the results of the study.

Education Specific to the Town:

- To the greatest extent possible, local governments and CLG Commissions (where they exist), should be made aware of the archaeological study; project location, anticipated schedule, site tour information, etc.
- At the conclusion of the archaeological study, site information will be provided to the Town. Information may include the Non-Technical Summary, site map, GPS coordinates and report.
- A presentation to the Selectboard, Planning Commission, CLG Commission, and /or Regional Planning Commmission may be appropriate depending on the results of the archaeological study.

Documentation

- Products will be distributed to appropriate publics.

2(E) TRAINING

Laws, Regulations, Guidelines

Key Definitions

Implementation

- This section sets out training targets for each reporting period. The accomplishment of each training task is encouraged but, given possible changes in staff availability, workload, and timing, they are not mandatory under this agreement. The first period begins 1/1/01 and ends 6/30/01. The second begins 7/1/01 and ends 12/31/01. Reporting periods follow the calendar year thereafter.
- An evaluation of completed training activities and revisions to training targets will be undertaken as part of each annual review. Accomplishments will include development of training materials where the workshop will not yet have taken place.
- Depending on the subject, workshops, seminars and other training activities can be collaborative efforts between VAOT and VDHP and other groups including Native Americans as appropriate.

Training targets for the period 1/1/01 – 6/30/01, and 7/1/01 – 12/31/01:

- Orientation to PA and Manual Section 106 provisions for executive staff.
- Public participation in the Section 106 review process: for VAOT project managers and consultants.
- Best Practices: innovative approaches for Section 106 compliance as highlighted in current and completed VAOT projects, other State DOT's.
- Archaeological Priorities.
- Section 106 training for VAOT District Staff.
- Ongoing compliance workshops for VAOT Project Managers.
- Professional development and training for Officers, including GIS.
- Ongoing training for construction districts and area engineers.

Documentation

Accomplishments will be evaluated and discussed in the annual VAOT report to VDHP. See Annual Report requirements in Section 3A.

2(F) ANNUAL EVALUATION

Laws, Regulations, Guidelines

Key Definitions

Implementation

- The Officers shall produce an Annual Report in January and provide copies to the SHPO and FHWA.
- An Annual Evaluation meeting is due by March 1 of each year, and includes the parties to the PA – VAOT, FHWA and SHPO. AOT and SHPO shall convene the meeting at a mutually agreed upon date and time.
- The SHPO needs to schedule a review of the Report by the Vermont Advisory Council on Historic Preservation prior to the Annual Evaluation meeting.
- Refer to the Annual Report Outline in 3(A) for a summary of what should be included in the Report. The reporting period for the Annual Report is the calendar year. The Report summarizes undertakings and findings in a table format, and includes a narrative description of accomplishments, concerns, and recommendations regarding possible changes to the Manual or the PA.
- After the Annual Evaluation meeting, the SHPO shall provide a written response to the Annual Report within 30 days of the Annual Evaluation meeting. The SHPO may conclude that the terms of the PA and Manual are being met, or that performance under the agreement is less than satisfactory.
- If the SHPO concludes that performance is less than satisfactory, the Officers should consult with the SHPO and FHWA to improve performance, and meet within six months to evaluate improvements.

Documentation

- The Annual Report should follow the Annual Report Outline in section 3(A) of the Manual.

2(G) TRANSITION

Laws, Regulations, Guidelines

Key Definitions

Implementation

- This section acknowledges that transition procedures are required for the following potential situations:

- Projects have been partially reviewed under Section 106 at the time of the implementation of this agreement.
  TRANSITION: VAOT Officers will complete the reviews under the terms of the PA.

- Existing MOA's signed by all parties require SHPO to review documents or monitor compliance with stipulations.
  TRANSITION: VAOT Officers will assume the role of SHPO to carry out tasks specified under existing MOA's.

- Re-considerations of SHPO NR/SR eligibility determinations - rarely made, but can occur under certain conditions.
  TRANSITION: VAOT Officers will request concurrence from SHPO.

- Changed circumstances require modifications to projects previously permitted under Section 106.
  TRANSITION: VAOT Officers will document changed circumstances, new project design, and proceed with new Section 106 review of new design unless changes have no potential to affect historic properties.

Documentation

Documentation for determinations and supporting materials will be generated and copied to other parties per normal PA review procedure.

2(H) DELEGATION

Laws, Regulations, Guidelines

Key Definitions

Implementation

- Archaeology and Historic Preservation Officers are responsible for all findings regarding (i) determination that an undertaking exists; (ii) the potential area of an undertaking's effect; (iii) the eligibility of archaeological or historic properties to the National Register of Historic Places within the projects area of effect; (iv) determinations of effect; (v) interpretation of the Secretary of the Interior's Standards for Historic Preservation Projects; (vi) conformance with Vermont Guidelines for Archeological Studies of 1989; or (vii) applicability of the Manual of Ancillary Standards and Guidelines adopted pursuant to this PA, shall rest with VAOT's Archaeology Officer or Historic Preservation Officer.
- These responsibilities may not be delegated.

Documentation

2(I) INNOVATIVE PROGRAMS

Laws, Regulations, Guidelines

Key Definitions

Implementation

Ongoing:

- Analysis and synthesis of past data accumulated through VAOT/FHWA projects and distribute such information.
- Development of GIS-based Statewide or Watershed-wide Predictive Models.
- Improved data management and access (ex: development of electronic database).
- Development of historic contexts and preservation priorities.
- Consultation with Native American groups on mutually important issues and programs.
- Sponsor special education and outreach programs (ex: VT Archaeology Week).
- Develop GIS based historic building and structure surveys.

Future Consideration:

- Conduct statewide thematic, corridor, or other surveys of historic properties.
- Preparation and implementation of relevant preservation or management plans.
- Encourage creative mitigation when and where appropriate.
- Develop new policies that enhance permanent resource protection (for example, purchase important sites adjacent to ROW, accelerate purchase of important sites after Phase I or II if land purchase is eventually anticipated, purchase easements, etc.).
- Develop and encourage permanent site protection strategies.
- Develop streamlined approach to "property easement" project review.

Creative mitigation includes:

- Contribute to local preservation effort
- Prepare preservation plan or ordinance
- Establish fund for future preservation activities
- Restore or preserve a resource similar to one adversely affected
- Develop off-site mitigation

Documentation

- The type of documentation required will depend on the chosen program implemented.

3(A) TYPES OF DOCUMENTATION

The following forms are included in this section:

1. Historic Buildings and Structures Identification and Evaluation Form
2. Vermont Archeological Inventory Site Review Form (digital template)
3. Exempt Activity Review Form.
4. No Historic Properties Affected Review Form
5. No Adverse Effect Letter Format
6. Adverse Effect – Standard Mitigation Letter Format
7. Memorandum of Agreement Form
8. Annual Report Outline

Vermont Agency of Transportation

HISTORIC BUILDINGS AND STRUCTURES IDENTIFICATION AND EVALUATION

VAOT Project

State Planar Coordinates	Street Address Town County

Property Type	Date Built	Style

Architectural or Structural Description

Statement of Significance Meets National Register Criteria A___ B___ C___ D___ Not Eligible ___ Historic Contexts _____ Justification:

Recorded by Date

DHP #	Added to State Register on

VERMONT ARCHEOLOGICAL INVENTORY
SITE SURVEY FORM DATA DICTIONARY (rev. 2/01)
FINAL DRAFT

Vermont Division for Historic Preservation
National Life Building, Drawer 20
Montpelier, Vermont 05602-0601

SEMI-

DRAFT INSTRUCTIONS FOR TEMPLATE DEVELOPMENT and DATA DICTIONARY:

General:

1. **left click on any field brings up pick list (use blank box and arrow)**
2. **Right click on any field brings up data dictionary and HELP info**
3. **Use "undefined," "unknown," and "not applicable" in any pick list where appropriate (this also accommodates existing, incomplete site survey forms)**

**** = pick list**

1. Site No. **[must be formatted w/caps: VT-COUNTY ABBREV -]** _____

2. A. Site Name **[common name of site, sometimes property name, landowner name, nickname used by survey crew, etc.]**

2. B. Other site number **
[suggested pick list:
USFS
Field #
Other
Not Applicable]

3. Town ****[pick list available from VAOT]**

4. County ****[auto loaded, based on town name]**

5. Site Type **[for pick list, look at 93 list]
6. Reported by ****

[Suggested pick list:
DHP staff
CAP
UMF
NRCS
USFS
LCMM
Other [mandatory field: prompt to fill in text]
[how to deal w/ other VT consultants?? Collectors?]

7. Reporter's Address

_____

_____

8. Date Found **[4 digit year field]** / / 9. Date Submitted **[4 digit year field]** / / **[auto -generated by date emailed out]**

10. Discovered by (if different than reporter) and address **

[suggested pick list:
not applicable
other
[with prompt to fill in address text]

_____

11. Primary Project Sponsor **

** **DHP**
VAOT
NRCS
USFS
Other fed agency
State agency
Private developer
Multiple
Utility
Non-profit
Individual or Academic Researcher
Not applicable
[Should there be Collector field??]

12. Project Name [text field]_____

13. Study Phase **
** **archeological sensitivity assessment (aka field inspection)**
Phase 1
Phase 2
Phase 3
Not applicable

14. Map Location Data **
** **Vt. State Plane NAD 83 Coord.** _____
UTM _____

[must pick one; then appropriate field below opens
add drop down list: if site has gone to Phase II or III studies, provide shape file]

15. If Orthophoto:
VCS NAD 83 Coord. E [6 spaces]_____N [6 spaces]_____

[can be blank if UTM filled out
for QA/QC purposes, put in validation check for min and max coordinate values for the Town]

16. UTM/Zone ** 18
19
[can be blank]

17. If UTM:
Easting [7 spaces]_____ Northing [7 spaces] _____

[can be blank if VCS NAD 83 filled out
for QA/QC purposes, put in validation check for min and max coordinate values for the Town]

18. USGS Format **
** **7.5**
15
7.5 x 15

19. USGS Quad **[pick list available from VAOT]** _____

20. Permanent Datum Coordinates (**open field**) _____

21. Directions to Site **[text]** _____

22. Landowner type **
** **private**
town
state/ANR

state/VAOT
state/other
USFS
US Fish & Wildlife
other federal
The Nature Conservancy
Other

23. Landowner Name/Address **[text field]**

24. Site Located By **
** **CRM professional**
researcher
informant
collector
DHP staff
other
[do we need this field?? Seems duplicative . See #5]

25. How Located **
** **surface**
subsurface testing
underwater
archival
other

26. Prehistoric Context ** **[can pick more than 1]**
** **Paleoindian**
Early Archaic
Middle Archaic
Late Archaic
Terminal Archaic
Early Woodland
Middle Woodland
Late Woodland
Contact
Undetermined prehistoric

27. Historic Context ** **[can pick more than 1]**
** **Contact**
Exploration
Conflict
Early Settlement
Industry and Commerce
Agriculture
War and Peace
Tourism
Transportation
Culture and Government
Housing and Community
Undetermined historic

28. Historic Time Range **
** **1600 – 1700**
1700 – 1770
1770 – 1800
1800 – 1850
1850 – 1900

post 1900
undetermined

29. Site Description and Environmental Setting [text field]
[Recommend that following information be prompted:
site length and width in m/ft , distance to and type of closest drainage, proximity to relict drainages (include distance and type), proximity to springs, intermittent streams, unnamed intermittent stream, site elevation above closest drainage (in meters), whether or not subject to flooding; if Phase III or III, describe total site area excavated (in sq. m and auto calculate % of site area)
what else??]

30. Data Found [text field]
[Recommend that following information be prompted: describe relationship of all cultural materials and features, total artifacts found, artifact distribution, loci number and size, materials not collected, what else???]

31. Greatest Depth Range of Data Found **
**
surface
0 –20 cm
20 –40 cm
40 – 60 cm
60 – 80 cm
80 –100 cm
> 100 cm

32. Data collection Methodology **
** surface collection
eroding surface
subsurface testing
backhoe trenching
underwater recording
other (specify)

33. Total Units Excavated (0, 1, 2, 3, 4 .....)

34. Positive Units Excavated **
** 0
specify a number or indicate O

35. Estimated site area [in sq. m]

36. Dating methods (use uncalibrated): **
** C -14 Dates/Lab Numbers [specify] (send hard copy of lab results to DHP)
diagnostic artifacts
archival
other dating technique

37. Artifact/Data Repository ** [pick list and open text for address]
** UVM
professional CRM consultant
private collection
other university
private owner
collector
State of Vermont
Vermont Archeology Center (in process of development)
Specify other

38. Statement of Significance **[text field]**

39. State/National Register Status ** **[pick 1 or more]**

** **listed on SR**
listed on NR
elig. SR/ NR
not elig. SR /NR
insufficient Information

40. Topographic setting **

** **lakeside**
pondside
streambank
floodplain
relict drainage
rise/knoll
edge of wetland
lake/stream confluence
river/stream confluence
mountain or ridge top
side of draw
head of draw
valley edge
outcrop/ledge
specify another setting

41. Slope **

** **0-3%**
3-8%
8-15%
> 15 %

42. Elevation **[in m w/ auto display in ft]** _____

43. Aspect **

**N
N E
E
SE
S
SW
NW
W

44. Original landform ** **(based on VT Surficial Geology Map)**

** **Champlain Sea or glacial lake shoreline**
glacial deposits:
- **till and moraine sediments**
- **glacial fluvial sediments**
  - **kame deposits**
  - **esker deposits**
  - **outwash deposits**

aeolian deposits
glacial marine sea/lake bottom sediments
marine sea/lake delta complex
pluvial sediments
bedrock
Holocene fluvial deposits
not applicable [for underwater sites]

45. Current setting **

** **crop land**
sand blow

lawn/yard
urban
deciduous woodland
coniferous woodland
mixed woodland
scrub/old field
park
beach
water's edge
underwater
specify other

46. NRCS soil map series ** [available from NRCS??]

47. Drainage Basin ** [get pick list from duncan]

48. Watershed Affiliation ** [14 digit identifiers based on NRCS hydrological units]

49. Closest water to site **

** existing [if this field checked, complete 50]
relict [if this field checked, complete 51]
no apparent water within 500' [??][if this field checked, goes to 52]

50. Closest existing water to site** [pick list w/ mandatory text field for each]

** river [ ] distance in m ____
brook/stream [ ] distance in m ____
seasonal flowage [ ] distance in m ___
lake [ ] distance in m ___
pond [ ] distance in m ___
wetland [ ] distance in m ___
not applicable

51. Closest relict water to site ** [how to deal with it??]

** oxbow
spring
drainage
beach line
glacial lake
wetland
specifiy other
not applicable

52. Site Integrity **

** never plowed
plowed
disturbed
heavily disturbed
road,
erosion
looting or other type of vandalism
development
specify other

53. Report title ** [note: may not yet be available when inventory form submitted]

** not applicable
in progress
report completed (add text field:
author(s)

date
full title
prepared by
prepared for

54. Previous collections **
** **not applicable**
specify name/address

55. Other site information **
** **Historic Map References**
** **ID map and date:**
Beers
Walling
Sanborn
USGS 15'
other

Artifact Catalog
Site Maps
Other Database Links
Digital Photos
Published paper
Unpublished manuscript
Other Data
None known

VDHP USE ONLY

56. DHP Environmental Review Number **[text]**_____

57. Act 250 Permit Number **[text]** _____

58. 36 CFR 61 Certified **

** **yes**
no
reviewed by 36 CFR 61 DHP staff

59. Updated Site Form **[can use multiple dates]**_____

60. Management Status/Conservation Easements and Holders ** **[and text]**

** **conservation easement [specify name/address of easement holders]**
Underwater Historic Preserve
State Archeological Landmark

61. a. DHP staff QA/QC verification and database entry **[text: specify name]**
VDHP date entered **[4 digit year field]** / /

61. b. DHP staff QA/QC verification and database entry **[text: specify name]**
VDHP date entered **[4 digit year field]** / /

Vermont Agency of Transportation **Section 106 Review Form**

Exempt Activity Comment:

VAOT Project

GIS / State Planar Coordinates

Street Address
Town **County**

Applicable Exempt Activities

Example
ROADWAY
1. *Rehabilitation of existing pavement and/or application of new pavement on existing travel lanes and existing paved shoulders with shoulder backing.*

CULVERTS AND DITCHING
1. *Reestablishment of existing ditches to original width.*

UTILITIES
2. *Replacement and relocation of existing utility poles between edge of sidewalk and road.*

I have reviewed the attached plans dated _____ for this project and have determined that the project involves only those activities listed above and will not have any other effects on historic and archeological resources. Completion of this form in accordance with the VAOT PA evidences that FHWA has satisfied its Section 106 responsibilities for this undertaking.

_____ _____
Archeology Officer Date

_____ _____
Historic Preservation Officer Date

Vermont Agency of Transportation **Section 106 Review Form**

No Historic Properties Affected

VAOT Project

GIS / State Planar Coordinates

Street Address
Town **County**

Project Description

Area of Potential Effect

☐ **Map Attached**

☐ **Project does not involve any ground disturbance.**

☐ **There are no known or expected archeological sites in the Area of Potential Effect. See attached supporting documentation or further explanation and justification on reverse.**

☐ **There are known or expected archeological sites in the Area of Potential Effect, but the project will have no effect, positive or negative, on them. See attached supporting documentation or further explanation and justification on reverse.**

Completion of this form in accordance with the VAOT PA evidences that FHWA has satisfied its Section 106 responsibilities for this undertaking.

Archeolog y Officer **Date**

OVER

☐ **There are no buildings or structures in the APE.**

☐ **There are no historic buildings, structures, or landscapes in the Area of Potential Effect. See further explanation and justification below.**

☐ **There are historic buildings, structures, or landscapes in the Area of Potential Effect, but the project will have no effect, positive or negative, on them. See further explanation and justification below.**

Completion of this form in accordance with the VAOT PA evidences that FHWA has satisfied its Section 106 responsibilities for this undertaking.

_____ _____

Historic Preservation Officer **Date**

Further explanation and justification for determination of No Historic Properties Affected

Use this space to explain why the building, structure or potential archeological site present in the APE is not an Historic Property or why it will not be affected by the project. Include enough information to justify the conclusion. For instance, summarize the negative results of a field investigation of a potential archeological site, or explain how buildings greater than 50 years old have lost integrity to the extent that they are no longer eligible for the National Register. Be specific, so that a reader can reach the same conclusion from the information provided. Generalize about a group of resources, if that is appropriate. The use of photographs for buildings is encouraged, but not required. Provide attachments as appropriate.

Photos Attached ____
Map Attached ____

Historic Resource Group, Environmental Section
Vermont Agency of Transportation
National Life Building, Drawer 33
Montpelier, VT 05633

Archaeology 802-828-3965 (fax) 828-2334 duncan.wilkie@state.vt.us
Historic Preservation 802-828-3964 (fax) 828-2334 scott.newman@state.vt.us

MEMORANDUM

To: Rob Sikora, FHWA

Date:

Subject: **NO ADVERSE EFFECT**

Project Name:

Project Number:

Location:

Distribution: State Historic Preservation Office
Project Files, Environmental Section
VTrans Project Manager

The Vermont Agency of Transportation has reviewed this undertaking according to the standards and procedures detailed in the 4/5/99 Programmatic Agreement to implement the Federal-Aid Highway Program in Vermont and, the PA Manual of Standards and Guidelines. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes, and settings, and to known or potential archeological resources. The following details the VAOT Officers findings supporting our effect determination for this project of No Adverse Effect. Completion of this document evidences that FHWA has satisfied its obligations under Section 106 for this undertaking.

Project Description: *Describe project: type, specific location(s), purpose and need, scope of work, specific effects to historic properties. Attach map(s) as required.*

Above-Ground Historic Properties: *Define Area of Potential Effect (APE)and attach map if required. List surveyed historic properties in APE with Survey # references. List unsurveyed historic properties in APE with building Identification and Evaluation forms, and VAI forms. Note boundaries of existing, new, or amended historic districts and attach district map. Specify properties that are affected and nature of effect.*

Archaeological Resources: *List all known and discovered archaeologically sensitive sites and properties in the APE. Provide VAI references, maps, GIS data, and consultants reports to support findings as required. Specify properties that are affected and nature of effect..*

Public Participation: *Provide information and/or documentation regarding public input for this project. Specify the nature and frequency of consultation and who was consulted. Describe significant changes to design that have been the result of public involvement.*

Analysis: *Discuss the application of the the Secreatary's Standards to project to support finding of No Adverse Effect. Be specific about nature of all effects: direct, indirect, reasonably forseeable, and cummulative to all known and potential historic and archaeological properties..*

Stipulations: *Specify all conditions on implementation of project that support the finding of No Adverse Effect. scope of work, responsible parties, timing, performance criteria, and monitoring. Specify all stipulations to be included in the spcial provisions section of the construction contract.*

Attachments: *Attach supporting documents required to support finding of No Adverse Effect: maps, photographs, plans, building Identification and Evaluation forms, VAI forms, correspondence etc. List attachments in this section.*

Archaeology Officer Date Historic Preservation Officer Date

Historic Resource Group, Environmental Section
Vermont Agency of Transportation
National Life Building, Drawer 33
Montpelier, VT 05633

Archaeology 802-828-3965 (fax) 828-2334 duncan.wilkie@state.vt.us
Historic Preservation 802-828-3964 (fax) 828-2334 scott.newman@state.vt.us

MEMORANDUM

To: Rob Sikora, FHWA

Date:

Subject: **ADVERSE EFFECT - STANDARD MITIGATION APPLICABLE**

Project Name:

Project Number:

Location:

Distribution: State Historic Preservation Office
Project Files, Environmental Section
VTrans Project Manager

The Vermont Agency of Transportation has reviewed this undertaking according to the standards and procedures detailed in the 4/5/99 Programmatic Agreement to implement the Federal-Aid Highway Program in Vermont and, the PA Manual of Standards and Guidelines. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes, and settings, and to known or potential archeological resources. The following details the VAOT Officers findings supporting our effect determination for this project of Adverse Effect - STANDARD MITIGATION APPLICABLE. Completion of this document evidences that FHWA has satisfied its obligations under Section 106 for this undertaking.

Project Description: *Describe project: type, specific location(s), purpose and need, scope of work, specific effects to historic properties. Attach map(s) as required. Specify anticipated adverse effect.*

Above-Ground Historic Properties: *Define Area of Potential Effect (APE) and attach map if required. List surveyed historic properties in APE with Survey # references. List unsurveyed historic properties in APE with building Identification and Evaluation forms, and VAI forms.*

Note boundaries of existing, new, or amended historic districts and attach district map. Specify properties that are adversely affected and nature of effect.

Archaeological Resources: *List all known and discovered archaeologically sensitive sites and properties in the APE. Provide VAI references, maps, GIS data, and consultants reports to support findings as required. Specify properties that are adversely affected and nature of effect..*

Public Participation: *Provide information and/or documentation regarding public input for this project. Specify the nature and frequency of consultation and who was consulted. Describe significant changes to design that have been the result of public involvement.*

Analysis: *Discuss the application of the the Secreatary's Standards to project to support finding of Adverse Effect. Be specific about nature of all effects: direct, indirect, reasonably forseeable, and cummulative to all known and potential historic and archaeological properties. Provide evidence that no reasonable and feasable alternatives exist that would avoid the adverse effect.*

Standard Mitigation Application: *Quote verbatim and list the standard mitigation measures to be applied to mitigate the adverse effects. Provide specifics about the application of the measures and how they achieve adequate mitigation.*

Stipulations: *Specify all implementation details of standard mitigation measures:scope of work, responsible parties, timing, performance criteria, and monitoring. Specify all stipulation to be included in the spcial provisions section of the construction contract.*

Attachments: *Attach supporting documents required to support finding of Adverse Effect – Standard Mitigation Applicable: maps, photographs, plans, building Identification and Evaluation forms, VAI forms, correspondence etc. List attachments in this section.*

Archaeology Officer	Date	Historic Preservation Officer	Date

MEMORANDUM OF AGREEMENT

AMONG THE FEDERAL HIGHWAY ADMINISTRATION (FHWA),
THE AGENCY OF TRANSPORTATION (VTRANS),
AND THE STATE HISTORIC PRESERVATION OFFICER (SHPO)

REGARDING *name of undertaking / project #*

WHEREAS, the FHWA proposes to *what is proposed in regard to the undertaking* to implement *name of undertaking*; and

WHEREAS, the FHWA has established the *name of undertaking* 's area of potential effects, as defined at 36 CFR 800.16(d), to be *specify area of potential effects*; and

WHEREAS, the FHWA has established that *name of undertaking* will have adverse effects on *specify historic property/properties, including citations of reports, etc. giving locations and descriptions*; and

WHEREAS, the FHWA has determined that the Standard Mitigation Measures as defined in the VTrans Manual of Standards and Guidelines are not appropriate to mitigate the adverse effects; and

WHEREAS, the FHWA has consulted with the State Historic Preservation Officer in accordance with Section 106 of the National Historic Preservation Act, 16 U.S.C. 470 (NHPA) and its implementing regulations (36 CFR Part 800) to resolve the adverse effects of *name of undertaking* on historic properties; and

(Optional) WHEREAS, the FHWA and the SHPO have invited *specify others invited to concur* to participate in consultation and to concur in this MOA; and

(Optional -- other WHEREAS clauses as needed to explain pertinent circumstances)

NOW, THEREFORE, the FHWA and the SHPO agree that, upon the FHWA's decision to proceed with *name of undertaking*, the FHWA shall ensure the following stipulations are implemented to in order to take into account the effects of *name of undertaking* on historic properties.

Stipulations

On behalf of the FHWA, the VAOT shall ensure that the following stipulations are implemented:

(Insert stipulations)

(refer to workbook Section 106: An Advanced Seminar by Thomas F. King for guidelines on the development and writing of MOA stipulations)

(MOA must contain sunset provision)

(MOA must contain provision for archaeological discoveries as written and included with this section of the Manual)

Execution of this MOA by the FHWA and the SHPO, its subsequent acceptance by the Council, and implementation of its terms evidence that the FHWA has afforded the Council an opportunity to comment on *name of undertaking* and its effects on historic properties, and that the FHWA has taken into account the effects of *name of undertaking* on historic properties.

FEDERAL HIGHWAY ADMINISTRATION

_____ Date: _____
FHWA Division Administrator

STATE HISTORIC PRESERVATION OFFICER

_____ Date: _____
State Historic Preservation Officer

Concur:

VT AGENCY OF TRANSPORTATION

By: _____ Date: _____

VAOT ARCHAEOLOGY OFFICER

_____ Date: _____

VAOT HISTORIC PRESERVATION OFFICER

_____ Date: _____

(Other invited concurring parties)

(Minimum Stipulations for Projects That May Involve Significant Ground Disturbance)

Stipulations: Archaeological Properties: FHWA will ensure archaeological study is conducted in a manner consistent with the Secretary of the Interior's Standards. The completed survey will be sufficient to determine the nature and extent of resources, evaluate their National Register significance, and determine appropriate treatment measures. If the survey results in the identification of properties eligible for the National Register, effects on these properties' values will be assessed to determine the importance of preservation in place versus data recovery. If preservation in place is necessary, a change in design or location will be recommended, if feasible and prudent. If the properties are solely valuable for the information they contain, a data recovery plan will be developed and implemented.

STIPULATIONS

A: Archaeological Resources:

1. All archaeological studies will be completed in accordance with the Secretary of the Interior's Standards and guidelines for Archaeology (48 FR 44734-37), Vermont State Historic Preservation Officer's (SHPO) Guidelines for Archaeological Studies (1989).
2. All archaeological studies must be completed prior to the initiation of any ground disturbing activities or any other construction activity related to the project.

B: Discovery:

1. The project will stop immediately if previously unidentified archaeological sites, including human remains and/or cultural items, are discovered during project construction.
2. Burials are considered archaeological sites under state & federal laws.
3. The Construction Company or Resident Engineer will immediately notify the VAOT Archaeology Officer who will notify the SHPO.
4. No further construction will proceed in the site area until it has been reviewed and documented according to 36 CFR 800.11.
5. The VAOT Archaeology Officer will conduct a field inspection of the site to determine its potential National Register eligibility and the project's potential effects.
6. The VAOT Archaeologist or the Archaeology Officer may hire an Archaeological Consultant if additional information is necessary to determine site boundaries and NR eligibility.
7. If the site is determined NR eligible, the preferred treatment is to avoid it and protect it in place.
8. Site significance and treatment options should be discussed with the appropriate interested public parties and documented.

9. If site avoidance is not possible, then data recovery of the site must be completed in accordance with 36 CFR 800 and the Guidelines for Archaeological Studies.

C: Treatment of Human Remains:

1. If human remains and/or associated cultural items are discovered during construction, that portion of the project will stop immediately. The remains will be respectfully covered and the project resident engineer will immediately contact the VAOT Archaeology Officer who will notify the SHPO.
2. The VAOT Archaeology Officer will also contact the Town Sheriff, Town Clerk , Chief Medical Examiner, and State Police as well as Native Americans, when appropriate, and shall follow the requirements of state law.
3. If the human remains are identified as Native American, then a treatment and reburial plan will be developed in full consultation with the appropriate Native American group(s) as identified above.
4. Human remains and cultural items should not be disturbed or removed from their original location if at all possible. [refer to Advisory Council for Historic Preservation Policy Statements: Native American Concerns (1993)]
5. Avoidance and preservation in place is the preferred option for treating human remains.
6. All determinations will be made or approved by the Archaeology Officer.
7. If human remains are identified, a written treatment plan will be developed in consultation with the VAOT Archaeology Officer, SHPO and with public parties such as Native Americans, local government and others as appropriate.
8. Recovery when necessary, should be done carefully, respectfully and completely in accordance with the proper archaeological methods (as outlined in 36 CFR 800 and the Guidelines for Archaeological Studies, 1989) [also refer to Advisory Council for Historic Preservation Policy Statements: Native American Concerns (1988, 1993)].
9. Refer to Programmatic Agreement Manual of Standards and Guidelines, Section 4 (J) for additional guidance.

12/00 **Annual Report Outline for 2(F)**

Table summary

-project name /numbers
-town
-identification findings (# of properties added to inventories, determined NR eligible, etc.)
-determination of effect
-resource results in adverse effects (Standard Mitigation Measures, archeo phase 3 studies, moved buildings, demolitions, etc.)

summary statistics from each category

Narrative (2- 4 pages, combined archeology and buildings)

-observations on statistics in table (e.g. explanation of anomalies, year to year comparisons)
-accomplishments
  -highlights of resource protection activities
  -innovative programs
  -summary of important archeo logical discoveries
-problems/concerns
-recommendations for changes to process, PA, Manual, etc.
-summary of staff and consultant training held
-summary of staff and consultant training needed
-views of AOT on the effectiveness of the PA

Performance Statement

-a statement that the Officers believe that VAOT satisfactorily met the terms of the PA and Manual during the review period
-signature lines for the Historic Preservation Officer and the Archeology Officer

Enclosures

-any VAI or VHSSS forms or other documentation not previously submitted during the year

3(B) GIS Systems

Laws, Regulations, Guidelines

- Guidelines for Archaeological Studies (1989)

Key Definitions

- *GIS*: Geographic Information Systems.
- *ArcView*: a user friendly software for storing, manipulating, and retrieving GIS information.
- *VAI*: Vermont Archeological Inventory, maintained by the SHPO to document the state's recorded archeological sites.
- *VCGI*: Vermont Center for Geographic Information .

Implementation

- The SHPO is developing a survey plan for architectural resources that will include a strong GIS component, and when it is completed, pertinent information from the plan will be included here. Planning for a GIS system for archeological resources is further advanced , and is outlined below.
- Convert all archaeological site information into electronic data files (both site data and geographic information) so VAOT can use this information in planning and reviewing projects for archaeological resources.
- Collaborate with SHPO to plan and implement the archeological data conversion project from paper to electronic systems.
- Conduct "Feasibility Study for Developing an Archaeology Predictive Model for the State of Vermont" **(completed 9/97)**.
- Hold Statewide Workshop on Developing a Vermont Archaeological Predictive Model **(held 2/99)**.
- Develop appropriate VAI site form template for use by consultants and as basis for electronic data base (final draft nearing completion).
- Contract with VCGI to supply technical knowledge for development of a number of RFP tasks (development of electronic site form, ArcView date files for all known sites, and development of predictive modeling), assist in selection of GIS consultant, and review consultant deliverables and QA/QC on all electronic data .
- Collect all available electronic files on archaeological sites in Vermont (sources: NRCS, GMNF, UVM-CAP, UMF), and convert to standard ArcView file format. Identify the number of professionally recorded sites which do not have electronic site locations. Determine the exact number of professionally recorded sites to be used in the predictive modeling.
- Develop procedures and timeframe for entering other paper data onto database and GIS maps. Identify cost and how and who can accomplish.
- Design database and mapping format and protocols for use by VAOT/SHPO and consultants.
- Consult with likely users after development of system proto-type.
- Identify respective responsibilities of VAOT and SHPO in operations and maintenance of archeology data base and GIS mapping.

Documentation

3(C) ARCHAEOLOGY PLANNING AND RESEARCH

Laws, Regulations, Guidelines

- 36 CFR 79 [Curation of Federally Owned and Administered Archaeological Collections]
- 36 CFR 800 [Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites]
- National Historic Preservation Act [Section 101(a)(7)(A)])
- Archaeological Resources Protection Act [Section 5]
- Vermont Historic Preservation Act (22 VSA 14), sections 723(8), 764, 767
- Guidelines for Archaeological Studies (1989)
- Advisory Council on Historic Preservation Policy Statements: Native American Concerns (1993)
- Native American Graves Protection and Repatriation Act (PL. 101-601) and its regulations (43 CFR Part 10)

Key Definitions

- *Archeological collections* include artifacts, soils and feature samples, floral and faunal data, records, reports, photographs and other sets of data recovered from an archeological site and determined to require collections care.

Implementation

1) Conduct a Feasibility Study in consultation with the Division for creating a Vermont Archeology Research Center, for permanently caring for AOT-derived archeological collections, and for maximizing and enhancing their interpretive and educational values.
2) Develop a schedule for implementing the feasibility study; in collaboration with the Division, identify project partners and additional sources of funding; consult with Native Americans and other partners in project planning and implementation
3) Immediately implement short-term recommendations affecting statewide consultants, for example:
    - Establish interim collections care facility
    - implement appropriate collections care fees structure
    - implement data collecting and retention guidelines as provided by project consultant
    - provide information on the archeology research center project, collections care policies and guidelines, and other related topics on the VAOT web site
    - Establish and implement a process for securing legal agreements with landowners, for making loans to other institutions, etc.
    - Identify staffing and additional resources needed to implement feasibility study, both short-term and long-term

4) Establish working group to continue work on Native American repatriation (NAGPRA) issues and other issues important to AOT.

Documentation

- Feasibility Report.
- AOT archeological collections data managed on database with public access component
- Legal agreement documents including:
- permanent loan, gift, or donation agreements from landowner
- partner commitments for Vermont Archeology Research Center
- other

4(A) DETERMINATION OF UNDERTAKING AND ASSESSMENT OF AREA OF POTENTIAL EFFECT

Laws, Regulations, Guidelines

- 36 CFR 800.3 (Initiation of Section 106 Process)

Key Definitions

- *Undertaking* means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a Federal agency [36 CFR 800.16(y)].
- *Area of Potential Effect (APE)* means the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking [800.16(d)].

Implementation

- FHWA delegates to VAOT Archaeology and Historic Officers the responsibility to: 1, determine whether proposed action is an undertaking; 2, determine and document the area of potential effects (APE) and: 3, determine whether historic properties may be affected.
- The APE is the area in which historic properties may be affected by direct and/or indirect effects, and effects that may be cumulative or reasonable foreseeable (refer to Manual section 4(G) for criteria for, and examples of, adverse effects.)
- The APE may be significantly larger than the project construction area, to possibly include viewsheds, traffic corridors, historic downtowns and rural historic districts.
- The APE may be discontiguous.
- Federal undertakings that may affect historic properties include leasing properties, property easements, land transfers, and right-of-way purchases.

Documentation

- APE will be documented in a brief written description, map, and/or GIS database.

4(B) IDENTIFYING HISTORIC PROPERTIES

Laws, Regulations, Guidelines

- 36 CFR 800.4 (Identification of Historic Properties)
  www.achp.gov/usersguide
- 36 CFR 63 (Determinations of Eligibility for Inclusion in the National Register of Historic Places)

- National Register Bulletins (selected relevant Bulletins)
  - How to Apply the National Register Criteria for Evaluation
  - How to Complete the National Register Registration Form
  - Defining Boundaries for National Register Properties
  - Guidelines for Evaluating and Documenting Rural Historic Landscapes
  - Guidelines for Evaluating and Documenting Historic Aviation Properties
  - Guidelines for Evaluating and Registering Historic Archeological Sites and Districts
  - Guidelines for Evaluating and Documenting Traditional Cultural Properties (TCP)
  - Guidelines for Evaluating and Nominating Properties that Have Achieved Significance Within the Past Fifty Years
  - Guidelines for Evaluating and Registering Cemeteries and Burial Places
  - Nominating Historic Vessels and Shipwrecks to the National Register
  - How to Evaluate and Nominate Designed Historic Landscapes
  - Guidelines for Evaluating and Documenting Properties Associated with Significant Persons

  www.cr.nps.gov/nr

- The Vermont Historic Preservation Plan – Historic Contexts
- Multiple Property Documentation Forms (MPDF's) for National Register Listings
  - Metal Truss, Masonry, and Concrete Bridges in Vermont
  - Agricultural Resources of Vermont
  - Historic Resources of the Mad River Valley
  - Educational Resources of Vermont
  - Historic Government Buildings of Vermont
  - DRAFT Hydroelectric Generating Facilities in Vermont
  - DRAFT Maritime Resources of Vermont
  - DRAFT Chittenden County Circumferential Highway (Prehistoric Resources) UVM-CAP, Report No. 197, May 1988.

Vermont Historic Sites and Structures Survey Manual
- Secretary's Standards and Guidelines for Identification

Guidelines for Archeological Studies (1989)

Key Definitions

Historic Property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization (TCP) and that met the National Register criteria. The term *eligible for inclusion in the National Register* includes both properties formally

determined as such in accordance with regulations of the Secretary of the Interior and all other properties that meet the National Register criteria. [36 CFR 800.16 (l)]

Implementation

- The Division for Historic Preservation's Resource Room contains information on over 30,000 historic and archeological properties, filed by town. However, the inventory is far from complete.
- Check files and other data sources of existing information on historic and archeological properties including, at minimum, the National Register of Historic Places, Vermont Historic Sites and Structures Survey, Vermont Archeological Inventory, index of National Register Preliminary Reviews, index of Vermont Archeological Studies/Reports, and standard historic maps.
- Archeological studies must meet the SHPO's Guidelines for Archeological Studies (1989).
- If undertaking a survey of a previously unidentified historic district, AOT should consult with the SHPO in developing the scope of work, commensurate with the scale of the project.
- If undertaking a survey that identifies additional properties in or adjacent to an existing district, consultation with the SHPO is not necessary.
- AOT should verify previously identified resources in the field to determine if they remain or have changed.
- If the undertaking is an exempt activity, no identification or documentation of historic properties is required. However, an Exempt Activity form is required. See 3(A).
- Seek information from individuals and organizations likely to have knowledge about historic properties in the APE, if such information is not readily available in published sources or existing inventories.

Documentation

Resources not previously identified shall be documented in a standard format for inclusion in the Vermont Historic Sites and Structures Survey or the Vermont Archeological Inventory, and for inclusion in a database system accessible to AOT and SHPO. See section 3(A) of the Manual. Supplemental information on existing State Register or National Register properties shall be provided to the Division for Historic Preservation in a standard format that is easy to integrate into existing State Register and National Register files. See section 3(A) of the Manual.

4(C) PUBLIC PARTICIPATION AND NOTIFICATION

Laws, Regulations, Guidelines
- 36 CFR 800.2c(4),(6) (Consulting Parties)
- 36 CFR 800.2d(1) (The Public)
- 36 CFR 800.2d(2) (Providing Notice and Information)
- 36 CFR 800.2d(3) (Use of Agency Procedures)
- Advisory Council on Historic Preservation Policy Statements: Native American Concerns (1993)
- "Protecting Historic Properties: A Citizen's Guide to Section 106 Review" available at www.achp.gov

Key Definitions

- *Consultation* means the process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process [36 CFR 800.16(f)].
- *CP* means consulting party
- *Cons* means VAOT Consultant
- *Pr Mgr* means VAOT Project Manager
- *Env Sp* means Environmental Specialist
- *VT AC* means VT Advisory Council for Historic Preservation
- *SHPO* means Vermont Historic Preservation Officer
- *FHWA* means Federal Highway Administration

Implementation

- For most projects, and consistent with 36 CFR 800.2d(3), public notification and consultation will be achieved through the standard VAOT Project Development Process, as follows:

  All Meetings: Invite representatives from local government, Regional Planning Commission, CLG, Historical Society, and groups with an interest in historic properties in the APE; warn meeting to public. Make public input brochure available to participants.

  Both the VDHP Involving the Public Brochure and VAOT Public Input Guidebook should be consulted in determining public input requirements.

  Public Concerns Meeting: Provide overview of Section 106 provisions and opportunities for public involvement; inform meeting attendees of the presence and nature of known historic and archaeological properties in the APE and seek input concerning other historic and archaeological resources in the APE.

  Alternatives Meeting: Show historic and archaeological resources plotted on project alternative plans; inform meeting attendees about the potential effect on these resources for each alternative presented; seekinput from public concerning these potential effects, and discuss avoidance or mitigation options as appropriate; consider the views of and seek agreement with the public, if feasible, concerning impacts to historic properties.

- Native American consultat ion: consultation with Native Americans should be initiated early in the project development process and in discovery situations where appropriate. Where the Archaeology Officer determines, based on scope and location of project, that there is potential for effect to Native American cultural property, he/she will consult with the Abenaki Self Help Association and the Governor's Advisory Council on Native American Affairs.

- For projects with the potential for significant adverse effect, or projects which may impact a large number of properties, additional public meetings may be required at the discretion of the VAOT Archaeology and Historic Preservation Officers, to discuss and seek resolution of Section 106 issues.

Documentation

The degree and nature of Public involvement for a project will be documented in the Section 106 Formal Comment Letter by written description.

4(D) EVALUATING HISTORIC AND ARCHEOLOGICAL SIGNIFICANCE

Laws, Regulations, Guidelines

- 36 CFR 800.4 (Identification of Historic Properties) www.achp.gov/usersguide
- 36 CFR 63 (Determinations of Eligibility for Inclusion in the National Register of Historic Places)
- National Register Bulletins (selected relevant Bulletins)
  - How to Apply the National Register Criteria for Evaluation
  - How to Complete the National Register Registration Form
  - Defining Boundaries for National Register Properties
  - Guidelines for Evaluating and Documenting Rural Historic Landscapes
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  - Guidelines for Evaluating and Registering Archeological Sites and Districts
  - Guidelines for Evaluating and Documenting Traditional Cultural Properties
  - Guidelines for Evaluating and Nominating Properties that Have Achieved Significance Within the Past Fifty Years
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  - Nominating Historic Vessels and Shipwrecks to the National Register
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  - Guidelines for Evaluating and Documenting Properties Associated with Significant Persons
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- The Vermont Historic Preservation Plan – Historic Contexts
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  - Educational Resources of Vermont
  - Historic Government Buildings of Vermont
  - Hydroelectric Generating Facilities in Vermont (in process)
  - Maritime Resources of Vermont (in process)
  - DRAFT Chittenden County Circumferential Highway (Prehistoric Resources) UVM-CAP, Report No. 197, May 1988.
- SHPO's Guidelines for Archeological Studies (1989)

Key Definitions

Historic Property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that met the National Register criteria. The term *eligible for inclusion in the National Register* includes both properties formally determined as such in accordance with regulations of the Secretary of the Interior and all other properties that meet the National Register criteria. [36 CFR 800.16 (l)]



The *Hydroelectric Generating Facilities MPDF* Provides a context for evaluating hydro facilities for the National Register. Some facilities, noted in the MPDF file, have already been determined eligible for the Register.

The *Metal Truss, Masonry, and Concrete Bridges MPDF* Contains the history of bridge-building in Vermont and gives Registration Requirements for truss, and masonry and concrete arch bridges. Many individual bridges have been nominated to the National Register using the MPDF.

Implementation

- Seek information from individuals and organizations likely to have knowledge of historic properties in the APE, if such information is not readily available in published sources or existing inventories. See 4(C).
- The level of information that needs to be developed is a level sufficient to evaluate National Register eligibility. It is not necessary to fully develop information under all National Register criteria, if one criteria is met. However, it is necessary to develop information under criterion D, in addition to A, B, and/or C if an archeological component of a property may be impacted by the project.
- Archeological studies must meet the SHPO's Guidelines for Archeological Studies (1989).
- Connecticut River bridges included in the 1985 Vermont Historic Bridge Survey have been determined by the Vermont SHPO to be eligible for the National Register of Historic Places.
- Concrete 'slab and girder' or 'beam and slab' bridges shall be evaluated according to criteria established by the SHPO and AOT.
- Where relevant MPDF's exist, evaluations shall use the Registration Requirements in the MPDF.

Documentation

- Resources not previously identified shall be documented in a standard format for inclusion in the Vermont Historic Sites and Structures Survey or the Vermont Archeological Inventory, and for inclusion in a database system accessible to AOT and SHPO. See Section 3 of the Manual.
- Supplemental information on existing State Register or National Register properties shall be provided to the Division for Historic Preservation in a standard format that integrates easily into existing State and National Register files. See Section 3 of the Manual.
- AOT shall distribute additional reports, as appropriate, to the local library and/or historical society, UVM, special interest repositories, local colleges or other schools, etc.



Copies to:	FHWA	SHPO	VT AC	Env Sp	Pr Mgr	Cons	CP

4(E) FINDING OF NO HISTORIC PROPERTIES AFFECTED

Laws, Regulations, Guidelines

- 36 CFR 800.4(d)1 (No Historic Properties Affected – Requirements for Finding)
- 36 CFR 800.11(d) (No Historic Properties Affected – Documentation Requirements)

Key Definitions

- *Effect* means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.

Implementation

- Finding of No Historic Properties Affected appropriate only when:

For projects that require an Act 250 permit or are funded exclusively with state funds, follow Appendix B of the PA, "Review of VAOT Undertakings under Vermont State Law."

- 1. There are no Historic Properties in the project Area of Potential Effect (APE), or
- 2. The project will have no effect, positive or negative, on historic properties located within the APE.

- Finding of No Historic Properties Affected inappropriate when:

- 1. A historic property is positively or negatively affected by direct, indirect, cumulative, reasonably foreseeable effects (see 4G for explanations and examples of effects.), or
- 2. When significant data is recovered from an NR-eligible archaeological site.

Documentation

- Findings of No Historic Properties Affected will be documented on the corresponding form in section 3(A).
- Provide enough information to justify the conclusion. Be specific, so that a reader can reach the same conclusion from the information provided. See additional guidance on the No Historic Properties Affected form in section 3A.
- Attach relevant documents: Archaeological Resource Assessment (ARA), Field Inspection, Phase I Study, or photographs, if appropriate.
- If demolition of a building over 50 years old is proposed in the project, attach a photo of the building.

4(F) FINDING OF NO ADVERSE EFFECT

Laws, Regulations, Guidelines

- 36 CFR 800.5 (Assessment of Adverse Effects)
- Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the Vermont Agency of Transportation, the Vermont Historic Preservation Officer, and the Vermont Agency of Commerce and Community Development Regarding Implementation of a Program for Projects involving Historic Bridges (Bridge PA)

Key Definitions

- *Effect* means alteration to the characteristics of a historic property qualifying it for inclusion in the or eligibility for the National Register [36 CFR 800.16(I)].
- *Criteria of Adverse Effect* An adverse effect is found when an undertaking may alter, directly or indirectly, the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, setting, design, materials, workmanship, feeling, or association [36 CFR 800.5a(1)].

Implementation

- Finding of No Adverse Effect appropriate only when:

5) There are Historic Properties in the project Area of Potential Effect (APE), and;
6) The project will not adversely effect the historic properties (see 4(G) for explanations and examples of adverse effects.)

- Finding of No Adverse Effect inappropriate when:

1) There are no historic properties located in the APE or;
2) A historic property is adversely affected by direct, indirect, cumulative, reasonably foreseeable effects (see 4(G) for explanations and examples of effects.) or;
3) When data is recovered from a archaeological site

- Projects involving metal truss bridges are addressed in the Bridge Programmatic Agreement (PA) and the Bridge Plan incorporated within it. Refer to section 9 of the PA. Bridges assigned to categories A, B, and C in the Bridge Plan are "No Adverse Effects." Bridges assigned to categories D, E, and F are "Adverse Effects."

For projects that require an Act 250 permit or are funded exclusively with state funds, follow Appendix B of the PA, "Review of VAOT Undertakings under Vermont State Law."

Documentation

- Findings of No Adverse Effect shall be documented in a written report.
- The degree and nature of Public involvement for a project will be documented in the Section 106 Formal Comment Letter by written description.
- Refer to Section 3(A) for letter format.

Examples of Adverse Effects

1. Physical destruction of or damage to all or part of a property;
2. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic properties (36 CFR part 68) and applicable guidelines;
3. Removal of a property from its historic location;
4. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
5. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
6. Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural siginificance to an Indian Tribe or Native Hawaiian organization; and
7. Transfer, lease, or sale of a property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long term preservation of the property's historic significance. [36 CFR 800.5a(2)]

4(G) FINDING OF ADVERSE EFFECT

Laws, Regulations, Guidelines

- 36 CFR 800.5 (Assessment of Adverse Effects)
- 36 CFR 800.6 (Resolution of Adverse Effects)
- Recommended Approach for Consultation on Recovery of Significant Information From Archeological Sites

Key Definitions

- *Criteria of Adverse Effect* An Adverse effect is found when an undertaking may alter, directly or indirectly, the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. [36 CFR 800.5a(1)].

Implementation

- Examples of direct effects include destruction in part or in whole of an archaeological site or above-ground historic property.
- Examples of indirect effects may include those on a historic downtown due to bypass construction or other traffic rerouting; visual and audible effects on historic properties from new construction, road widening or traffic rerouting and; changes to settings of historic properties.
- Examples of cumulative adverse effects may include successive upgrades around historic village centers resulting in pressure to upgrade roads within the village; and successive curb cuts on a bypass resulting in sprawl and; successive development projects in rural areas whose sum total constitutes an adverse effect on archaeological properties;
- Examples of reasonably foreseeable adverse effects may include closing a historic bridge to traffic without a rehabilitation and maintenance plan.
- Data recovery of an archaeological site is considered an adverse effect.
- Projects involving metal truss bridges are addressed in the Bridge Programmatic Agreement (PA) and the bridge plan incorporated within it. Refer to Section 9 of the PA. Bridges assigned to categories A, B, and C in the Bridge Plan are "No Adverse Effects." Bridges assigned to categories D, E, and F are "Adverse Effects."

FOR PROJECTS THAT REQUIRE AN ACT 250 PERMIT OR ARE FUNDED EXCLUSIVELY WITH STATE FUNDS, FOLLOW APPENDIX B OF THE PA, "REVIEW OF VAOT UNDERTAKINGS UNDER VERMONT STATE LAW."

Documentation

Findings of Adverse Effect [4(G)(1)-standard mitigation, 4(G)(2) - memorandum of agreement, 4(G)(3) - national historic landmark] will be documented per the corresponding format.

- Refer to Section 3(A) for documentation requirements.

4(G)(1) STANDARD MITIGATION MEASURES APPLICABLE

Laws, Regulations, Guidelines

Key Definitions



Implementation

- When appropriate, the VAOT Officers may select one or more Standard Mitigation Measures from the list below to mitigate or compensate for an adverse effect on historic and/or archeological resources.
- The list includes measures that directly address affected resources, measures that address similar resources, and off-site mitigation measures.
- Standard Mitigation Measures should only be considered when there is compelling reason(s) to accept the adverse effect on the resource. All possible efforts to avoid the adverse effect should be made prior to consideration of Standard Mitigation Measures.
- AOT must seek the views of previously identified interested parties on proposed Standard Mitigation Measures and include then in project documentation.

Documentation

- The Measures shall be incorporated verbatim into VAOT"s formal written finding of adverse effect, and supplemented with additional specific details where appropriate. See Section 3 of the Manual.
- VAOT shall inform the SHPO when the Measures have been completed.

Should be considered only after rehabilitation and continued use have been proven infeasible. Rehab costs equal to new construction are generally considered reasonable and feasible. For nationally significant properties, consult NPS for documentation requirements.

A good fait h effort and effective public outreach are expected.

1. **Photographic Documentation**. The VAOT shall ensure that the Historic property is recorded prior to its demolition, alteration or relocation in accordance with Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards, for nationally significant properties, or, for other properties, the Photographic Documentation Standards for Historic Structures adopted by the SHPO. The VAOT shall retain one copy, provide one to DHP, and one or more to appropriate local depositories. Copies of original plans for engineering structures should be part of the documentation package, if possible.

2. **Marketing and Sale**. The VAOT shall develop a marketing plan and ensure that a property is advertised for sale in newspapers of general local circulation for a minimum of 30 days (???) prior to the demolition or relocation of historic properties. The VAOT Officers shall review all purchase offers and may consult with the SHPO. If VAOT selects a successful purchaser, VAOT may include preservation covenants in the transfer deed, upon recommendation of the VAOT Officers. If no successful purchaser is identified, VAOT may either convey the property without covenants or proceed with the demolition or relocation after the historic properties have been recorded pursuant to standards listed in 1. Above.

A good faith effort and effective public outreach are expected.

3. Relocation. In relocating the building, every effort shall be made to Reestablish it's hist oric orientation, immediate setting, and general environment in the new location, in accordance with 36 CFR 60. The VAOT Historic Preservation Officer shall evaluate the continued eligibility of the moved building for the National Register of Historic Places, and provide a written evaluation to the SHPO. If the building is located within an existing National Register historic district, VAOT shall prepare an amendment to the existing nomination form to reflect the relocation..

Appropriate when a covenant or easement would be too onerous or incompatible with the scale of the effect.

4. Future Work on Buildings. Future work on the exterior and/or Interior of the building shall meet the Secretary of the Interior's Standards for Rehabilitation.

5. Lectures/Tours. The VAOT shall ensure that a qualified Professional organize public lectures and tours of ongoing projects and excavations. Involvement of local school groups is encouraged. See Section 2D for more options.

Good media coverage should by part of the plan. Opportunities for public participation are encouraged where appropriate. VAOT may consult with SHPO and/or request that SHPO partner with VAOT on public education projects. Projects could include community archeology programs, educational curricula, TV or video programs, etc.

6. Public Education. VAOT shall develop a public education program or project that enhances public understanding and appreciation of the reso urces on site or resources similar in location or type to the resources adversely affected by the project., and provide an outline of the program or project to the SHPO. VAOT shall report the results to the SHPO. See Section 2D for more options.

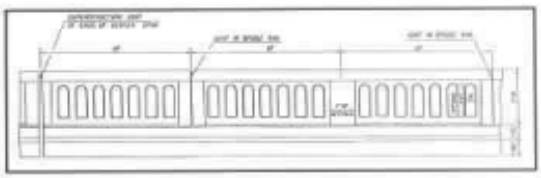


Wide distribution to interested audiences is expected.	**7. Popular Publications.** The VAOT, through the use of consultants as appropriate, shall produce and distribute a popular version of a technical report and/or, a booklet , pamphlet, or brochure that illustrates the work on a property , archeological resources recovered from a site, the site's history, or its historic context. See Section 2D for more options.
	8. Web Site. The VAOT shall post material on its web site, with links to related sites , or, as appropriate, develop a new non-VAOT web site or enhance an existing one , to aid public understanding of the resources on site or resources similar in location or type to the resources adversely affected by the project. See Section 2D for more options.
Uniform regional or statewide graphics are encouraged.	**9. Interpretive Signage.** The VAOT, through the use of research, Design and fabrication consultants as appropriate, shall produce one or more signs to describe the work on a property, archeological resources recovered from a site, the site's history, or its historic context.. VAOT and/or local interested parties shall plan the sign(s) and address maintenance and long-term care of permanent sign(s). See Section 2D for more options.
	10. Exhibits. The VAOT, in conjunction with appropriate Consultants, shall develop and install a professional quality exhibit that describes the work on a property, archeological resources recovered from a site, the site's history, or its historic context. Local installations or exhibits that travel to local schools are encouraged. See Section 2D for more options.
The measure should stipulate the properties to be surveyed, or reference another document that specifies them.	**11. Survey.** The VAOT shall ensure that a qualified professional Undertake a survey of _____ to meet the standards for the Vermont Historic Sites and Structures Survey and/or the Vermont Archeological Inventory.
The measure should stipulate the properties to be nominated.	**12. National Register.** The VAOT shall ensure that a qualified Professional prepare a National Register of Historic Places nomination form(s) for the following resource(s): _____.
	13. Development of Historic Context. The VAOT shall ensure that a Qualified professional research and prepare a written historic context statement for the class of resources affected by the project. The format of the context statement shall be determined in conjunction with the SHPO.
Appropriate when there is a likelihood that the features would be appropriately reused elsewhere.	**14. Salvage of Architectural or Engineering Features**. VAOT shall identify appropriate parties to receive salvaged architectural or engineering features. VAOT shall ensure that the features are salvaged prior to demolition activities and properly stored and curated. When feasible, salvaged architectural features shall be reused in other preservation projects.
	15. Data Recovery of archeological information. The VAOT Archeology Officer shall develop an Archeological Data Recovery Plan that meets the

Council's Treatment of Archeological Properties, the SHPO's Guidelines for Conducting Archeological Studies, and the "Recommended Approach for Consultation on Recovery of Significant Information From Archeological Sites" (Federal Register, May 18, 1999, Appendix B). Data Recovery projects shall include a significant public education and interpretation component. Materials recovered shall be curated and stored in accordance with 36 CFR 79. The VAOT Archaeology Officer shall provide a draft Archaeological Data Recovery Plan, including a detailed draft scope of work, to the SHPO prior to finalizing the Data Recovery Plan and offer the SHPO an opportunity to comment on it within 30 days.

May be particularly appropriate for replication of an ornamental bridge railing where it is a very important feature of the bridge, has severely deteriorated, and provides a gateway feature or otherwise enhances community identity in an historic district. It is not appropriate if repair of the original feature is feasible.

16. Replication of Bridge Feature. The new feature shall match the old in design, appearance, materials, craftsmanship, etc. as closely as possible.



The overlook may focus on natural and/or historic resources, including historic bridges and building ruins.

17. Development of a Scenic Overlook. VAOT shall incorporate into the project design a place for the public to see and appreciate the scenic view at the site. Provision of the overlook should not create an adverse effect.

Existing historic landscape features that contribute to a property's significance and setting should be retained, e.g. large front yard trees, tree lines, stone walls, etc. Replacement trees should be as large as feasible.

18. Landscaping. VAOT shall incorporate a landscape plan in the project design that enhances historic features, and /or replaces removed or missing specimen trees and other plantings, tree canopies, roadway features such as stone walls, or other historic or traditional landscape features. The VAOT Officers shall review and approve final landscape plans.

Creative modern designs are encouraged where appropriate.

19. Design of a New Bridge. VAOT shall design a new bridge that is compatible with the surrounding historic and natural environment in design, massing, scale, width, materials, color, etc. The design shall be recognizable as contemporary, and while it may reference the design of the previous bridge, it shall avoid creating an inappropriate false historic appearance.

4(G)(2) FINDING OF ADVERSE EFFECT – MEMORANDUM OF AGREEMENT

Laws, Regulations, Guidelines

- 36 CFR 800.6 (Resolution of Adverse Effects)
- 36 CFR 800.11(f) (Memorandum of Agreement - Documentation requirements)

Key Definitions

Memorandum of Agreement(MOA) means the document that records the terms and conditions agreed upon to resolve the adverse effects of an undertaking on historic properties [36 CFR 800.16(0)].

Implementation

- Use of MOA is appropriate only when Officers have determined that standard mitigation (4G1) is inappropriate for mitigating adverse effect of undertaking on historic properties.
- "Process MOA's" may under certain rare circumstances be drafted and executed to expedite acquisition of the NEPA document. This may be appropriat e where there are extensive archaeological requirements, complex and time-consuming design elements which will not adversely affect historic properties, or for phased review of complex projects. In these cases, both the Archaeology and Historic Preservatio n Officers shall sign the MOA assuming the signatory role of the SHPO.

Documentation

- Memorandums of Agreement will be prepared, and supporting documentation attached in accord with the format prescribed in Section 3A.

- Refer to workbook Section 106: An Advanced Seminar by Thomas F. King for guidelines on the development and writing of MOA stipulations.

MOA must contain sunset provision and provision for discoveries.

4(G)(3) FINDING OF ADVERSE EFFECT - SPECIAL REQUIREMENTS FOR PROTECTING NATIONAL HISTORIC LANDMARKS

Laws, Regulations, Guidelines

- 36 CFR 800.10 (Special Requirements for Protecting National Historic Landmarks)

Key Definitions

- *National Historic Landmark (NHL) means* a property that the Secretary of the Interior has designated a National Historic Landmark [36 CFR 800.16(p)].

Implementation

- Regulations governing the resolution of adverse effects to NHLs (36 CFR 800.10) mandate participation by the Federal Advisory Council and Secretary of the Interior.
- VAOT officers will contact the Regional Office of the National Park Service, which participates on behalf of the Secretary of the Interior, in every instance of adverse effect to an NHL, and coordinate procedures for project review with the Council.

Documentation

- Findings of Adverse Effect to an NHL will be documented in accordance with 36 CFR 800.10(d).

NATIONAL HISTORIC LANDMARKS

Addison County
Robert Frost Farm, Ripton
Emma Willard House, Middlebury
Mount Independence, Orwell
Rokeby, Ferrisburgh

Caledonia County
St. Johnsbury Athenaeum, St. Johnsbury

Chittenden County
Ticonderoga, Shelburne
Round Church, Richmond

Orange County
Justin Smith Morrill Homestead, Strafford

Washington County
Socialist Labor Party Hall, Barre
Vermont Statehouse, Montpelier

Windham County
Naulakha, Dummerston
Rockingham Meeting House, Rockingham

Windsor County
Calvin Coolidge Homestead District, Plymouth
Robbins and Lawrence Armory & Machine Shop, Springfield
George Perkins Marsh Boyhood Home, Woodstock
Stellafane Observatory, Springfield

4(H) EMERGENCY SITUATIONS

Laws, Regulations, Guidelines

- 36 CFR 800.12 (Emergency Situations)

Key Definitions

The PA recognizes two classes or categories of emergency situations:

- Immediate rescue and salvage operations conducted to preserve life or property such as necessitated by natural disaster or other catastrophic event;
- Operations that are responding to a disaster or emergency that pose immediate threats to life or property that are
- declared by the President or Governor , or
- declared by the Secretary of Transportation in consultation with the VAOT Archaeology or Historic Preservation Officers, or if unavailable, the SHPO
- and for which corrective measures are initiated within 30 days after the disaster or emergency has been formally declared

Implementation

- For emergencies that involve immediate rescue and salvage operations conducted to preserve life or property such as necessitated by natural disaster or other catastrophic event, no Section 106 review is required. This exemption is intended to be very narrowly interpreted i.e. to apply only to events like tornadoes, catastrophic floods, and other acts of God.
- For emergencies declared by the President, Governor, or Secretary of Transportation, Officers will:
- Request and obtain a written declaration of the emergency from the authorizing office;
- Follow standard Section 106 process with shortened periods for comment as required;
- Consult with interested parties before corrective measures are undertaken depending on the nature of the emergency and the timeframe available for corrective actions;
- Recommend, as appropriate, post - emergency mitigation for unavoidable adverse effects to historic resources caused directly or indirectly by the emergency or corrective actions.

Documentation

- All facets of the undertakings (Declarations, APE, resource ID, Determination of Effect, Avoidance, Minimization and Mitigation Measures) will be documented in accordance with Section 106, but with modified timeframes to account for urgent corrective measures as appropriate. If necessary, documentation may occur after the undertaking as in the case of natural disasters.

Examples of archaeological sites that may be discovered during project construction:

1. Native American sites that are not anticipated by the general predictive model or sensitivity studies
2. Human remains which are unanticipated
3. Foundations and other structural remains including wells obscured by later disturbances
4. Deeply buried sites in flood plains which are missed by standard testing methods
5. Historic archaeological sites which are not identified on historic maps (Beers, Wallings, etc.)

4(I) DISCOVERY OF ARCHAEOLOGICAL SITES DURING PROJECT CONSTRUCTION

Laws, Regulations, Guidelines

- 36 CFR 800.13(b) (Discoveries without Prior Planning)
- Guidelines for Archaeological Studies (1989)

Key Definitions

- *Discoveries without prior planning:* "Historic properties" (specifically archaeological sites) which are discovered, or the unanticipated effects on such properties which are found after the VAOT Archaeologist or Archaeology Officer has completed the Section 106 process [36CFR 800.13(b)].

Implementation

- The project will stop immediately if previously unidentified archaeological sites, including human remains and/or cultural items, are discovered during project construction [see also Manual Section 4(J) and 4C].
- Burials are considered archaeological sites under state & federal laws.
- The Construction Company or Resident Engineer will immediately notify the VAOT Archaeology Officer who will notify the SHPO.
- No further construction will proceed in the site area until it has been reviewed and documented according to 36 CFR 800.11.

Documentation

- The VAOT Archaeology Officer will conduct a field inspection of the site to determine its potential National Register eligibility and the project's potential effects.
- The VAOT Archaeologist or the Archaeology Officer may hire an Archaeological Consultant if additional information is necessary to determine site boundaries and NR eligibility.
- If the site is determined NR eligible, the preferred treatment is to avoid it and protect it in place.
- Site significance and treatment options should be discussed with the appropriate interested public parties and documented.
- If site avoidance is not possible, then data recovery of the site must be completed in accordance with 36 CFR 800 and the Guidelines for Archaeological Studies.

[see also Section 4(J) if human remains are discovered]

Unauthorized Removal of Human Remains: a person who, not being authorized by law, intentionally excavates, disinters, removes or carries away a human body or the remains thereof, interred or entombed in this state, or intentionally excavates, disinters, removes or carries away an object i nterred or entombed with a human body in this state, or knowingly aids in such excavation, disinterment, removal or carrying away, or is accessory thereto, shall be imprisoned not more than 15 years or fined not more than $10,000.00 or both [Title 13 VSA Section 3761].

4(J) TREATMENT OF HUMAN REMAINS

***Note: This section applies to *any* human remains which are discovered at *any* time either during Section 106 review studies before construction or accidental discovery during construction.**

***If human remains are discovered, the project will stop immediately.**

Laws, Regulations, Guidelines

- Council Memorandum on Archaeological Burial Sites
- Native American Grave Protection and Repatriation Act, 1989 (NAGPRA)
- Native American Burial Site Preservation act of 1989
- Title 13 Vermont Statutes Annotated Sections 3761(Unauthorized Removal of Human Remains)
- Title 13 VSA Section 3764 (Cemeteries and Monuments – Grave markers and historical tablets)
- Title 18 VSA Section 5212 (Permit to Remove Dead Bodies)
- Advisory Council for Historic Pres ervation Policy Statements: Native American Concerns (1988)

Other Key Definitions Related to Native American Grave Sites

Cultural Items: human remains and
(A) *"associated funerary objects"* and
(B) *"unassociated funerary objects"* "which shall mean objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later…" [see NAGPRA Section 2(3A and 3B) for full definitions]
Sacred Objects: "specific ceremonial objects which are needed by traditional Native American religious leaders for the practice of traditional Native American religions by their present day adherents" [NAGPRA Section 2(3C)].
Cultural Patrimony: "an object having ongoing historical, traditional, or cultural importance central to the Native American group or culture itself, rather than property owned by an individual native American…" [see NAGPRA Section 2(3D) for full definition]

Key Definitions

- *Burial Site:* "any natural or prepared physical location, whether originally below, on, or above the surface of the earth, into which as a part of the death rite or ceremony of a culture, individual human remains are deposited." [NAGPRA Section 2(1)]
- *Native American:* "of, or relating to, a tribe, people, or culture that is indigenous to the United States." [NAGPRA Section 2(9)].
- See sidebar for additional key definitions

Implementation

- Avoidance and preservation in place is the preferred option for treating human remains.
- The Transportation Archaeology Officer or Archaeological Consultant will evaluate the potential for burial sites or associated cultural items within the project area. If the project area is considered sensitive for Native American burials, then the appropriate Native American group(s) will be contacted. Native American groups may also notify VAOT of burial site potential concerns.
- Examples of these appropriate groups are identified as the Abenaki Self-Help Organization and the Governor's Advisory Council on Native American Affairs.

- If human remains and/or associated cultural items are discovered, the project will stop and the Archaeological Consultant will immediately contact the Archaeology Officer who will notify the SHPO.
- If human remains and/or associated cultural items are discovered during construction, the resident engineer will contact the VAOT Archaeology Officer.
- The VAOT Archaeology Officer will also contact the Town Sheriff, Town Clerk , Chief Medical Examiner and State Police as well as Native Americans when appropriate.
- If the human remains are identified as Native American, then a treatment and reburial plan will be developed in full consultation with the appropriate Native American group(s) as identified above.
- Human remains and cultural items should not be disturbed or removed from their original location if at all possible. [refer to Advisory Council Policy Statement, 1988]
- All determinations will be made or approved by the Archaeology Officer.

Documentation

- If human remains are identified, a written treatment plan will be developed in consultation with the VAOT Archaeology Officer, SHPO and with public parties such as Native Americans, local government and others as appropriate.
- Recovery when necessary, should be done carefully, respectfully and completely in accordance with the proper archaeological methods (as outlined in 36 CFR 800 and the Guidelines for Archaeological Studies, 1989) [refer to Advisory Council Policy Statement, 1988].

5. SUPPLEMENTARY REVIEW

Laws, Regulations, Guidelines

Key Definitions

Implementation (copied from PA)

- This Programmatic Agreement is intended to provide for complete, thorough, and streamlined review of VAOT transportation projects. It is agreed that the formal supplementary review process described below is intended for use in circumstances of significant disagreement only. For the purposes of informal consultation, the SHPO may at his or her discretion, consult via telephone, memo, or in a meeting with the VAOT's historic and archaeological preservation staff.

- If, for any undertaking, formal written comment or formal written objection, so titled, is made within 30 days by FHWA, VAOT, SHPO, the Council, or any consulting party, to any findings made by either the Archaeology Officer or Historic Preservation Officer regarding: (i) determination that an undertaking exists; (ii) the potential area of an undertaking's effect; (iii) the eligibility of archaeological or historic properties to the State or National Register of Historic Places within the project area of effect; (iv) determinations of effect; (v) interpretation of the Secretary of the Interior's Standards for Historic Preservation Projects; (vi) conformance with Vermont Guidelines for Archeological Studies of 1989, and any successors to those guidelines; (vii) applicability of the Manual of Ancillary Standards and Guidelines adopted pursuant to this PA; (viii) the appropriateness of the Standard Mitigation Measures, the Archaeology Officer or Historic Preservation Officer shall consult, as appropriate, with SHPO, ACHP, FHWA, or VAOT. If, after consultation, agreement on Federal undertakings cannot be reached regarding any such findings, any party may request the project be reviewed pursuant to the procedures identified in 36 CFR Part 800 et seq. In such event, the terms of this agreement shall be superseded by the provisions contained in 36 CFR Part 800 et seq for that single undertaking only.

Documentation

- Formal written objections shall clearly state which determination is being objected to, and specifically why the objection is being made.
- Officers will retain formal objection documents in project files and forward copies of same as received to SHPO.

PROGRAMMATIC AGREEMENT
AMONG THE FEDERAL HIGHWAY ADMINISTRATION,
THE VERMONT AGENCY OF TRANSPORTATION,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE VERMONT STATE HISTORIC PRESERVATION OFFICER
REGARDING IMPLEMENTATION OF THE FEDERAL-AID HIGHWAY PROGRAM
IN VERMONT
April 5, 2000

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WHEREAS, the Federal Highway Administration (FHWA) proposes to administer its Transportation Program in Vermont authorized by 23 U.S.C. 101 et seq. through the Vermont Agency of Transportation (VAOT) (23 U.S.C. 315); and

WHEREAS, FHWA: (1) has determined that undertakings may have an effect upon properties included in or eligible for inclusion in the National Register of Historic Places; (2) has consulted with the Advisory Council on Historic Preservation (Council) and the Vermont State Historic Preservation Officer (SHPO) pursuant to Section 800.13 of the regulations (36 CFR 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f); (3) wishes to insure that VAOT will conduct its programs in a manner consistent with 36 CFR 800; and (4) intends to integrate its historic and archaeological preservation planning and management decisions with other policy and program requirements to the maximum extent possible consistent with Sec 110 of the NHPA; and

WHEREAS, 36 CFR Part 800 encourages Federal Agencies to efficiently fulfill their obligations under Section 106 of the National Historic Preservation Act through the development and implementation of cooperative programmatic agreements.

WHEREAS, VAOT has participated in the consultation and has been invited to execute this Programmatic Agreement (PA); and

WHEREAS, FHWA and VAOT are committed to the design of transportation systems that: (1) achieve a safe and efficient function appropriately placed within the Vermont context; (2) avoid, minimize and mitigate adverse effects on historical and cultural resources; (3) recognize that investment in these historic, archaeological, and cultural resources is critical to Vermont=s continued growth and prosperity; and (4) respond to the needs of Vermont communities,

WHEREAS, FHWA, the Council, SHPO, and VAOT aspire to engage in meaningful, long term planning for the protection of historic and archaeological properties and, toward that end, desire to: (1) develop a comprehensive and efficient process for all Section 106 undertakings; (2) simplify procedural requirements to the maximum extent possible; (3) eliminate unnecessary paperwork; (4) reduce the role of SHPO to the minimum extent required; (5) devote a larger percentage of time and energies identifying transportation-related concerns threatening historic and archaeological properties; and (6) create innovative programs to address those problems.

WHEREAS it is desirable to integrate and streamline project reviews under parallel state historic preservation and environmental laws.

NOW THEREFORE, FHWA, the Council, VAOT and SHPO hereby agree that the review of FHWA undertakings shall be administered according to the followi ng stipulations in order to satisfy FHWA=s Section 106 responsibilities and to integrate, to the maximum extent feasible, the manner in which FHWA meets its historic and archaeological preservation responsibilities with its other responsibilities under Federal and State statutory or regulatory authorities and policies.

STIPULATIONS

FHWA will ensure that the following measures are carried out:

1. Applicability and Scope. This PA sets forth the process by which FHWA, with the assistance of VAOT, will meet its responsibilities under Section 106 of the NHPA and the regulations set forth in 36 CFR Part 800 as amended adopted to implement that act. For purposes of this PA, the definitions for terms appearing in 36 CFR 800.16 (a) through (y) inclusive shall be employed whenever applicable.

(A) Applicability. This PA shall apply to all FHWA undertakings administered under its Federal-aid Highway Program in Vermont. Those undertakings partially reviewed under any existing programmatic agreements or memorandums of agreement will be superseded by this agreement to the extent that the terms of the former are inconsistent with the latter. A list of those programmatic agreements is attached hereto as Appendix D. See Appendix B for programmatic review of State-funded transportation projects.

(B) Scope. The objective of this PA is to render more efficient the methods by which FHWA and VAOT review individual undertakings that may affect historic properties and to establish the process by which FHWA, the Council, the SHPO, and interested persons will be involved in any such review.

2. **General Requirements.** In compliance with its responsibilities under NHPA and as a condition of its award of any assistance under the Federal-aid Highway Program to VAOT, FHWA shall require that VAOT carry out the requirements of 36 CFR 800 inclusive, all applicable Council standards and guidelines, or the requirements set forth in this PA, for all FHWA undertakings. FHWA will insure that VAOT observes the following requirements.

(A) Employment of Qualified Personnel. For the purpose of implementing this agreement, VAOT shall continue to employ qualified professional staff and consultants who meet the requirements of 36 CFR Part 61, Appendix A. At a minimum, the professional staff shall consist of two permanent, full time, classified service positions: (1) an archaeologist; and (2) an architectural historian or historic preservation professional. The individuals holding these positions shall have the titles: (1) VAOT Archaeology Officer; and (2) VAOT Historic Preservation Officer. These two individuals will report directly to the Environmental Services Engineer. Where the VAOT Archaeology Officer and/or the VAOT Historic Preservation Officer determine that a project may be controversial, the officers may at their discretion consult their Division Director and/or the Secretary of Transportation, and/or, refer a project for review under 36 CFR 800. SHPO shall be consulted in the selection of individuals to fill these two positions. In the event of a prolong ed absence of the archaeology officer or the historic preservation officer, VAOT will, in consultation with SHPO, appoint acting officers that meet the requirements of 36 CFR Part 61, Appendix A.

(B) Manual of Ancillary Standards and Guidelines. In addition to the Secretary of the Interior=s Standards for Historic Preservation Projects (36 CFR Part 68), and the Vermont SHPO Guidelines for Archeological Studies, as revised, VAOT, FHWA, and SHPO shall prepare a document titled AManual of Ancillary Standards and Guidelines@ to implement this PA, to provide guidance for the drafting of any findings or other documents produced by the VAOT Archaeology Officer or Historic Preservation Officer, and to prescribe measures to mitigate any adverse effects caused to historic resources. This document shall, by reference, be incorporated into this PA and will serve as a manual for the Section 106 review by VAOT of all FHWA undertakings in Vermont. The Manual of Ancillary Standards and Guidelines will be prepared by September 30, 2000, or within six months of the date of execution of this agreement, whichever is later. An Outline of Topics for the Manual of Ancillary Standards and Guidelines is attached hereto as Appendix A.

(C) Coordination of Project Review Among VAOT Divisions. VAOT will prepare a detailed written procedure for Section 106 review of FHWA undertakings among its various divisions, and this procedure will be included in the Manual of Ancillary Standards and Guidelines..

(D) Education. FHWA and VAOT, in collaboration with SHPO, will provide a significant public education and interpretation component in its undertakings whenever appropriate.

(E) Training. FHWA and VAOT will collaborate with SHPO in ensuring periodic training for VAOT personnel and their consultants to assure compliance with Section 106 responsibilities. Creative initiatives are encouraged.

(F) Annual Evaluation. VAOT, FHWA, and SHPO shall meet six months after the date this agreement takes effect to evaluate the agreement, suggest revisions to its provisions or to the Manual of Ancillary Standards and Guidelines, and to evaluate the quality of the resource identification and protection activities carried out under the agreement. After the initial period, evaluations shall take place annually, by March 1. Prior to the annual evaluation, VAOT shall submit a report to FHWA and SHPO. This report shall include, but is not limited to, summaries in table form identifying all undertakings and specifying project names, towns, and all findings pursuant to 36 CFR 800. The report shall also contain a narrative description of accomplishments, concerns, and recommendations regarding any changes to this PA or to the Manual of Ancillary Standards and Guidelines.

The SHPO shall provide a copy of the VAOT annual report to the Vermont Advisory Council on Historic Preservation and shall schedule a meeting with the Council to discuss the report prior to the annual review meeting. The SHPO shall provide a written response to the report, after considering the comments of FHWA, the Vermont Advisory Council, and other interest groups and, if appropriate, concur that the terms of the PA and Manual are being met satisfactorily. If the SHPO concludes that performance under the agreement is less than satisfactory, the parties shall consult to improve performance, and meet again within six months to evaluate improvements.

(G) Transition. This PA will become effective upon the date of its execution by all parties and, acceptance of the Manual of Ancillary Standards and Guidelines by AOT, FHWA, and the SHPO. If issues arise regarding FHWA undertakings partially reviewed prior to the date this PA becomes effective, the Archaeology Officer or Historic Preservation Officer shall consult with SHPO, ACHP, FHWA, or VAOT as appropriate. If, after consultation, agreement cannot be reached regarding any such prior review, any party may request project review pursuant to the procedures identified in 36 CFR Part 800 et seq. In such event, the terms of this agreement shall be superseded by the provisions contained in 36 CFR Part 800 et seq for that single undertaking.

(H) Delegation. Responsibility for any findings regarding (i) determination that an undertaking exists; (ii) the potential area of an undertaking=s effect; (iii) the eligibility of archaeological or historic properties to the National Register of Historic Places within the project=s area of effect; (iv) determinations of effect; (v) interpretation of the Secretary of the Interior=s Standards for Historic Preservation Projects; (vi) conformance with Vermont Guidelines for Archeological Studies of 1989, and any successors to those guidelines; or (vii) applicability of the Manual of Ancillary Standards and Guidelines adopted pursuant to this PA, shall rest with VAOT=s Archaeology Officer or Historic Preservation Officer. These responsibilities may not be delegated to project sponsors.

(I) Innovative Programs Envisioned. To facilitate historic and archaeological preservation planning and actions, VAOT will establish and promote progressive programs and activities of mutual interest to, and in consultation with, FHWA, SHPO, ACHP, or other consulting parties. In its annual reports, VAOT will identify special needs that should be addressed through such programs and activities and will prepare a plan and cost estimate to address those needs. Examples of programs envisioned may include: (i) analysis and synthesis of past data accumulated through VAOT/FHWA projects; (ii) statewide thematic or other surveys of historic properties; (iii) statewide predictive models; (iv) improved data management and access; (v) development of historic contexts and preservation priorities; (vi) identification and survey of properties considered eligible for the National Register of Historic Places; (vii) consultation with Native American groups and (viii) preparation and implementation of relevant preservation or management plans; project information internet site.

3. Documentation. Documentation assembled by the VAOT Archaeology Officer, the VAOT Historic Preservation Officer, their staff, or their consultants, to support any Section 106 findings shall be consistent with 36 CFR 800.11. Copies of supporting documentation shall be forwarded as generated to SHPO to be made available for public inspection and use. Scoping reports, corridor studies, EA's and EIS's, and alternative alignment studies shall be included in the documentation. FHWA shall insure that VAOT prepare a plan to address the following requirements, and this plan will be included in the Manual of Ancillary Standards and Guidelines.

A. Types of Documentation. The documentation required to support findings of effect and eligibility to the National Register will be incorporated into a database system as described in the Manual of Ancillary Standards and Guidelines. A list of all FHWA undertakings reviewed each year under this agreement will be included in a report that will be submitted as part of the annual review described in Section 2(F) herein. VAOT shall provide to SHPO copies of all identification, evaluation, treatment and data recovery reports, survey forms, digital survey information, and other relevant resource information as they are generated.

B. GIS Systems. Procedures for incorporating pertinent documentation into GIS systems will be developed as part of the Manual of Ancillary Standards and Guidelines, and FHWA and VAOT will coordinate with SHPO to accomplish this objective. These procedures shall include the development of an historic and archeological resource recovery database and statewide predictive model. SHPO, FHWA, and VAOT will share technology and information by providing mutual access to site data, historic contexts, and any other information pertaining to cultural resource sensitivity analysis and/or site prediction modeling .

C. Archaeology Planning and Research. FHWA and VAOT shall provide for archaeological planning and research that includes, but is not limited to, appropriate care, access, and interpretation of data collections recovered from the above undertakings. FHWA and VAOT, in consultation with SHPO, will partner with other organizations who maintain or are responsible for Vermont collections to assess needs, identify alternative solutions, and implement the most appropriate collections care, research, and interpretation program for Vermont. Any archaeological research center shall meet the standards set forth by the US Department of the

Interior in 36 CFR 79. Archaeological research priorities and a public education and outreach plan will be included in the Manual of Ancillary Standards and Guidelines.

4. Requirements for Project Review by FHWA and VAOT. For all FHWA undertakings reviewed pursuant to this PA, FHWA and VAOT shall observe the following requirements:

A. Determination of Undertaking and Assessment of Area of Potential Effect. On behalf of the FHWA, the VAOT Archaeology Officer and Historic Preservation Officer shall follow the procedures in 36 CFR 800.3 and 800.4 to (i) determine whether proposed projects, activities, or programs constitute an undertaking; and (ii) establish the undertaking=s area of potential effects.

B. Identifying Historic Properties. Pursuant to 36 CFR 800.4, the VAOT Archaeology Officer and Historic Preservation Officer shall identify historic and archaeological properties that may be affected by the undertaking and gather sufficient information to evaluate the eligibility of these properties for the National Register of Historic Places. Information shall be obtained through cultural resource surveys or other appropriate investigations. Identification of historic and archaeological properties shall follow the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716), applicable SHPO guidelines, and agency programs to meet the requirements of Section 110(a)(2) of NHPA.

C. Public Participation and Notification The VAOT Archaeology Officer and Historic Preservation Officer shall, through opportunities afforded by the VAOT project development process, seek and consider the views of the public in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties, the likely interest of the public in the effects on historic properties, confidentiality concerns of private individuals and businesses, and the relationship of the Federal involvement to the undertaking. VAOT will use existing procedures to solicit public participation early in the project planning process and consistent with 36 CFR Part 800.3.

D. Evaluating Historic and Archaeological Significance. For any undertaking that may affect properties that have not been previously evaluated for eligibility to the National Register of Historic Places, the VAOT Archaeology Officer and Historic Preservation Officer shall apply the National Register Criteria (36 CFR 60.4), and shall make an appropriate finding regarding eligibility pursuant to 36 CFR 800.4(c). VAOT shall notify FHWA and any interested person that this finding has been made and shall provide copies to SHPO of adequate documentation to support that finding for inspection by the public.

Prior to any finding of eligibility or non-eligibility, VAOT may consult with SHPO regarding application of the criteria contained in 36 CFR 60.4. Copies of these findings with supporting documentation shall be forwarded as they are generated to SHPO for their records.

E. Finding of No Historic Properties Affected. If VAOT finds that either there are no historic properties present or there are historic properties present but the undertaking will have no effect on them as defined in 36 CFR Part 800.16(i), the VAOT Archaeology Officer and

Historic Preservation Officer shall make a formal finding of No Historic Properties Affected. Prior to any such finding, VAOT may consult with SHPO regarding application of the criteria. VAOT shall notify FHWA and any interested person that this finding of No Historic Properties Affected has been made and shall forward copies of adequate documentation as set forth in 36 CFR Part 800.11(d) to support that finding to SHPO for inspection by the public. No further review under Section 106 is required for a finding of No Historic Properties Affected unless supplementary review pursuant to Section 5 herein, is requested.

F. Finding of No Adverse Effect. For any undertaking that includes, within the area of potential effects, listed or eligible properties that will not be adversely affected by the undertaking, as defined by the Criteria of Adverse Effect set forth in 36 CFR 800.5(a), the VAOT Archaeology Officer and Historic Preservation Officer shall make a formal finding of no adverse effect and specify those conditions, if any, that shall be imposed to secure that finding. FHWA and VAOT shall ensure that specified conditions are met. VAOT shall notify FHWA and any interested person that this finding of no adverse effect has been made and shall forward copies of adequate documentation to support that finding to SHPO for inspection by the public. No further review under Section 106 is required for a finding of no adverse effect unless supplementary review pursuant to Section 5, herein, is requested.

Prior to any finding of no adverse effect, VAOT may consult with SHPO regarding application of the criteria. Copies of these findings of no adverse effect with supporting documentation shall be forwarded to SHPO as available for their records.

G Findings of Adverse Effect. For any undertaking that includes, within the area of potential effects, listed or eligible properties that will or may be adversely affected by the undertaking, as defined by the Criteria of Adverse Effect set forth in 36 CFR 800.5(a), the VAOT Archaeology Officer and Historic Preservation Officer shall make a formal finding of adverse effect. When a finding of adverse effect has been made, VAOT shall, at a minimum, evaluate in consultation with consulting parties alternatives to the project that would avoid any adverse effect and document them in the project files. If no such alternatives exist, VAOT shall undertake all possible steps to minimize or mitigate the adverse effect, taking into account the requirements of the Secretary of the Interior=s Standards for Historic Preservation Projects; the Vermont Guidelines for Archeological Studies of 1989 and its subsequent revisions, together with the Manual of Ancillary Standards and Guidelines adopted pursuant to this PA.

(1) Adverse Effect - Standard Mitigation Measures Applicable. Prior to any finding of adverse effect, VAOT may consult with SHPO regarding application of the criteria and appropriateness of utilizing the Standard Mitigation Measures set forth in the Manual of Ancillary Standards and Guidelines. If VAOT makes a determination regarding applicability of the Standard Mitigation Measures, those measures shall be incorporated into a formal written finding of adverse effect. VAOT shall notify FHWA, SHPO, consulting parties and interested members of the public that this finding of adverse effect has been made and shall forward copies of adequate documentation to support that finding to SHPO for inspection by the public. No further review under Section 106 is required for a finding of adverse effect unless supplementary review pursuant to Section 5, herein, is requested.

(2) Adverse Effect - Memorandum of Agreement (MOA) If VAOT determines that the Standard Mitigation Measures are not applicable, VAOT will consult with SHPO, FHWA, and consulting parties on the special provisions adopted to avoid, minimize, or mitigate the adverse effect, and draft an MOA to reflect the agreement. This MOA, together with copies of the documentation necessary to support the finding of adverse effect, will be forwarded to SHPO and FHWA wherein they will, within 30 days, either sign the agreement or initiate consultation with the Council. Copies of the MOA and findings of adverse effect with supporting documentation shall be forwarded to the Council, and SHPO as generated for their records and inspection by the public.

(3) Adverse Effect - Special Requirements for Protecting National Historic Landmarks
If VAOT determines that an undertaking may adversely affect a National Historic Landmark, VAOT shall request the SHPO , the Council and the Secretary of the Interior to participate in consultation to resolve any adverse effects, as outlined in 36 CFR 800.10.

H. Emergency Situations. This document prescribes review processes for two classes of emergency situations. The first class exists when (1) the undertakings are operations that are responding to a disaster or emergency declared by the President or governor, or that are responding to immediate threats to life or property, or (2) that are responding to immediate threats to life or property that are declared emergencies by the Secretary of Transportation in consultation with the VAOT Historic Preservation and Archaeology Officers or, if unavailable, the SHPO and (3) corrective measures are initiated within 30 days after the disaster or emergency has been formally declared. Reviews in these emergency situations shall utilize the review process described in Section 4, but with a shortened timeframe for participation by the SHPO, consulting parties, and the general public as time permits. Written notification of the emergency action being considered shall be provided to the SHPO, the legislative body of the Municipality and the Municipal Planning Commission. The notice shall be clearly and prominently marked as an emergency notification, and shall include a brief description of the significance of the resources involved, the nature and anticipated effect of the emergency action on the resource(s), and the anticipated timeframe available for comment. Notification may be similarly provided to the general public in a box ad in a newspaper of general circulation in the area. VAOT is encouraged to also communicate with consulting parties by telephone.

The second class of emergencies as defined by immediate rescue and salvage operations conducted to preserve life or property such as necessitated by natural disaster or other catastrophic event, are exempt from the provisions of Section 106 and this Programmatic Agreement.

I. Discovery. If previously unidentified archaeo logical or historic sites are discovered after VAOT has completed its review under this programmatic agreement, that portion of the project will stop immediately. The resident engineer will immediately contact the SHPO. No further construction will proceed until the requirements of 36 CFR 800.13 have been satisfied. FHWA and VAOT will consult with SHPO to record, document and evaluate National Register eligibility of the site and the project's effect on the site, and to design a plan for avoiding or mitigating adverse effects on a potentially eligible site.

J. Treatment of Human Remains. In accordance with state laws that protect unmarked burials, if previously unidentified Native American remains are discovered during construction, that

portion of the project will stop immediately. The remains will be respectfully covered over and the project engineer will immediately consult with FHWA, VAOT's archaeologist, and SHPO. A treatment and reburial plan will be developed by FHWA, VAOT, and SHPO in consultation with appropriate Native Americans. FHWA and VAOT will ensure that the treatment and reburial plan is fully implemented. Avoidance and preservation in place is the preferred option for treating human remains.

5. Supplementary Review This Programmatic Agreement is intended to provide for complete, thorough, and streamlined review of VAOT transportation projects. It is agreed that the formal supplementary review process described below is intended for use in circumstances of significant disagreement o nly. For the purposes of informal consultation, the SHPO may at his or her discretion, consult via telephone, memo, or in a meeting with the VAOT's historic and archaeological preservation staff.

If, for any undertaking, formal written comment or formal written objection, so titled, is made within 30 days by FHWA, VAOT, SHPO, the Council, or any consulting party, to any findings made by either the Archaeology Officer or Historic Preservation Officer regarding: (i) determination that an undertaking exists; (ii) the potential area of an undertaking's effect; (iii) the eligibility of archaeological or historic properties to the State or National Register of Historic Places within the project area of effect; (iv) determinations of effect; (v) interpretation of the Secretary of the Interior's Standards for Historic Preservation Projects; (vi) conformance with Vermont Guidelines for Archeological Studies of 1989, and any successors to those guidelines; (vii) applicability of the Manual of Ancillary Standards and Guidelines adopted pursuant to this PA; (viii) the appropriateness of the Standard Mitigation Measures, the Archaeology Officer or Historic Preservation Officer shall consult, as appropriate, with SHPO, ACHP, FHWA, or VAOT. If, after consultation, agreement on Federal undertakings cannot be reached regarding any such findings, any party may request the project be reviewed pursuant to the procedures identified in 36 CFR Part 800 et seq. In such event, the terms of this agreement shall be superseded by the provisions contained in 36 CFR Part 800 et seq for that single undertaking only.

6. Dispute Resolution. Should any party to this agreement object within 30 days to any actions proposed pursuant to this agreement not covered by Section 5 (Supplementary Review), FHWA, VAOT, SHPO, and the objecting party shall consult to resolve the objection. If the objection cannot be resolved, FHWA and VAOT shall request comment from the Council pursuant to 36 CFR 800.6(b). Any Council comment provided in response to such a request will be taken into account by FHWA and VAOT in accordance with 36 CFR 800.6(c)(2) with reference only to the subject of the dispute. The responsibility of VAOT, FHWA, and SHPO to carry out all actions under this agreement, other than those that are the subject of the dispute, will remain unchanged.

7. Amendment. Any party to this agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR 800.14 to consider such amendment. The responsibility of VAOT, FHWA, and SHPO to carry out all actions under this agreement, other than those subject to the amendment, will remain unchanged.

8. Right to Terminate. Any party to this PA may terminate it by providing thirty (30) days written notice to the other parties, provided that the parties will consult during the period before termination to seek agreement on amendments or other action that would avoid termination. In the event of termination, the FHWA shall comply with 36 CFR 800 with regard to the individual undertakings covered by this PA.

9. Duration. This Programmatic Agreement will be in effect for three years from the date of execution, with renewal upon agreement by all parties.

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Execution and implementation of this PA evidences that the FHWA has satisfied its Section 106 responsibilities for all individual undertakings of the Federal-aid Highway Program in Vermont.

Division Administrator, Federal Highway Administration	date	Executive Director, Advisory Council on Historic Preservation	date
Vermont State Historic Preservation Officer	date	Secretary, Vermont Agency of Transportation	date

APPENDIX A

MANUAL OF ANCILLARY STANDARDS AND GUIDELINES
Outline of Topics

1. Applicability and Scope
   (A) Applicability
   (B) Scope

2. General Requirements
   (A) Employment of Qualified Personnel
   (B) Manual of Ancillary Standards and Guidelines
   (C) Coordination of Project Review Among VAOT Divisions
   (D) Education
   (E) Training
   (F) Annual Evaluation
   (G) Transition
   (H) Delegation
   (I) Innovative Programs Envisioned

3. Documentation
   (A) Types of Documentation
   (B) GIS Systems
   (C) Archaeology Planning and Research

4. Requirements for Project Review by FHWA and VAOT
   (A) Determination of Undertaking and Assessment of Area of Potential Effect
   (B) Identifying Historic Properties
   (C) Public Participation and notification
   (D) Evaluating Historical and Archaeological Significance
   (E) Finding of No Historic Properties Affected
   (F) Finding of No Adverse Effect
   (G) Finding of Adverse Effect
      (3) Adverse Effect - Standard Mitigation Measures Applicable
      (2) Adverse Effect - Memorandum of Agreement
      (5) Adverse Effect - Special Requirements for Protecting National Historic Landmarks

   (H) Emergency Situations
   (I) Discovery
   (J) Treatment of Human Remains

5. Supplementary Review

6. Dispute Resolution
7. Amendment
8. Right to Terminate
9. Duration
10. Appendices
    (A) Manual of Ancillary Standards and Guidelines. Outline of Topics
    (B) Review of AOT Undertakings under Vermont State Law
    (C) Exempt Activities
    (D) Statewide Programmatic Agreements

APPENDIX B

Review of VAOT Undertakings under Vermont State Law

1. INTRODUCTION TO STATE REVIEW PROCEDURES. In addition to Section 106 review of VAOT projects, state law requires that state undertakings be reviewed under 22 V.S.A. 14, the Vermont Historic Preservation Act, and in some cases, under 10 V.S.A. 151, Act 250, the State's land use permit law. VAOT undertakings that comply with the review requirements of Section 106 or Act 250 shall be considered to be in compliance with the requirements of 22 V.S.A.14. Compliance with 22 V.S.A.14, however, generally does not satisfy the review requirements of Section 106 or Act 250.

A. 22 V.S.A. 14. In those circumstances where there is no federal or Act 250 involvement in an AOT undertaking, the Vermont Advisory Council on Historic Preservation (VACHP) delegates to the VAOT and VAOT's qualified historic and archaeological preservation professionals the responsibility to identify potentially significant resources, to evaluate project impacts, and to develop mitigation measures that avoid or minimize adverse impacts, as outlined in the Division's rules for State undertakings. For undertakings that do not result in an adverse effect, AOT shall provide a copy of the determinations to the VACHP. For undertakings that may have an impact on a listed or eligible State or National Register resource, VAOT shall consult with the VACHP as outlined in the rules.

B. 10 V.S.A. 151, Act 250. VAOT shall identify the applicability of Act 250 to VAOT projects early in the planning process. For undertakings that require an Act 250 permit, the VACHP delegates to the VAOT and VAOT's qualified historic and archaeological preservation professionals the responsibility to identify potentially significant resources, and the Vermont Division for Historic Preservation delegates the responsibility to evaluate project impacts and to develop mitigation measures that avoid, minimize, or mitigate impacts, as outlined in the Division's rules for state undertakings.

(1) Finding of No Effect. For any undertaking that does not include a listed or eligible State or National Register resource within the area of potential effects, or alternatively includes listed or eligible properties that will not be affected by the undertaking, the VAOT Archaeology Officer and Historic Preservation Officer shall make a formal finding of no effect. VAOT shall forward copies of this finding to the District Environmental Commission and the SHPO and these comments shall serve as the SHPO's comments on the project for Criterion 8 and other applicable criteria. No further review by AOT under Act 250 is required.

(2) Finding of No Adverse Effect. For any undertaking that includes, within the area of potential effects, a listed or eligible State or National Register resource that will not be adversely affected by the undertaking as defined in the Division's rules, the VAOT Archaeology Officer and Historic Preservation Officer shall make a formal finding of no adverse effect and specify those conditions, if any, that shall be imposed to secure that finding. VAOT shall forward copies of this finding to the District Environmental Commission and the SHPO and these comments shall serve as the SHPO's comments on the project for Criterion 8 and other applicable criteria. No further review by AOT under Act 250 is required.

(3) Finding of Adverse Effect. Prior to any finding of adverse effect, VAOT may consult with SHPO regarding application of the criteria of adverse effect in the Division's rules. For undertakings that may have an adverse effect on a listed or eligible State or National Register resource, VAOT shall consult with the SHPO, and prepare for the SHPO's concurrence a recommendation for mitigation measures that would avoid an undue adverse effect. The recommendation, with the SHPO's concurrence, shall be submitted to the District Commission and shall serve as the Division's comments on the project for Criterion 8 and other applicable criteria. If the SHPO does not concur, either in the assessment of undue adverse effect or in proposed mitigation measures, the SHPO may issue his or her own comments to the District Commission.

2. PUBLIC NOTIFICATION. VAOT shall also be responsible for notifying towns or municipalities when a property is being evaluated for the SR/NR as required by Title 22, Vermont Statutes Annotated, Section 723(11) and related policies. Such notification shall be incorporated into existing VAOT procedures as appropriate. VAOT and SHPO will coordinate any requested public hearings requested pursuant to that act.

_____ _____

Vermont Advisory Council for Historic Preservation — date

_____ _____

Vermont State Historic Preservation Officer — date

_____ _____

Secretary, Vermont Agency of Transportation — date

APPENDIX C

Exempt Activities

ROADWAY

1. Rehabilitation of existing pavement and/or application of new pavement on existing travel lanes and existing paved shoulders with shoulder backing
2. Sub-base improvement limited to the depth of the existing sub-base, for drainage purposes.
3. Routine pavement maintenance such as crack filling.
4. Routine sign maintenance, such as in-kind replacement of damaged or down signs, and in-kind replacement of signs, guardrails, lights, signals, curbs, sidewalks, shoulder backing, and pavement markings at their existing locations. For projects not located in historic districts, minor modifications in size, locations, content, and material composition of these features are permitted and do not require review.
5. Interstate projects involving: (1) installation of guardrails to replace existing guardrails; (2) installation of new guardrails on existing shoulders; and (3) maintenance projects, including construction of cross-overs, on previously disturbed median strips.
6. Converting existing drop inlets to traversable designs.
7. Safety end treatments (standard flares) for guardrails.
8. Installation of new guardrail on existing shoulders outside historic districts.
9. Installation of rumble strips on existing pavement.

CULVERTS AND DITCHING

1. In kind replacement of 48" or smaller culverts not fifty years old, provided replacement is confined to existing locations. In-kind replacement shall mean construction of a new facility substantially the same in materials and size.
2. In kind replacement of 49" or larger culverts not fifty years old, provided replacement is confined to existing locations, no temporary bridge or culvert is required, and no approach work is undertaken. In-kind replacement shall mean construction of a new facility substantially the same in materials and size and in footprint.
3. Reestablishment of existing ditches to original width.

BRIDGES

1. Washing, cleaning, and regular maintenance.
2. In-kind repairs to abutments where no excavation is proposed.
3. For bridges that are not fifty years old, rehabilitation of existing pavement and/or application of new pavement on bridge decks, replacement of membranes, and replacement of expansion joints, and replacement/repair of railings where bridge is located outside a historic district.

AIRPORTS

1. Repaving of existing runways.
2. Repairing existing less than 50 year old safety components including beacons on airport property as long as no new access is required.
3. In kind replacement or repair of existing beacons less than 50 years old not on airport property as long as no new access is required.
4. General maintenance of existing airport facilities.

RAILROADS

1. Installation of new RR signals and replacement/repair of existing less than 50 year old RR safety components.
2. Resurfacing on railroad crossings.
3. In-kind replacement of existing bolt connected RR tracks and wood ties.

ENHANCEMENTS

1. Installation of Bike Racks.
2. Maintenance and minor improvements to existing Park and Rides, except lighting, where no excavation will take place.
3. Modification to concrete sidewalks and curb ramps to satisfy the Americans with Disabilities Act.

UTILITIES

1. Replacing/repairing existing underground utilities in kind and within existing footprint.
2. Replacement and relocation of existing utility poles between edge of sidewalk and road.

PROCEDURAL

1. Minor changes to previously permitted projects where those changes fall under the exempt activity category as described in this appendix.

APPENDIX D

Existing S tatewide Programmatic Agreements

1. Paving and Minor Highway Project Programmatic Agreement, executed February 1, 1996

Programmatic Agreement among the Federal Highway Administration, the Vermont Agency of Transportation, the Vermont State Historic Pres ervation Officer, and the Advisory Council on Historic Preservation regarding Paving and Minor Highway Projects.

2. Historic Bridge Programmatic Agreement, executed July 7, 1998

Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the Vermont Agency of Transportation, the Vermont Agency of Natural Resources, and the Vermont Agency of Commerce and Community Development regarding implementation of a program involving historic bridges.

12/00

STATEMENT OF HAL KASSOFF, VICE PRESIDENT, PARSONS BRINCKERHOFF, ON BEHALF OF THE AMERICAN COUNCIL OF ENGINEERING COMPANIES

Good morning. My name is Hal Kassoff. I am Vice President with the consulting engineering firm of Parsons Brinckerhoff. I am representing the 5,800 member firms of the American Council of Engineering Companies, where I chair the Transportation Committee's Subcommittee on Environmental Streamlining. I am also co-chair of the Planning and Environmental Working Group for the American Road and Transportation Builders Association's TEA–2 Reauthorization Task Force.

Expediting project delivery is one of the premier issues for members of the transportation community. And those who are experienced in delivering surface transportation projects will agree that the most difficult and time consuming challenge involves coping with what has become an overly arduous and time consuming environmental review process.

Recently, those who oppose streamlining the transportation project environmental review and approval process have begun to argue that the process is not a significant cause of project delay—that funding constraints and mismanagement are the real problems. These arguments are a distortion of the reality that I have known for 18 years as planning director and then Administrator for the Maryland State Highway Administration, and for the past 5 years working on a national basis with Parsons Brinckerhoff. Environmental groups have, on occasion, candidly acknowledged that using the current process to delay projects that they oppose is key to meeting their objectives.

In his testimony before this committee on April 29, 1999, Mr. Roy Kienitz, the then Executive Director of the Surface Transportation Policy Project said:

"In the struggle between the proponents and opponents of a controversial project, the best an opponent can hope for is to delay things until the proponents change their minds or tire of the fight. It is the only option they have, and so they use it."

Mr. Kienitz went on to offer:

"We think of the projects that navigate the Federal approval process as falling into two natural categories: first, those on which a consensus has been reached locally, and second, those where strong disagreement still exists . . . We believe that Federal process reforms can be most effective in addressing the treatment of projects in the first category. There is no good reason for Federal approval to take years if there are no major disagreements over the project being proposed. These delays are the most needless of all, and are the easiest ones to attack."

Mr. Chairman, this is a refreshing observation by Mr. Kienitz that underscores the fact that the process needs to be fixed.

A recent study by FHWA has confirmed that the time required to process environmental documents for large projects has more than doubled over the past 20 to 30 years. According to this report, in the 1970's the average time for completion of environmental impact statements was 2.2 years. This time period doubled to 4.4 years in the 1980's and grew further to an average of 5.0 years in the 1990's. Also of interest is that the average time grew by nearly 2 years when section 404 wetland permit issues come into play and the same occurred when section 4(f) historic preservation or parkland avoidance issues are involved.

And another recent study under the National Cooperative Highway Research Program (NCHRP) reported on a survey of more than 30 States who described their experiences with delays in satisfying environmental requirements for small, simple projects as well. According to this report, 63 percent of all DOTs responding to the survey reported experiencing environmental processing delays with preparation of categorical exclusions (CEs), and 81 percent reported similar delays involving environmental assessments (EAs). These delays triple average environmental review times from about 8 months to just under 2 years for CEs, and more than double these time periods from under 1.5 years to about 3.5 years for EAs.

Some DOTs have extended their schedules to reflect these extremely long durations—which can then give the misimpression that the environmental process is not taking an inordinately lengthy period of time. Other DOTs will simply not allocate funds to projects until environmental requirements have been met in order to avoid tying up and then delaying the utilization of critically important financial resources. In an ironic twist of reality, environmental activists can then claim that such projects are being delayed not by environmental requirements but by funding constraints, when in fact the opposite is often the case.

Mr. Chairman and members of the committee, needless delay to transportation projects caused by environmental processing is widespread, and the opportunity is at hand to take positive action. Section 1309 of TEA–21 attempted to address the problem by calling upon the U.S. DOT and environmental resource agencies to cooperatively implement streamlined procedures, including concurrent processing, adherence to deadlines and dispute resolution. The goal was to expedite project delivery by eliminating unnecessary delays and requiring timely resolution of conflicts without diminishing environmental protections.

The last point—"without diminishing environmental protections"—is critically important. Ten national environmental organizations recently joined in releasing a one-page document titled "Expediting Project Delivery Without Sacrificing Environmental Protection." And while exception could be taken with a number of specific

points in the paper, the overall title is on the mark. In fact, we are not aware of anyone in the transportation community who would argue that environmental protection should be sacrificed in order to expedite the project delivery process. This issue is not about weakening environmental protection. The issue is about implementing an improved process that expedites project delivery without sacrificing environmental protection.

There are some environmental groups who are interested in continuing a process that facilitates delay, or can be manipulated or challenged to cause delay, of project decisions with which they disagree. Those of us involved in delivering transportation project decisions are interested in a process that allows full public participation and ensures that only environmentally sound projects that meet the public and business demand for safe and efficient travel move forward. We also want a process, however, that is fair, certain, and comes to closure in what most people would consider a reasonable amount of time.

We believe that Section 1309 needs a legislative "booster shot" in the form of a carefully balanced approach that reflects three basic components:

(1) clarify expectations of both transportation and environmental agencies,
(2) transform specific processes, and
(3) hold both transportation and environmental agencies accountable for achieving positive results.

(1) Clarify Expectations

Congress should clearly define its expectations for expediting project delivery by articulating in clear and unmistakable language a balanced array of basic policy principles. Such clearly defined expectations will be of great value in guiding the actions of participants in the process. Attached to this testimony is a draft of 20 such principles—10 that would apply to transportation agencies and 10 to environmental resource agencies. Taking just a few as examples, transportation agencies would be expected to advance projects that reflect environmental sensitivity as a priority. This will help lend substance and meaning to the philosophy of environmental stewardship which AASHTO and FHWA have been articulating and practicing. At the same time, environmental agencies would be expected to recognize the economic, safety/health and mobility needs for transportation projects, and offer constructive and problem solving ideas that respect their basic purpose. Environmental staffs would work with transportation agencies in a search for win/win outcomes.

To fully appreciate how far the transportation community has come with respect to environmental stewardship, I commend to you the definition and goals as presented by AASHTO in its Transportation Environmental Stewardship Program, which is also attached. One of the key points that AASHTO makes is that environmental stewardship is a voluntary commitment to go beyond the minimums required by law. It can only succeed if States embrace the concept in their own unique ways. It cannot be standardized, nor can it be embodied in a new set of requirements, without defeating the whole purpose of inducing a culture change that encourages going beyond bare minimums.

(2) Transform Processes

Mr. Chairman, transformations of certain processes are essential if significant improvements in expediting project delivery are to be achieved. Legislation is needed to ensure that these changes occur. They include the following:

- US DOT Lead Agency Responsibilities: The US DOT must play a stronger lead agency role in advancing process improvements and in advocating responsible transportation projects. This can be achieved legislatively by clarifying DOT responsibilities in defining the purpose and need for transportation projects, in determining the legitimate range of transportation alternatives to be considered, in approving transportation related technical methodologies, in establishing and enforcing reasonable project schedules, including review and comment periods, and in orchestrating the involvement of appropriate agencies.
- Streamlined Planning and Environmental Regulations: The US DOT should be directed to transform its planning and environmental regulatory approach from an overly complex and prescriptive framework to a more concise, flexible, performance-based combination of rulemaking and guidance that focuses on outcomes. Opportunities to integrate planning and environmental requirements should be offered, but not prescribed, and should be predicated on the notion that guidance derived from duly certified and valid long range transportation planning processes bearing upon such issues as transportation corridor purpose and need, mode selection, and range of alternatives will be acknowledged and have standing in subsequent environmental stages. Duplicative corridor studies that have no standing under NEPA should clearly be eliminated as a requirement.

• Section 4(f) Reform : Legislation is needed in addition to administrative actions that US DOT might advance to address Section 4(f) problems that have become a major source of delay. The needed reforms include:

- Section 4(f) Finding of No Significant Impact (FONSI) designation to streamline those actions where impacts to 4(f) resources are determined to be insignificant
- Integration of 4(f) alternatives as part of the NEPA process
- Review of "feasibility" and "prudence" in a manner that permits weighing the balance and proportionality of diverse impacts
- Satisfactory completion of the Section 106 Historic Preservation process for historic properties should suffice for 4(f)
- Exclude 4(f) applicability to private properties unless they are National Historic Landmarks or fall under some form of legal protective covenant
- Exclude the consideration of Interstate highways themselves as being historic and falling under Section 4(f) and 106 requirements

• Decision/dispute Resolution Process: US DOT should be expected to implement a simplified, responsive and effective decision and dispute resolution process to be invoked at the request of a Governor and led by the Secretary or his designee.

• Time Limits to Legal Challenges: A reasonable time limit should apply to the filing of legal actions that challenge the environmental process (90 days seems reasonable).

• Delegation of Authority: US DOT and Federal environmental resource agencies should be required to implement programs to delegate authority to willing and able State counterpart agencies for EA/FONSI and Categorical Exclusion projects, using a post-audit quality assurance process to ensure adherence to Federal requirements. Environmental agencies should conserve their limited resources to focus attention upon the relatively small number of projects that involve significant environmental issues. Various models exist for implementing the delegation process, such as Section 404 wetland permitting in New Jersey and Michigan, and Section106 historic preservation procedures in Vermont. These have been described in a recently completed AASHTO requested study funded under the NCHRP.

(3) Hold Agencies Accountable

• Annual Report: Congress should require annual reports on the progress that is being made to achieve a streamlined environmental review and approval process that does not weaken environmental protections. The report should include discussion of process changes and results. Results should be measured in two ways.

- Milestone Durations: Similar to the recent report by FHWA on the time required to process EIS's over the past 3 decades, a monitoring and reporting framework should be established to determine trends for time required in achieving key milestones, classified by type of project and type of environmental document
- Interagency Cooperation: Building upon a prototype process being developed by the Gallup Organization under contract to FHWA, a peer review "report card" should be implemented to gauge the degree to which congressionally endorsed expectations are, in fact, being fulfilled by individual transportation and environmental agencies. If done well, this approach can foster working relationships in which environmental stewardship as well as environmental streamlining will flourish.

• Project Reports: Reports on a project basis should be filed by US DOT with Congress when certain milestone criteria have not been achieved (by a wide margin) and also in connection with designated transportation projects of national significance.

Mr. Chairman, the need for fixing the environmental review and approval process is real. The problem has been building for decades. Solutions are needed now, or urgently needed projects will continue to be bogged down. The result will be lives lost, a weakened economy, less time with our families, fuel wasted, expensive and undependable delivery of freight, and increased air pollution.

On behalf of the transportation community we would urge the committee to support legislation that will address the problem in a meaningful and effective way. We believe that the objective articulated by the environmental community to "expedite project delivery without sacrificing environmental projection" is both laudable and achievable—but it will require a 3-pronged legislative approach that clarifies expectations, transforms processes, and holds agencies accountable to achieve success.

Thank you for the opportunity to testify.

ATTACHMENTS

Expectations of Transportation Agencies in Expediting Project Delivery

- Advance reasonable projects that reflect environmental sensitivity
- Ensure that the purpose and need are well established and compelling
- Consider alternatives that reflect environmental concerns
- Treat environmental concerns on a par with transportation issues
- Foster an open and interactive project development process
- Encourage early involvement by environmental resource agencies
- Keep unavoidable environmental impacts to a bare minimum
- Develop context sensitive solutions with environmental agency as well as public involvement
- Provide effective mitigation and reasonable enhancements to temper unavoidable impacts
- Adhere rigorously to environmental commitments and monitor effectiveness

Expectations of Environmental Agencies in Expediting Project Delivery

- Uphold and implement environmental laws and regulations
- Recognize the need for environmentally sensitive transportation projects
- Participate early and effectively in transportation project development
- Demonstrate a spirit of cooperation
- Offer constructive and problem-solving ideas that address purpose and need
- Reflect a sense of urgency about meeting schedules
- Implement concurrent processing and a performance approach to permitting
- Apply clear and consistent interpretations of legal and regulatory requirements
- Consider common sense, balance and proportionality consistent with legal and regulatory requirements
- Avoid unnecessary duplication by sharing responsibilities with capable and willing State counterparts

Environmental Stewardship Is: (AASHTO)

- Improving environmental conditions and quality of life when possible, not just complying with regulations
- Careful management of environmental resources and values through partnerships among public and private entities.
- Attitude, ethics, and behavior by individuals.
- Wise choices based on understanding consequences to natural, human-made, and social environment.
- Fulfilling responsibilities as trustees of the environment for succeeding generation, moving toward a cost-effective and environmentally sustainable future.
- Integrating environmental values with partners within all transportation work as a "core business value".

Environmental Stewardship Works Toward: (AASHTO)

- Agency-wide commitment to environmental excellence
- Improved public and regulatory attitudes
- Improved transportation programs and services
- Achieving TEA–21 streamlining goals
- Developing an environmental stewardship ethic
- Overcoming barriers

STATEMENT OF CHARLES HALES, TRANSIT PLANNING PRINCIPAL, HDR, PORTLAND, OREGON

Mr. Chairman, members of the Committee on Environment and Public Works. My name is Charles Hales. I am the Transit Planning Principal with the engineering firm of HDR in Portland, Oregon. HDR is a member of the American Council of Engineering Companies, and supports their efforts to improve project delivery. I am pleased to testify today as a former elected official and as a principal of HDR. In both of those capacities, I have worked collaboratively with a broad coalition of environmental and smart growth organizations. Some of them have endorsed my testimony here today and have supplied supporting materials for the points I will make here; those include: The Surface Transportation Policy Project, Environmental Defense, The Sierra Club, The National Coalition to Defend NEPA, Defenders of Wildlife and the Natural Resources Defense Council.

Thank you for this opportunity to advise you on your work on Federal policy affecting transportation project delivery. In both my public service as Portland's Transportation Commissioner and in my role now in the private sector, building

public works—particularly transportation projects—has been and is the focus of my work.

Twelve years ago, I was working in the development and construction industry. In 1991, I made the decision to run and was elected to the office of Portland City Commissioner. I did so because I believed that Portland was about to experience a major wave of growth and change, and I wanted to help steer our course through the perils and opportunities that growth brings. As it turned out, I was correct in that prediction; Portland boomed in the 1990's, and I was involved in the construction of over $2 billion worth of infrastructure. I'm happy to report that we have grown well. Money Magazine and others share my opinion when they call us America's Most Livable City.

My experience might prove instructive as you consider issues involved with the reauthorization of the Transportation Equity Act for the 21st Century (TEA–21), and ideas for "streamlining" the planning process required under this law or the National Environmental Policy Act (NEPA). What we have found is a set of principles that have been validated in project after project:

(1) Public works projects are "place-makers." This is true whether the project is a highway, a transit line, a park, a community center, or a police station. To pretend otherwise is . . . well, to pretend. When we build a freeway interchange or light rail line, we exert a massive influence on the character and destiny of the land around the project. A lot of unlovely places have been created and a lot of infrastructure money wasted by ignoring this principle. Suburban sprawl results from the compartmentalized, rather than the integrated approach to land use and development planning in one realm, while the provision of public works happens in another. In an era when infrastructure dollars are limited (actually, is there ever a time when this isn't true?) and quality of life is the most important driver of local economic development, designing projects which support the "place" is the only prudent investment strategy for public funds. The alternative strategy, and one, which is far too common, is building public works projects, and letting the "place" spontaneously develop around them. Sprawl, congestion and other unintended consequences are the predictable result.

(2) Land use planning must lead project engineering. The "purpose and need" stage of NEPA is applied common sense. Before we build a project, we need to ask what our goals are and how a proposed "improvement" will advance those goals. We need to honestly consider all the alternatives. We need to examine the consequences and side effects of the proposed improvement. If we don't we will not leverage the benefit of the infrastructure investment as we should, and we will likely create problems that will be worse and more expensive to solve than the one that we just "solved." The classic example of this phenomenon is the much-repeated fallacy of the past 50 years: expanding highways to alleviate traffic congestion. We don't need to be subtle about this issue anymore: building highway capacity without integrating transportation planning and project design with regional and local land use planning is counterproductive.

Lewis Mumford warned us more than 50 years ago when he said, "Americans will soon have every facility for moving around the city, and no reason whatsoever to go there." Transportation investments which serve a well-thought-out land use plan pay dividends; those which take an engineering-only approach cause terrible side-effects or at least, don't perform very well or very long. My company summarizes the integrated approach in three words: community, mobility and environment. It is sound public policy to respect all three.

(3) Bring all stakeholders and points of view to the table. As I mentioned, I've built a lot of infrastructure and now, as a principal with HDR, I look forward to being involved with building a lot more. For those projects to succeed, all who have a stake in them must inform their concept and design. The "good old days", in which a Robert Moses in New York or in my State, a Glenn Jackson could locate and authorize a project by fiat, are gone. The public, with good cause, won't stand for it. Similarly, Federal, State, regional and local agencies have their responsibilities under law, and they are bound to carry them out.

An open, inclusive process of considering all the issues involved in a major infrastructure investment is legally, pragmatically, and politically required.

The good news I have to report, Mr. Chairman, is that these principles are not simply lofty ideals.They are standard practice in my community, and as a result Portland is widely considered to be one of America's most livable cities.

My community's experience shows that the best way to "streamline NEPA" is to go through the planning process right the first time and only once. We have made a sustained commitment to comprehensive land use and transportation planning. We work collaboratively to integrate the requirements and address the concerns of Federal and State regulatory agencies in our plans and projects. We then ask those

agencies to sign off early on purpose and need. We base our project priorities on the plans. We are thrifty in our expenditure of public moneys. We build transportation projects on time and on budget. And our transit projects in particular outperform their projections.

Our experience allays some concerns about environmental review:

(1) It is not my experience that environmental groups and NIMBY's (not-in-my-back yard neighborhood groups) will exploit environmental review and tie needed projects up for years. If there is any place in America where this should be true, it is Portland, Oregon. Our State is loaded with environmentalists (remember the book "Ecotopia"?), and our city is populated with neighborhood activists. In fact, Portland actually goes so far as to provide funding and staff support for neighborhood associations and gives them a free land use appeal right for discretionary land use decisions. Some might expect this to be a recipe for paralysis.

Yet the contrary is true. In the 10 years I served as a Portland City Commissioner and as Portland's representative to the MPO for our region, we built dozens of major highway, transit, sewer, and water projects, and other major facilities. In almost no case . . . allow me to repeat that . . . in almost no case have projects been held up by appeals, litigation or multiple trips through the NEPA process or though State or local review. I'm proud of that track record; I believe that I made good decisions. I must admit, though, that I was not infallible. Some appeals are meritorious; they are part of the checks and balances system, and their scrutiny accomplishes a legitimate purpose of these laws: avoiding bad projects, or reshaping them to be good ones.

Similarly, in 10 years of rapid growth and dramatic change in the built landscape of my city, only citizen blocked a handful of private development projects in Portland or neighborhood appeals. This paradox is explained by the fact that we have taken the coordination, public involvement and alternatives analysis goals of NEPA and TEA–21 to heart. We plan, we work for consensus, and we follow our plans. We are a case study that demonstrates that good administrative practice gets good treatment under the Federal requirements. We demonstrate that even in a city with Endangered Species swimming through its downtown, Federal and State agencies can reach agreement and construction of public works and private development can continue apace.

(2) Environmental review does not need to hold up projects or add significantly to their costs. If my community's citizens are "green," they are also "tight." Oregonians are frugal, and expect frugality in public expenditure. In my experience, this expectation is more likely to be met with a truly good faith effort to follow these planning and alternatives analysis requirements. To borrow a popular phrase, planning is expensive and time-consuming, but not compared to the alternative.

(3) These laws and regulations don't foster internecine warfare among public agencies; done right, environmental review reduces interagency conflict. The Oregon DOT, like most State DOTs, is still primarily a road and highway organization. The ODOT staff has, however, incorporated this planning-based approach in their work. They, in return, expect counties and municipalities to work collaboratively with them; for example, we are transitioning some former State highways located in urban areas into locally managed streets. These projects don't require environmental review, but the cooperative working relationships forged in environmental review makes these other "win-win" agreements possible.

Environmental review requirements, well integrated and well administered, help assure that good projects are advanced with public support, avoiding adverse impacts and mitigating unavoidable impacts. This translates into public acceptance and smoother permitting. Indeed, efforts to expedite project delivery are likely to fail and work against sound decisionmaking if they set arbitrary time limits, curtail public and judicial review, limit consideration of alternatives and determinations of project purpose and need, or allow use of project segmentation and analysis models insensitive to induced traffic and other indirect impacts. Such approaches are likely to spur increased conflict and reduced public support for transportation funding and programs.

It's not possible to mandate cooperation, consensus and trust. Trying to push projects forward by the means I just listed will fail because in a complex environment like the design and permitting of a major public works project, cooperation, consensus and trust are necessities, not niceties. Likewise, it's not possible to measure a transportation project's success on transportation or engineering terms alone, so evaluation measures, if the committee pursues them, should evaluate a project's affect on a community's goals and plans. Land use results—i.e. the places where Americans live their lives—are not a "secondary effect."

When I was first contacted about testifying before your committee, I was reluctant to accept the invitation. I knew that the subject was streamlining the approval process for transportation projects, and that the committee would, necessarily, confer with experts on the specific language of Federal law and the regulations, both current and draft, which have been promulgated to implement these laws. My reticence was based on my understanding that I am not one of those experts and, more powerfully, that I have spent 10 years governing a growing city and building major infrastructure projects without having to think much about NEPA or the planning requirements of TEA–21.

That, ultimately, is my message and why I am here after all: if you take the commonsense planning, coordination and public involvement requirements of these Federal policies seriously, they don't get in your way. If you are committed to the spirit of these laws, the particulars are relatively unimportant. And as a local or State official, your time is much better spent in genuine consensus-building and integrated planning than in complaining about the regulations or defending against citizen suits. Our experience is that if citizens participate in the planning process and have a clear buy-in and responsibility for commitment, there are few suits. The plan is the community's plan. I should also emphasize that one does not need to adopt Portland's approach, or anyone else's; a community is free to plan its own future, not imitate anyone else's approach in order to get these beneficial results.

I'm not simply saying that if one plans, coordinates and communicates, the Federal regulatory requirements are not so bad. The results can be better than that. A community which first, engages in real, comprehensive, and sustained land use planning, and which makes infrastructure decisions consistent with that plan, and conducts a genuine and genuinely open process of alternative analysis not only gets through the environmental review process with a minimum of difficulty; the people of this community own the results of the planning process and get to live in a better place.

That is the opportunity that environmental review offers to States and localities. I hope that this committee, in its work on the next transportation bill, encourages us all to get serious about taking it.

Thank you. I would be pleased to answer any questions.

ATTACHMENTS:

- Attachment 1, "Expediting Project Delivery Without Sacrificing Environmental Protection," summarizes broadly supported principles for accomplishing improved project delivery and better environmental stewardship through better administration of the planning and project review process. These principles are fully consistent with the approach we have followed to achieve success in Portland.
- Attachment 2, "Questions and Answers About Environmental Streamlining," provides important background on the debate over streamlining vs. stewardship and transportation project delivery, including information about sources of project delay identified by AASHTO and FHWA studies.
- Attachment 3, "The Most Environmental Impact: Forests, Highways and Army Corps of Engineers," shows the share of agencies issuing Environmental Impact Studies (EISs) by year and the trends in number of EISs filed each year. These charts show that transportation still accounts for a large share of projects that are so environmentally significant as to trigger a full EIS, but that the number of EISs filed is actually declining slightly overall.
- Attachment 4, "Environmental Streamlining: Better Decisions from Integrated Transportation Plans/Reviews? Or Steam-rolling for Destructive New and Bigger Highways and Airports?," summarizes key talking points developed by Environmental Defense to explicate the current public policy issues in this area and offering ideas for what streamlining should and should not seek to accomplish if it is to protect the environment and expedite project delivery. These are principles that are highly consistent with our experience in Portland and I commend them to your attention.
- Attachment 5, "Comments by Environmental Defense on Proposed Metropolitan Planning and NEPA Streamlining Rules," provides important background on the statutory requirements for regional planning in TEA–21 and how these relate to NEPA requirements, Title VI of the Civil Rights Act, and other elements of the Federal highway law that require consideration of the adverse effects of air pollution prior to the approval of plans and specifications for a highway, as well as measures to eliminate or minimize the adverse effects of air pollution. The approaches advocated in these comments are consistent with Portland's efforts to integrate transportation, growth management, and air quality efforts.

• Attachment 6, "Letter to Transportation Secretary Rodney Slater from Rep. John Lewis and four other Members of Congress, December 2000", calls for U.S. DOT to adopt a national mobility goal to measure the performance of metropolitan transportation system and ensure equal access to employment opportunities and public facilities through regional transportation plans and timely progress toward this goal through transportation improvement programs. Adoption of this goal would be consistent with making our communities better places to live, with greater transportation choices, with a transportation system that delivers effective performance for all citizens, fostering a sense of place and a sense of region built on access to opportunities.

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STATEMENT OF DEFENDERS OF WILDLIFE, NATIONAL WILDLIFE FEDERATION AND THE HUMANE SOCIETY OF THE UNITED STATES, WASHINGTON, DC.

Our organizations submit the following testimony to the public record on behalf of our millions of members and supporters, who support strong environmental protections as well as sustainable transportation solutions.

There is no question that America's transportation infrastructure is imperative to our mobility, productivity and success. However, it has also had significant impacts on ecosystems of the U.S. Four million miles of roadways in the U.S. cover an area approximately the size of the State of South Carolina, and impacts beyond the road surface extend to as much as 20 percent of the total land area. Unfortunately, roads have not always been planned wisely, leaving a destructive B and permanent B footprint on landscapes and wildlife habitat. That is why it is imperative that transportation decisions are made after careful consideration of not only the immediate need and purpose, but also the long term and cumulative effects. In addition, transportation decisions cannot be made in a vacuum, but only after consultation with all stakeholders and interested parties.

Our primary concern with environmental streamlining, as some have proposed it, is simple and transparent: the potential for weakening environmental considerations required by the National Environmental Policy Act (NEPA). NEPA is the foundation for environmental protection in this country, and is largely credited for the level of environmental quality we enjoy today. When the 91st Congress enacted NEPA, the intent was clearly to declare environmental protection a national priority B not to delay projects, or pit agency against agency. The NEPA review process was intended to ensure that the actions of Federal agencies reflect the nation's dedication to environmental quality. It was not intended to be an assembly line of meaningless paperwork in pursuit of a mindless rubber-stamp approval. However, when agencies perceive the process as a nuisance, it not only contributes to the added costs and delays, it is an aberration of congressional design and a miscarriage of the trust and responsibility endowed upon these agencies by the American people.

Rather than advocating solutions that would shortchange critically needed environmental reviews required by NEPA, we believe that administrative actions that have been adopted in response to streamlining provisions in TEA–21 are fundamentally working. Some State streamlining activities, including early involvement of natural resource agencies in highway planning, coordination with existing natural resource planning efforts and enhanced application of mitigation approaches, can further reduce project completion time and do so without the need for additional legislation.

TEA–21's Streamlining is Working

Past streamlining debates resulted in the inclusion of an environmental streamlining provision in the Transportation Equity Act for the 21st Century (TEA–21). This provision, Section 1309, mandates that the Department of Transportation (DOT) work to reduce delays in project delivery while maintaining environmental protection: AThe Secretary shall develop and implement a coordinated environmental review process for highway and mass transit projects.[1]

Since then, great strides have been made in expediting the environmental review process. A report to Congress by the Federal Highway Administration (FHWA) in February 2002 examined States' efforts in carrying out Section 1309. The report found significant progress across the country, in particular that Athrough trial and error, innovation, testing, and early lessons learned, much of the transportation community has adopted a new way of thinking to get beyond the usual environ-

[1]Transportation Equity Act for the 21st Century, Pub. L. No. 105–178, 191309.

mental process bottlenecks.[2] Among other findings were that every State has adopted or initiated a process for streamlining that clarifies, amends, or re-invents the project development process. Nearly half of the States (24) have focused their efforts on integrating planning and NEPA activities. Forty-one States have some level of delegated authority for historic resources permitting.

Streamlining, as set out in TEA–21, is working. Improved project delivery is already being realized, simply by improving the process. One measure of that achievement, cited by FHWA, is that the length of time spent processing environmental documents has declined by 8 months between 1999 to 2001.

Environmental Reviews Are Not Causing Most Project Delays

There is no doubt that some transportation projects stretch far beyond their projected timeframe for delivery. However, there is little evidence to suggest that environmental regulations are the cause of most project delays. Three new studies, from the American Association of State Highway and Transportation Officials (AASHTO) and FHWA, quantify the impact that the NEPA process has had on transportation projects. The results of these studies call into question the complaints that environmental regulations are the source of delays, and provide further evidence that efforts to reduce review time are successfully under way.

Federal Highway Administration published two reports on transportation project delay in late 2000. The first study examined 89 projects requiring an environmental impact statement (EIS) that have yet to complete the review process after five or more years. Contrary to popular belief, the most common reason for delay was lack of funding or low priority (32 percent), local controversy (16 percent), or the inherent complexity of the project (13 percent). These issues, as well as changing or expanding the scope of the project (8 percent) far outweigh environmental review as causes of project delay.[3]

The second study, conducted by the Louis Berger Group, set out to establish a baseline of the length of time required to comply with the NEPA process. The study found that the average (mean) time required to complete the NEPA process was about 3.6 years. The median time was only 3 years B which in this case is a better indicator because of outliers in the sample. It is important to note that the time required to complete the NEPA process is not necessarily additive to the project planning and design process, and may be coincident with other phases of the project.[4]

A third study, commissioned by AASHTO and conducted by the consulting firm TransTech Management, looked specifically at the causes of delay for projects receiving a Categorical Exclusion or requiring an Environmental Assessment. According to AASHTO's survey of 32 State DOTs, the vast majority of transportation projects require only a Categorical Exclusion (CE). In fact, the AASHTO study found that fully 92 percent of environmental documents processed by State DOTs are CEs. Environmental assessments (EA) make up 7 percent, with Environmental Impact Statements (EIS) rounding out the sample at less than 2 percent.[5]

Consideration of Natural Resources Can Expedite Projects

We fully support efforts to reduce costly delays in transportation projects to the extent that they do not compromise environmental safeguards. We emphasize several measures which can expedite project delivery while enhancing natural resource conservation. Each of these measures is authorized in TEA–21, and many States are already taking advantage of the benefits.

1. Early, continued, substantive and supported involvement by regulatory agencies

Many projects are delayed because they are planned and designed before consultation with regulatory agencies. If regulatory agencies are involved from the beginning, they can steer DOTs clear of problems early. We support the facilitation of agency representation at the early stages of project design. Early agency consultations can identify decision points and potential conflicts before considerable time and resources have been committed to a particular plan of action which may later be discovered to be unacceptable or inconsistent with existing standards.

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[2]Federal Highway Admin., Highway and Transit Environmental Streamlining Progress Summary (Feb. 2002).

[3]FHWA. Reasons for EIS Project Delays. September 2000.

[4]The Louis Berger Group, Federal Highway Admin., Evaluating the Performance of Environmental Streamlining: Development of a NEPA Baseline for Measuring Continuous Performance (2000).

[5]American Ass'n of State Highway and Transp. Officials, Environmental Process Streamlining: A Report on Delays Associated with States' Categorical Exclusion and Environmental Assessment Processes (Oct. 2000).

NEPA reviews are but one of many responsibilities of Federal land and resource management agencies. Delays are often the result of inadequate funding and understaffed field offices. When agencies are fiscally restrained, their ability to respond to applicants' requests is likewise restrained. TEA–21 significantly increased transportation funding, resulting in an increase in transportation projects requiring environmental review. TEA–21 did not, however, increase funding to the agencies charged with reviewing and permitting these projects. The experience of the U.S. Fish and Wildlife Service (USFWS) provides an excellent example. Between 1998 and 2000, USFWS experienced a 77 percent increase in transportation project workload. However, since 1994 the USFWS budget and personnel levels for transportation technical assistance have increased only 1 percent.

Section 1309 allows transportation funds to be used to reimburse permitting agencies for staff hours and expenses, so that these agencies can dedicate staff time to reviewing proposed road projects early on and in a timely manner. Such reimbursement is an efficient investment that prevents delays in project delivery and increases natural resource conservation. To date, several States have taken full advantage of the reimbursement provision and are reaping the streamlining benefits of early, continued and supported involvement.

2. Incorporate conservation into transportation planning

Substantial progress can be made in reducing project delays by coordinating conservation planning and transportation planning. Several States, including Florida and Massachusetts, have undertaken comprehensive wildlife conservation plans which identify the most important habitats for sustaining the full complement of species in the State into the future. Under the State Wildlife Grants program in the FY2002 Interior Appropriations Act, States are now receiving Federal funding that can be used to develop these State plans. State natural resource agencies are awarded formula-based grants with the requirement that it complete a comprehensive wildlife conservation plan by 2005. Transportation plans and projects will have reduced impacts on wildlife and proceed more smoothly if they take these conservation plans into account by avoiding impacts to ecologically important lands and directing mitigation funds to the preservation of those lands.

Florida's Efficient Transportation Decision-Making (ETDM) process is an example of coordination of conservation plans with transportation plans. ETDM was developed as a streamlining program, in which transportation plans, very early on in the process, are evaluated in terms of their environmental impacts, including impacts to the State's strategic habitat conservation areas. The ETDM system also enables more rapid permitting by moving the permitting to earlier stages of the process.

3. Advance programmatic mitigation or conservation banking

Better coordination of conservation plans and transportation plans can allow transportation agencies to avoid and minimize impacts to biodiversity. These conservation plans can also inform mitigation efforts, when impacts to remaining natural areas cannot be avoided. Current mitigation practice, however, is not only time-consuming and expensive for action agencies; it may not always provide the best return for resource agencies. Most mitigation is done on an onsite, project-by-project basis, which often misses important indirect and cumulative impacts. On-site mitigation is often necessary, but project-by-project mitigation can result in isolated patches of protected land that are not ecologically viable and are more vulnerable to continued development.

We support innovative efforts by State DOTs to conduct advance programmatic mitigation and conservation banking for endangered species. In these efforts, State DOTs acquire or "bank" large blocks of conservation lands, from which they can extract conservation credits for those projects deemed to have negative environmental impacts. Mitigation funds are used most effectively when directed toward the acquisition of lands identified as ecologically important in State or eco-regional conservation plans. We support wider use of conservation mitigation and banking as part of expediting project delivery, with appropriate regulations and guidance, and with assurances proper sequencing would not be compromised. We believe that this approach will save DOTs considerable time and expense, while implementing State and ecoregional conservation goals.

In closing, we reiterate that implementation of TEA–21 has largely resulted in faster project delivery and meaningful streamlining that still preserves environmental standards. Our points of emphasis above (early involvement, coordination with conservation planning, and advance mitigation) are all authorized and supported in TEA–21. Major legislative changes in streamlining are not needed. Finally, we urge the committee to embrace the reformative ideals of Section 1309

without losing sight of the original intent of NEPA: to protect and preserve our natural heritage.

STATEMENT OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

The American Society of Civil Engineers (ASCE) wishes to express its views on the environmental streamlining provisions in section 1309 of the Transportation Equity Act for the 21st Century (TEA–21) and to recommend some simple adjustments to section 1309 to improve the functioning of the streamlining process, as well as the larger issue of project delivery related to surface transportation projects.

ASCE was founded in 1852 and is the country's oldest national civil engineering organization. It represents more than 125,000 civil engineers in private practice, government, industry, and academia who are dedicated to the advancement of the science and profession of civil engineering. ASCE is a non-profit educational and professional society organized under Part 1.501(c)(3) of the Internal Revenue Service rules.

As you know, Congress enacted section 1309 in 1998 to remove the procedural bottlenecks in the environmental review process for Federal-aid highway projects, many of which take years to complete. The Act directed the Federal Highway Administration (FHWA) to issue new regulations to implement the streamlining program. The FHWA proposed regulations under section 1309 in May 2000. The regulations have not been made final as of this writing.

ASCE opposed the FHWA's streamlining regulations at the time that they were proposed. We believed then—and continue to believe—that the proposed regulations were faulty because they failed, at a minimum, to establish firm deadlines for the completion of the Federal portion of the transportation streamlining process and they appeared to clear the way for pilot projects in contravention of the intent of Congress.

Because the FHWA has estimated that the environmental review process still averages approximately 5 years to complete, ASCE recommends that the committee provide more detailed guidance to the FHWA on the implementation of section 1309. Specifically, we urge the committee to add binding deadlines to the environmental review process.

Additionally, ASCE considers section 1309 to be flawed because it does not require agencies other than the FHWA to comply with the Act's streamlining requirements. This failure should be remedied in the reauthorization of TEA–21.

ASCE advocates two important steps that government can take immediately that would profoundly enhance our ability to preserve and improve our infrastructure. First, revamp and simplify the regulatory regime affecting infrastructure planning and implementation to be less prescriptive and confining and more performance based and flexible. Second, reform the rules to be more concise, outcome oriented, plainly written, common sense oriented and, supplemented by best practice models that encourage continuous improvement. Specifically, ASCE supports concurrent reviews, and the designation of a lead agency to manage the process.

Few will disagree that it takes too long to deliver major projects. Recent studies by FHWA have documented that the environmental process alone takes twice as long as it used to, due in large part to expanded environmental requirements. While major efforts are focused on speeding up that process, it is clear that there are other factors contributing to the extended timeframe required to navigate from early planning to completion, a timeframe often measured in decades.

With structural, safety and service issues spurring the need for renewing, replacing and expanding an aging infrastructure, the nation's long-term economic vitality and quality of life will be affected by whether project planning, financing, and delivery systems can keep up the necessary pace.

It is clear that processes considered adequate over the past 50 years are inadequate to meet the needs of the next half-century. And compounding the problem during a period of generally expanding financial resources has been a depletion of human resources as measured by numbers and experience within organizations responsible for deployment.

The answer lies in reinventing processes for planning, financing, and delivery of infrastructure, and doing so in a way that retains and builds upon vitally important and successful principles and practices. For example, improving the environmental review process cannot be at the expense of protecting and enhancing environmental quality. And streamlining project delivery cannot be at the price of weakening market forces or reducing competition.

Procurement of A/E Services

ASCE believes that the selection of professional engineers as prime consultants and subconsultants should result from competition based on the qualifications best suited to complete the work successfully. Cost of engineering services, while important and meriting careful negotiations and performance accountability, should be secondary to professional qualifications.

Accordingly, ASCE supports qualifications-based selection (QBS) procedures such as those specified by the Brooks Architect-Engineers Act of 1972, 40 U.S.C. 541 et seq., and the American Bar Association's Model Procurement Code for State and Local Governments for the engagement of engineering services. This process has withstood the test of time.

Traditionally, Federal Government procurement procedures properly have emphasized awarding contracts to the lowest bidder, or using price as a dominant factor. For many goods that the government purchases ? paper, office equipment, desks, even construction services ? this process serves the government and the taxpayer well. Specifications can be written, products can be inspected and tested, and safeguards can be built in to assure saving money.

Sometimes, however, agencies mistakenly assume professional architecture, engineering, surveying and mapping services fall into this category. Unfortunately, the assumption ignores the increase in costs to administer the preparation of detailed scopes of work and bid specifications, to evaluate numerous bids, and to remedy serious consequences of unprofessional A/E related services.

Quality, therefore, should always be the primary focus in the competition for architectural, engineering and surveying and mapping procurement. Only after high-quality performance is ensured should the focus turn to the contract price. That is exactly what QBS provides. The Brooks A/E Act ensures that specialized skills and technologies are evaluated properly and are not overlooked. At the same time, the Act also ensures that small businesses are able to compete on an even basis with large A/E design firms. In this manner, the government benefits from direct control of both the quality of the services and the project's development.

The Brooks A/E Act applies to the acquisition of all architectural and engineering services, including services of an architectural or an engineering nature that are logically and justifiably to be performed by architects or engineers. The language of the Brooks Act governs the broadest range of A/E design services, i.e., any that are performed by architects or engineers and those that may be. Nothing in the Act limits or restricts the application of QBS procedures to some architectural or engineering services while exempting others.

The use of negotiated procedures directs the focus of procurement activity where it should be, on the quality of the professional A/E services specifically suited to a given contract.

All competitors must submit their qualifications to the procuring agency; the agency assesses the relative expertise of the competing firms; and the most qualified firm is selected for the particular procurement. Such procedures produce a more cost effective design, map and related professional service than can be achieved under price bidding procedures.

The qualifications-based selection law was codified to protect the interest of taxpayers. It is Federal law because over the life of a project, engineering-related services account for less than one-half of 1 percent of total costs. Yet these important services play a major role in determining the other 99.5 percent of the project's "life cycle costs," such as construction, operation, and maintenance.

This process has been so successful at the Federal level that it is recommended by the American Bar Association in its model procurement code for State and local government. Forty-two States have enacted their own qualifications-based selection laws for architecture, engineering, surveying and mapping services based on the Federal model. Others use it as a standard procedure. Today, no State has a specific law requiring bidding of these services.

For design build procurement, ASCE strongly supports the use of the two-phase competitive source-selection process required by the Federal Acquisition Reform Act of 1996, 41 U.S.C. 253m, for design-build contracts awarded by government agencies. The design-build team must be selected using the modified QBS criteria specified by the Act.

Expedited Project Delivery

If we are to meet the needs of a future where infrastructure investments and improvements are increasingly large and complex, where requirements are more diverse, where time is of the essence, then it is essential to continue to improve and expand creative and innovative approaches that provide the broadest array of necessary tools. It is essential that future legislation and policies be supportive of this

goal. Alternative delivery systems such as fast-tracking, design/build, CM/GC and program management have taken root, again where large-scale projects and programs exceeded the capability or effectiveness of established processes.

Thank you for considering our views. If ASCE can be of any assistance to the committee in the debate over section 1309 or other aspects of the reauthorization of TEA–21, please do not hesitate to contact Brian Pallasch, Director of Government Relations, in our Washington Office at (202) 789–2200 or by e-mail at <pallasch#asce.org>.



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Statement of

The American Society of Civil Engineers

on

Project Delivery and Environmental Stewardship

Before the

Senate Committee on Environment and Public Works

September 19, 2002

The American Society of Civil Engineers (ASCE) wishes to express its views on the environmental streamlining provisions in section 1309 of the Transportation Equity Act for the 21st Century (TEA-21) and to recommend some simple adjustments to section 1309 to improve the functioning of the streamlining process, as well as the larger issue of project delivery related to surface transportation projects.

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As you know, Congress enacted section 1309 in 1998 to remove the procedural bottlenecks in the environmental review process for federal-aid highway projects, many of which take years to complete. The Act directed the Federal Highway Administration (FHWA) to issue new regulations to implement the streamlining program. The FHWA proposed regulations under section 1309 in May 2000. The regulations have not been made final as of this writing.

ASCE opposed the FHWA's streamlining regulations at the time that they were proposed. We believed then – and continue to believe – that the proposed regulations were faulty because they failed, at a minimum, to establish firm deadlines for the completion of the federal portion of the transportation streamlining process and they appeared to clear the way for pilot projects in contravention of the intent of Congress.

Because the FHWA has estimated that the environmental review process still averages approximately five years to complete, ASCE recommends that the Committee provide more detailed guidance to the FHWA on the implementation of section 1309. Specifically, we urge the Committee to add binding deadlines to the environmental review process.

Additionally, ASCE considers section 1309 to be flawed because it does not require agencies other than the FHWA to comply with the Act's streamlining requirements. This failure should be remedied in the reauthorization of TEA-21.

ASCE advocates two important steps that government can take immediately that would profoundly enhance our ability to preserve and improve our infrastructure. First, revamp and simplify the regulatory regime affecting infrastructure planning and implementation to be less prescriptive and confining and more performance based and flexible. Second, reform the rules to be more concise, outcome oriented, plainly written, common sense oriented and, supplemented by best practice models that encourage continuous improvement. Specifically, ASCE supports concurrent reviews, and the designation of a lead agency to manage the process.

Few will disagree that it takes too long to deliver major projects. Recent studies by FHWA have documented that the environmental process alone takes twice as long as it used to, due in large part to expanded environmental requirements. While major efforts are focused on speeding up that process, it is clear that there are other factors contributing to the extended time frame required to navigate from early planning to completion, a time frame often measured in decades.

With structural, safety and service issues spurring the need for renewing, replacing and expanding an aging infrastructure, the nation's long-term economic vitality and quality of life will be affected by whether project planning, financing, and delivery systems can keep up the necessary pace.

It is clear that processes considered adequate over the past 50 years are inadequate to meet the needs of the next half-century. And compounding the problem during a period of generally expanding financial resources has been a depletion of human resources as measured by numbers and experience within organizations responsible for deployment.

The answer lies in reinventing processes for planning, financing, and delivery of infrastructure, and doing so in a way that retains and builds upon vitally important and successful principles and practices. For example, improving the environmental review process cannot be at the expense of protecting and enhancing environmental quality. And streamlining project delivery cannot be at the price of weakening market forces or reducing competition.

Procurement of A/E Services

ASCE believes that the selection of professional engineers as prime consultants and subconsultants should result from competition based on the qualifications best suited to complete the work successfully. Cost of engineering services, while important

and meriting careful negotiations and performance accountability, should be secondary to professional qualifications.

Accordingly, ASCE supports qualifications-based selection (QBS) procedures such as those specified by the Brooks Architect-Engineers Act of 1972, 40 U.S.C. 541 *et seq.,* and the American Bar Association's Model Procurement Code for State and Local Governments for the engagement of engineering services. This process has withstood the test of time.

Traditionally, federal government procurement procedures properly have emphasized awarding contracts to the lowest bidder, or using price as a dominant factor. For many goods that the government purchases ? paper, office equipment, desks, even construction services ? this process serves the government and the taxpayer well. Specifications can be written, products can be inspected and tested, and safeguards can be built in to assure saving money.

Sometimes, however, agencies mistakenly assume professional architecture, engineering, surveying and mapping services fall into this category. Unfortunately, the assumption ignores the increase in costs to administer the preparation of detailed scopes of work and bid specifications, to evaluate numerous bids, and to remedy serious consequences of unprofessional A/E related services.

Quality, therefore, should always be the primary focus in the competition for architectural, engineering and surveying and mapping procurement. Only after high-quality performance is ensured should the focus turn to the contract price. That is exactly what QBS provides. The Brooks A/E Act ensures that specialized skills and technologies are evaluated properly and are not overlooked. At the same time, the Act also ensures that small businesses are able to compete on an even basis with large A/E design firms. In this manner, the government benefits from direct control of both the quality of the services and the project's development.

The Brooks A/E Act applies to the acquisition of all architectural and engineering services, including services of an architectural or an engineering nature that are logically and justifiably to be performed by architects or engineers. The language of the Brooks Act governs the broadest range of A/E design services, i.e., any that are performed by architects or engineers and those that may be. Nothing in the Act limits or restricts the application of QBS procedures to some architectural or engineering services while exempting others.

The use of negotiated procedures directs the focus of procurement activity where it should be, on the quality of the professional A/E services specifically suited to a given contract.

All competitors must submit their qualifications to the procuring agency; the agency assesses the relative expertise of the competing firms; and the most qualified firm is selected for the particular procurement. Such procedures produce a more cost effective design, map and related professional service than can be achieved under price bidding procedures.

The qualifications-based selection law was codified to protect the interest of taxpayers. It is federal law because over the life of a project, engineering-related services account for less than one- half of one percent of total costs. Yet these important services play a major role in determining the other 99.5 percent of the project's "life cycle costs," such as construction, operation, and maintenance.

This process has been so successful at the federal level that it is recommended by the American Bar Association in its model procurement code for state and local government. Forty-two states have enacted their own qualifications-based selection laws for architecture, engineering, surveying and mapping services based on the federal model. Others use it as a standard procedure. Today, no state has a specific law requiring bidding of these services.

For design build procurement, ASCE strongly supports the use of the two-phase competitive source-selection process required by the Federal Acquisition Reform Act of 1996, 41 U.S.C. 253m, for design-build contracts awarded by government agencies. The design-build team must be selected using the modified QBS criteria specified by the Act.

Expedited Project Delivery

If we are to meet the needs of a future where infrastructure investments and improvements are increasingly large and complex, where requirements are more diverse, where time is of the essence, then it is essential to continue to improve and expand creative and innovative approaches that provide the broadest array of necessary tools. It is essential that future legislation and policies be supportive of this goal. Alternative delivery systems such as fast-tracking, design/build, CM/GC and program management have taken root, again where large-scale projects and programs exceeded the capability or effectiveness of established processes.

Thank you for considering our views. If ASCE can be of any assistance to the Committee in the debate over section 1309 or other aspects of the reauthorization of TEA-21, please do not hesitate to contact Brian Pallasch, Director of Government Relations, in our Washington Office at (202) 789-2200 or by e-mail at bpallasch@asce.org.

REAUTHORIZATION OF TEA–21

WEDNESDAY, SEPTEMBER 25, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
COMMITTEE ON FINANCE,
Washington, DC.

The hearing was convened, pursuant to notice, at 9:36 a.m., Hon. Max Baucus (chairman of the Committee on Finance) and Hon. James M. Jeffords (chairman of the Committee on Environment and Public Works) presiding.

INNOVATIVE FINANCING: BEYOND THE HIGHWAY TRUST FUND

Present for the Committee on Environment and Public Works: Senators Jeffords, Reid, Inhofe and Crapo.

Present for the Committee on Finance: Senator Baucus.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. The joint hearing of the Finance Committee and the Environment and Public Works Committee will come to hearing.

This is a unique and quite possibly historic occasion because the Environment and Public Works Committee and the Finance Committee are holding a joint hearing in the Finance Committee hearing room, chaired by the chairman of the Environment and Public Works Committee. I am sure that all historians will note this. It surely will be recorded as a major moment in history.

Senator JEFFORDS. If you hear a rumbling up there, let me know.

Senator BAUCUS. But at the very least, I welcome everyone. I will make an opening statement, then turn the hearing over to Chairman Jeffords, who will chair the joint hearing.

First, as a member of this committee and also Environment and Public Works Committee, I have spent a lot of time working on highway issues and financing highway programs because highways are just so important to the State of Montana.

This joint hearing, clearly, is one that recognizes the joint interests between the two committees: providing the funds to the Finance Committee for a highway program—the trust fund; and second, the authorization of programs by Environment and Public Works Committee, deciding which projects will be built and maintained over the life of the authorization law.

I was also privileged to be a co-author of TEA–21, with Senators Warner, Chafee, Byrd, and Graham. There are many others, also, who helped to make it a successful bill.

It was a time, frankly, where we all worked very well together. I expect the same camaraderie and relationship to prevail among the principal members of the Environment and Public Works Committee again this year.

I am especially pleased that Senator Grassley, the Ranking Member of the Finance Committee, has also shown such a great interest in these issues. He, too, will play a very important role during TEA–21 reauthorization.

The Finance Committee recently held a hearing that explained how the Highway Trust Fund is structured to provide funding for our highway system. We heard testimony that was quite interesting. The testimony focused on the projections for trust fund income over the next 10 years.

As successful as the trust fund has been, unfortunately our transportation needs far outweigh the resources. In fact, I remember the Department of Transportation mentioning—this has been the case over many years—how the needs of our country in developing our highway program provide only about half of the funds that are available about 50 percent. My guess is, that figure is not going to get any better in the future.

Today's hearing is intended to discover how we can get additional financing beyond the trust fund for our highway program. We are looking at additional means to finance the ordinary way—that is, the gasoline tax and fuel taxes that the users pay to the trust fund—in order to meet our Nation's needs.

In recent years, there has been increased recognition of the greater importance of our highways to our country. As we prepare to reauthorize the highway program next year, the big question for Congress will be how to increase the level of investment for the benefit of us all.

Earlier this year, Senator Crapo and I introduced bipartisan legislation with 12 co-sponsors, S. 2678, the MEGA–TRUST Act, for Maximum Economic Growth for America through the Highway Trust Fund.

This bill laid out some ways to increase investment in the highway program without raising taxes. That legislation would allow the trust fund to be properly credited with taxes either paid or foregone with respect to gasohol consumption.

We would also reinstate the principal that the highway and mass transit accounts of the Highway Trust Fund should be credited with the interest on their respective balances.

As we all know now, the general fund does not go back to the respective balances of those two programs. I think that change is very important.

But we must also continue to work out additional ways to enable a stronger level of highway investment. Next week, I will introduce the MEGA–INNOVATE, Maximum Economic Growth for America through Innovative Financing. I do not know where in the world we got that name.

Under this legislation, the Secretary of the Treasury would sell bonds, with the proceeds being placed in the highway account of

the Highway Trust Fund. The Treasury would be responsible for the principal and the interest. The bond proceeds would enable the basic highway program to grow. It would help the citizens of every State.

The administration of this initiative would be simple. No new structure is required. It is a new idea that does not raise taxes, but would advance our national interest in a strong highway program.

As this is a new idea for highways, the bill introduces this concept at a very modest level, in the range of $3 billion annually in bond sales.

However, when combined with the provisions of the Trust Act and the continuation of current resources of revenue, this legislation should enable the highway program to achieve an obligation level of approximately $41 to $42 billion by fiscal 2009.

Many other elected officials and organizations have shown interest in both of these acts, and I would like to enter their statements into the record.

Senator JEFFORDS. Without objection.

[The prepared statement of Senator Grassley follows:]

STATEMENT OF HON. CHARLES GRASSLEY, U.S. SENATOR FROM THE STATE OF IOWA

I would like to thank Chairmen Baucus and Jeffords for scheduling this joint hearing between the Senate Finance Committee and the Senate Environment and Public Works Committee. We are here to examine issues of highway finance in anticipation, of the reauthorization of TEA–21. As Senator Baucus indicated, both committees have an interest in providing adequate funding for our nation's transportation system whether it be through the traditional fuel tax regime or through other tax-based financing mechanisms. As I noted in our first hearing on the highway trust fund reauthorization in May, transportation issues are very important to Iowa. Accordingly, I look forward to working with Senators Baucus, Jeffords, and Smith in reauthorizing TEA–21 during the next Congress.

On May 9, the Finance Committee held its first hearing to begin evaluating the future health of the Highway Trust Fund. In that hearing, we focused largely on the flow of taxes into the trust fund and the continued ability of the highway trust fund to support transportation needs under reauthorized TEA–21.

We also began talking about the impact that alternative vehicles and alternative fuel sources will have on the trust fund in the years ahead. Finally, we began to consider how we would maintain the existing levels of trust revenue for transportation demands without raising taxes.

Today, we will not focus on trust fund revenue. Instead, we will shift our attention to various financing mechanisms that will supplement transportation needs beyond the dedicated revenues in the trust fund.

Historically, issuing State and local bonds (which are exempt from Federal taxation) was the principal way States raised capital for transportation needs in excess of those currently available with highway trust fund resources. While this works well in some States, some including Iowa have decided against using bonds to finance infrastructure projects while others are constitutionally prohibited from doing so.

During the reauthorization of TEA–21, a concerted effort was made to begin using Federal resources to encourage private investment in transportation projects. During the reauthorization, the drafters also attempted to expand and make more flexible the resources available to State transportation departments. A number of pilot programs were established to achieve those goals including (i) TIFIA Funding (named for the Transportation Infrastructure Finance and Innovation Act), (ii) SIBs (State Infrastructure Banks), (iii) GARVEES (Grant Anticipation Revenue Vehicles), and GANS (Transit Grant Anticipation Notes). Because many of these programs rely on State borrowing, they are not viable solutions for all States. In other circumstances, the programs may not have worked as intended.

Iowa, for example, is in the process of closing out its State infrastructure bank. Without the ability to use State and local bonds to increase SIB funding, it was difficult for Iowa to effectively use the concept. In addition, several shortline and regional railroads in my State have tried to use the railroad infrastructure fund ad-

ministered by the Federal railroad administration. The application process is extremely cumbersome and prevents many railroads from even considering the option. Those who have applied have had difficulty coming up with the required credit risk premium to access funds. The role of the State DOT in these projects has been limited to moral support—a problem that should clearly be fixed.

Evaluating the successes and failures of previously authorized programs is an important first step in the reauthorization process. I look forward to hearing from the witnesses today on how we may improve and further refine existing programs. We should particularly examine programs that involve public-private partnerships such as TIFIA. Many of the witnesses have commented on the operation of these programs in their testimony, and at least one of our witnesses has suggested program modifications. These types of comments are highly instructive, and I look forward to hearing additional witness views on these issues.

As we move into reauthorization, I know we will want to maintain the important goals of stretching available resources and inducing private investment into the transportation sector. This hearing should help us evaluate alternative financing mechanisms for achieving those goals. Specifically, I look forward to learning more about the bond proposals offered by the American Association of Highway and Transportation Officials (AASHTO) and Senator Baucus. Because these ideas are new to the transportation sector, we will want to consider carefully the details of those proposals. With respect to each new proposal, I would like to further consider whether additional funds should be raised for State apportionment (program finance) or, for the benefit of specific projects (project-finance). In addition, I would like to further consider whether leveraged funds should be retired using tax-arbitraged escrow funds, repayments from the general fund, or project-specific revenue sources.

In closing, I would like to reiterate that I look forward to working with my colleagues on the reauthorization of TEA–21. I am anxious to hear from the witnesses on how to most effectively finance the important needs of our highway transportation system. Thank you, Mr. Chairmen.

Senator BAUCUS. Concerning other statements for the record, the first, is from the Departments of Transportation from the following five States: Montana, Idaho, Wyoming, North Dakota, and South Dakota, endorsing both the MEGA–TRUST and my forthcoming bond proposal. Second, a statement from the American Highway Users Alliance, also indicating support for both measures.

I very much appreciate the support of these groups, as well as the support of others, for these two important initiatives. A well-funded highway program is certainly essential to the economic future of each of our States. I look forward to working with my colleagues on these measures, and on other ways to help our citizens benefit from increased levels of highway investment.

I also look forward to hearing additional proposals on alternative means to finance the Nation's surface transportation program. The more we can get the private sector involved and the more we can leverage funds, the better we will be able to meet our transportation needs.

[Additional statements submitted for the record appear at the end of the hearing record.]

Senator BAUCUS. I would now like to turn the hearing over to my good friend, Jim Jeffords from Vermont, who will chair the joint hearing.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. Thank you, Senator Baucus. I appreciate the opportunity to sit in your seat here. We work very closely together on both committees, and you are doing an excellent job on the Finance Committee. It is appreciated, your hard work that brings us here today.

I am pleased this morning to join in this hearing on a very, very important subject. Today, we will focus on money, a key to the future of America's transportation system.

By some accounts, the annual level of investment needed to just maintain our transportation system is nearly $110 billion per year. Our current national program falls well short of that figure.

Over the last 50 years in our successful campaign to develop the Eisenhower Interstate Highway system, we have used Federal grants to States in a pay-as-you-go program to build our national system. Today, that system is essentially complete.

We are in a post-interstate era. Our Federal aid programs now focus, appropriately, on maintaining, operating, and enhancing the highway asset that we have built. But this Federal/State partnership is now being overwhelmed by just its asset management responsibility. Unless we adapt, I foresee a continuing deterioration of our transportation system.

We are a Nation with unlimited potential and boundless possibility. That spirit has propelled a range of achievement unparalleled anywhere else in this world. Our renewal of America's transportation program must reflect this national heritage in meeting the needs of the next generation.

It should be as bold as President Eisenhower's vision was in its time. Our vision should not be hobbled by artificial constraints or narrow thinking which would permit other nations to gain competitive advantages over us. To fully compete in the world markets and to offer all American families and businesses the full range of products in international commerce, we need strategic investment in key new facilities, while reinvesting in those already built.

We have explored options to increase revenues to the highway fund in previous hearings. I will consider all options for growing the trust fund. But today we will look beyond the Highway Trust Fund, beyond the grant and aid programs, and beyond the Federal/State partnership.

We will hear today from two distinguished panels on a topic that has been referred to in the last 10 years as innovative financing. We will look at the role of revenue streams, private capital, special-purpose entities, and intermodal facilities in meeting the needs of the next generation. But this is not innovative, radical, or even new. In fact, what we will explore today is really the pre-interstate approach to financing roads and bridges. It is the standard way that our free enterprise system creates our means of production through private capital and return on investment.

I am pleased that Councilwoman Hahn from Los Angeles is here to discuss a pioneering effort in modern transportation finance, the Alameda Corridor. This prototype project is intermodal in its nature, provides both freight and passenger benefits, draws on new revenues to retire debt, and is sponsored by a special-purpose district.

In my home State of Vermont, we have utilized a finance program called a State Infrastructure Bank, or a SIB. A SIB is a revolving fund mechanism for financing a wide variety of highway and transit projects through loans and credit enhancement. Vermont has taken hundreds of fuel delivery trucks off our roads by financing bulk storage facilities in key rail yards.

Other States have used this mechanism, and others, to provide early project financing. In the State of South Carolina, a variety of finance techniques, coupled with public/private partnerships, has resulted in the construction of 27 years' worth of projects in a 7-year timeframe.

On a smaller scale, the State of Delaware has joined with the Norfolk Southern Railroad to renovate historic Shellpot Bridge, with the railroad retiring the project's cost over time through fees on its rail cars.

What we will discuss today is a complement to our traditional programs, not a replacement. Private capital represents a realistic means to expand our buying capacity. The key is revenue streams.

When a project is supported by dedicated revenues, whether it is tied directly to the use of the facility as in the case of Alameda or Shellpot Bridge, or simply earmarked from more general sources such as property rentals or operating revenues, then the project can retire debt.

The freight community particularly will benefit from expanded use of financing. Today's freight interests are frustrated by their inability to compete when projects are ranked at the State and NPO level.

Through its capacity to generate revenue, the freight sector can essentially create its own program. This will also reduce demand on the traditional Federal aid grant program.

Let me close by suggesting a vision for transportation finance. In the future, every responsible fund manager, both here and globally, will have a fraction of his or her portfolio invested in U.S. transportation infrastructure. They will do so with confidence in the investment and the bold Nation it supports. Over the next few hours, I will listen for ways to make this vision a reality. Thank you.

Now we turn to the hearing, the best parts of it. I would turn, also, to the Senator from Nevada for any statement.

STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE NEVADA

Senator REID. I thank you and Chairman Baucus. I commend both of you for holding this joint hearing. It is so important. I am thankful also, of course, that Ranking Members Smith and Grassley have agreed to do this.

We are authorizing TEA–21 the legislation to address our Nation's infrastructure needs is a big job, an important job, and one that will take the cooperation of more than one committee.

Early this month, the Subcommittee on Transportation, Infrastructure, and Nuclear Safety conducted a joint hearing on freight issues with Senator Breaux's Commerce Subcommittee. We need more cooperation between committees involved in reauthorizing TEA–21.

We have to work together to ensure that our significant diverse transportation needs are addressed. Our highways, transit system, and railways are too important to our economic well-being and quality of life to ignore.

I look forward to working with the Finance Committee and other committees to see if we can adequately address our transportation needs. We are nearing the completion of the Environment and Pub-

lic Works Committee's year-long series of 14 hearings and symposia addressing the critical issues related to reauthorization. It is appropriate that our final two scheduled hearings focus on funding issues.

As we have been told today, we will review opportunities for innovative financing. On Monday, the Transportation Subcommittee will examine the state of the infrastructure and the funding necessary to maintain and improve our Nation's highway system.

The State of Nevada has been a leader in the field of innovative financing and has aggressively sought to leverage private investment through existing Federal financing programs.

For example, the project that should have taken place 100 years ago, the Reno Transportation Rail Access Corridor, RTRAC, is seeking to use $70 million in loans under TIFIA to leverage $200 million in State, local, and private funding to build a below-grade rail transportation corridor. This project will increase safety and reduce traffic congestion by eliminating 10 at-grade rail crossings. That is important, of course.

The Las Vegas monorail project is seeking a $120 million TIFIA loan to bridge the gap between Federal, State, local, and private financing to build Phase II of what will eventually be an 18-mile regional rail transit system.

Finally, the State is expediting the critical Hoover Dam Bypass—and we are working with the State of Arizona on this—by using a bonding mechanism similar to the GARVEE bonds to allow construction to proceed before Federal funding is completed.

Each of these vital highway transit rail projects were made possible by innovative financing opportunities provided by the Federal Government. In the future, we hope to creatively use new, innovative financing tools to bridge the gap between public and private investment to build a high-speed magnetic levitation train between Southern California and Las Vegas.

There is no question that innovative financing must be a critical component of next year's transportation bill. We should encourage new public/private partnerships and focus on where Federal resources can creatively be used to leverage State, local, and private investment for critical highway transit and rail projects.

Let me say publicly what I have said privately. I think it is tremendous that the chairman of the Finance Committee, the all-power Finance Committee as we know here, and the former chairman of this committee is working so closely with us.

I think that we are going to benefit so greatly in the year to come from Senator Baucus' experience as chairman of this committee, and his experience as chairman of the Finance Committee, to help come up with some of these innovative ways to finance these projects. We need this very, very badly.

I applaud and commend the chairman of the Environment and Public Works committee, Senator Jeffords, for his agreeing to do these kinds of joint hearings. This is something we do not do here very often. We were so protective of our turf here. I think we should Senator Baucus for all we can because of his experience.

[Laughter.]

I think that we need to understand that we, as the Transportation and Infrastructure Committee, cannot do it alone. We need

to do things differently than we have done in the past. I think this is great to have this hearing. I think this is an indication of what is to come next year, and coming up with a highway bill. It is going to be different than any highway bill we have ever done before.

I want to apologize to the committee. Senator Inouye is not here today, and I have got to help him on a committee beginning at 10 o'clock.

Senator JEFFORDS. Well, thank you very much for your excellent statement.

Senator BAUCUS. If I might, Mr. Chairman, also thank Senator Reid for his very strong endorsement of the joint hearing. I think that we get better legislation here with more joint hearings, as a general rule. The legislation is good as it is, but I think joint hearings are very, very helpful. I compliment the Senator for making that observation.

Senator JEFFORDS. There is no subject that a joint hearing is more appropriate for than this one right now.

Senator Crapo?

STATEMENT OF HON. MICHAEL D. CRAPO, U.S. SENATOR FROM THE STATE OF IDAHO

Senator CRAPO. Thank you very much. I would like to thank both of our joint chairmen today and associate myself with the remarks of Senator Reid about the importance of the fact that we are working together and having these joint hearings.

As we work together to put together the next highway bill, it is going to be critical that we do a good job, and a prompt job. But, even more importantly, we have got to work together to make sure that we build the kind of support for the good bill that we will need to build. I appreciate the efforts of both of our joint chairmen for holding this hearing. Clearly, innovative financing and the funding aspects of this are going to be critical.

In terms of talking about working together, I want to especially thank Senator Baucus. He and I, both coming from neighboring States out in the Northwest, have similar concerns with regard to our States' issues with regard to transportation.

We have found an opportunity to work together across party lines to put together some innovative approaches of our own to try to address the question of how to increase the pot of funding for our highway needs in this country. With the two approaches that we have come together on, we have done it without raising taxes, and I think that that is a very important first step: the MEGA–TRUST Act, which Senator Baucus already mentioned, and then the MEGA–INNOVATE Act that will be introduced soon.

We have two ideas on the table that are very important. As has been indicated by Senator Baucus and Senator Jeffords today, I look forward to hearing from people around the country who have had a lot of experience with this and who have a lot of ideas about how we can accomplish it, to giving us more ideas and more proposals for how we can address the needs for funding our next highway bill.

So, again, to both of our chairmen, I thank you for this opportunity. I look forward to the information we are going to receive today, and working with you as we put together the next bill.

Senator JEFFORDS. Thank you. A very helpful statement.
Senator Inhofe?

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Mr. Chairman.

As we work together in drafting the reauthorization of TEA–21, it is safe to say that all members here recognize that this is a time of extraordinary challenge and opportunity for the transportation sector.

The world of surface transportation is changing. It is now our job to work together to ensure adequate funding for investment in the Nation's transportation system and preserve State and local government flexibility to allow the broadest application of funds for transportation solutions.

TEA–21 dramatically altered the transportation funding mechanisms, provided greater equity among States in the Federal funding, and record levels of transportation investment. For most Federal aid projects, the law requires that 20 percent of the costs be derived from a non–Federal source.

In order to maximize the use of all available resources, States now have a range of options for matching the Federal share of highway projects. By providing flexibility in a form that the non–Federal match might take, Federal dollars can be leveraged more effectively.

What we have been taking advantage of in Oklahoma is the toll credit match. We apply certain toll revenues/expenditures to build and improve our public highway facilities as a credit toward the non–Federal matching share of particular projects.

However, transportation officials at all levels of government still face a significant challenge when considering the ways to pay for improvements to transportation infrastructure. It is apparent that traditional funding sources are insufficient to meet the increasing complex needs.

I remember when I was mayor of Tulsa, we worked diligently trying to focus on the public/private partnerships. I recognize that the implementation process is a complex undertaking with a wide range of organizational and financial options. But it is important for public agencies to evaluate all of their alternatives.

Despite the record levels of investment, funding is not keeping pace with the demands for improvement and to maintain the vitality of the Nation's transportation system.

I am in a unique position to appreciate this because I spent 8 years in the House of Representatives on the Transportation Committee and I was really into it.

When I came to the Senate, I was more on some of the problems we were having in the EPA and clean air problems. Until I became chairman of the Subcommittee on Transportation and Infrastructure, I was more involved with those issues.

In that 4-year period, the congestion and other severe problems that we are facing are brought home to me in such a way that I see that we are going to have to try something new and different.

That is what we did with TEA–21; that is what we are going to continue to do. I am looking forward to working with you. I ask

unanimous consent that my entire statement be made a part of the record at this point.

Senator JEFFORDS. It certainly will.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Thank you Mr. Chairman. As we work on the drafting of this reauthorization, I think it is safe to say that all the members here recognize that this is a time of extraordinary challenge and opportunity in the transportation sector. The world of surface transportation is changing. It is now our job to work together to ensure adequate funding for investment in the nations transportation system and preserve State and local government flexibility to allow the broadest application of funds to transportation solutions.

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However, transportation officials at all levels of government still face a significant challenge when considering ways to pay for improvements to transportation infrastructure. It is apparent that traditional funding sources are insufficient to meet the increasingly complex needs. I remember when I was Mayor of Tulsa, we worked diligently trying to focus on public private partnerships. I recognize that the implementation process is a complex undertaking with the wide range of organizational and financing options but its important for public agencies to evaluate all their alternatives.

Despite the record levels of investment, funding is not keeping pace with demands for improvements to maintain the vitality of the nation's transportation system.

Some transportation projects are so large that their costs exceed available current grant funding or would consume so much of these current funding sources that they would delay many other planned projects.

ARTBA proposed a number of options for enhancing the Highway Account revenues. Some included indexing the motor fuels excise taxes for inflation, crediting the Highway Account with gasohol tax revenues that currently go into the General Fund, and expanding innovative financing programs. I might also mention that since the enactment of TEA–21, interest accrued on any obligation held by the fund does not get credited to the Highway Trust Fund, the interest earned goes to the General Fund. This is obviously something that we need to rethink during reauthorization. These are all revenue enhancements that would increase the fund substantially.

With the Energy bill pending in Conference, the Trust Fund will recoup an additional 2.5 cents per gallon of ethanol currently being deposited into the general revenue. The Senator from Montana has been very aggressive at trying to make the Trust Fund whole with respect to the current 5.3 cent per gallon ethanol subsidy. Although he and I do not agree on how to best address this issue, we are in agreement that the Highway Trust Fund should not pay to subsidize any fuel source. Our surface transportation infrastructure needs are such that we cannot afford to forego any revenue source.

Certainly one of the key factors in the economic engine that drives our economy is a safe, efficient transportation system. If our economic recovery is going to continue to expand, we cannot ignore the immediate and critical infrastructure needs of highways, bridges, and State/local roadway systems.

Finally, I would encourage our witnesses to address the current issues with funding dilemmas and how the use of innovative finance can generate real economic returns by expediting project construction.

Thank you Mr. Chairman. I look forward to today's hearing and want to welcome all of our witnesses.

Senator INHOFE. I also want to say, Mr. Chairman, that at the same time in the next room we have the Senate Armed Services

Committee that is meeting, so we have required attendance at both places and I will be going back and forth.

Senator JEFFORDS. Thank you very much.

Now we turn to the important part of the hearing, and that is listening to our witnesses.

Our first witness is David Seltzer, Distinguished Practitioner at the National Center for Innovations in Public Finance, University of Southern California, Los Angeles. Please proceed.

STATEMENT OF DAVID SELTZER, PRINCIPAL, MERCATOR ADVISORS, PHILADELPHIA, PA, ON BEHALF OF THE UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, NATIONAL CENTER FOR INNOVATIONS IN PUBLIC FINANCE

Mr. SELTZER. Thank you very much, Mr. Chairman and members. I am affiliated with the National Center at USC. It is a professional education and research center in the field of infrastructure finance. As part of the record, I have furnished this copy of a report that USC published last year concerning public/private partnerships in California. I feel compelled to tell you, this will be covered on the final exam.

[Laughter.]

Senator JEFFORDS. It will be made a part of the record. Thank you.

Mr. SELTZER. I, too, would like to commend you for holding this joint hearing on innovative finance. Because the Nation's transportation needs require a wide array of tools, it is very valuable that both the tax writing and authorizing committees are jointly deliberating this important issue.

This morning you will be hearing from a distinguished panel of individuals from the Federal, State, local, and private sectors on various innovative finance tools, including New Mexico's GARVEE bonds, the Alameda Corridor, TIFIA credit instruments, private activity bonds, and tax credit bonds.

What I would like to do, briefly, is provide a table-setter, giving you a framework for evaluating these and other innovative finance tools. This may help your committees determine which tools would be most effective in filling the funding gap and, in essence, provide a context for considering innovative finance.

To my mind, the central problem in Federal transportation policy is that, on the one hand, transportation projects are lumpy investments. They are capital-intensive, long-lived, and very heterogeneous.

On the other hand, Federal budgetary policy is very short-term oriented. It is cash-based and it is focused on costs rather than benefits. This treatment is really reflected in Federal budgetary scoring, where current outlays are treated the same way as long-term capital investments in transportation infrastructure. That mismatch between the period of when costs and benefits are recognized can distort project investment decisions.

Where innovative finance comes in, is that it can help redress some of that imbalance, in my view. Innovative finance tools are generally less intrusive than direct Federal grants. They, as you pointed out, Mr. Chairman, allow market forces to work by draw-

ing on private capital, and can better match the periods of the costs and the benefits.

Your two committees have at their disposal, really, three approaches that may be used to advance infrastructure projects: regulatory incentives, Tax Code incentives, and credit incentives.

Regulatory incentives are best demonstrated perhaps by New Mexico. You will be hearing in the next panel about not just innovative financing using GARVEE bonds, but also innovative procurement using design build procurement and innovative asset management, employing long-term warranties. Those three regulatory reforms were put together to advance an important project.

The second incentive, the Tax Code, includes things like tax-oriented leasing of capital assets, private activity bonds, and tax credit bonds. These tax measures have the benefit of using the pay-go scoring methodology, where the tax expenditures are recognized on an annual basis, not all up front. That approach represents something more akin to a commercial practice of amortizing costs.

The third of the three general approaches, Mr. Chairman, is credit incentives, as evidenced by Federal loan and loan guarantee programs like TIFIA and the Railroad Rehabilitation and Improvement Financing Program.

For Federal credit instruments, the budget scoring uses a present value concept, again akin to commercial practices where the time value of money is taken into account.

Now, for any of these various innovative finance tools to be successful, they must satisfy three groups of stakeholders simultaneously. First is the project sponsor, the public or private entity that is developing, advancing, and managing the capital investment.

The second of the three stakeholders is the investor. You have to provide a competitive, risk-adjusted rate of return that an investor can compare to options to invest capital elsewhere.

The third of the three stakeholders is, of course, Federal policymakers who have to look at both policy objectives and budgetary costs.

Senator Jeffords, you indicated an interest in identifying new products for portfolio managers. One interesting example would be a way to attract pension funds into infrastructure finance.

Public, corporate, and union funds represent some $3.6 trillion of investment assets, yet today there are virtually no U.S. transportation projects in their portfolios.

The principal reason for that is that the primary financing vehicle of tax-exempt bonds does not appeal to tax-exempt entities such as pension funds. However, something like tax credit bonds, which you will be hearing about later, where the principal could be sold to, say, a pension fund and the tax credits decoupled and sold to other investors, might address some of your objectives.

In summary, different innovative finance tools are suited to different products and projects. I have submitted also as part of the record a methodology for looking at how one can systematically compare tools such as GARVEE bonds, tax credit bonds, private activity bonds, and TIFIA instruments in considering reauthorization.

So, thank you very much for your time. I appreciate it.

Senator JEFFORDS. Thank you for a very helpful statement.

Our next witness is Phyllis Scheinberg, Deputy Assistant Secretary for Budget and Programs a the U.S. Department of Transportation, right here in Washington, DC.

Ms. Scheinberg, please proceed.

STATEMENT OF PHYLLIS SCHEINBERG, DEPUTY ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS, U.S. DEPARTMENT OF TRANSPORTATION

Ms. SCHEINBERG. Thank you, Chairman Jeffords. I want to send my appreciation to Chairman Baucus and members of the committees.

Thank you for holding this hearing today and inviting me to testify on Federal innovative finance initiatives for surface transportation projects.

These financing techniques, in combination with our traditional grant programs, have become important resources for meeting the transportation challenges facing our Nation.

Last January, Secretary Mineta indicated to you his desire to "expand and improve innovative finance programs in order to encourage greater private sector investment in the transportation system."

He stated that innovative financing will be one of the Department's core principles in working with Congress, State, local officials, tribal governments, and stakeholders to shape the surface transportation reauthorization legislation. Secretary Mineta remains steadfast in his support for these programs, so we want to tell you that we are here to work with you.

But, first, let us talk about, what is innovative finance? We at the Department apply the term to a collection of financial management techniques and debt finance tools that supplement and expand the flexibility of the Federal Government's transportation grant programs.

We see the primary objectives of innovative finance as leveraging Federal resources, improving utilization of existing funds, accelerating construction timetables, and attracting non–Federal investment in major projects.

There are three major innovative finance programs that I would like to talk about today: the Transportation Infrastructure Finance and Innovation Program, or TIFIA, Grant Anticipation Revenue Vehicles, or GARVEE bonds, and State Infrastructure Banks, or SIBs.

First, the TIFIA credit program. Through the leadership of the Senate, and this committee in particular, TIFIA was established to provide a direct role for the Department of Transportation to assist nationally or regionally significant transportation projects through direct loans, loan guarantees, and stand-by lines of credit.

TIFIA allows the Federal Government to supplement, but not supplant, existing capital finance markets for large transportation infrastructure projects. We seek to take prudent risks in order to leverage Federal resources through attracting private and other non–Federal capital projects.

We have selected 11 projects, representing $15.7 billion in transportation investment, to receive TIFIA credit assistance. The TIFIA

commitments themselves total $3.7 billion in credit assistance, with a budgetary impact of only a little bit more than $200 million. Highway, transit, passenger rail, and multimodal projects have all sought, and received, TIFIA credit assistance.

We are pleased with the results that we are seeing. The overall leveraging effect of the Federal assistance for the TIFIA projects has been 5 to 1. Private co-investment has totaled $3.1 billion, or about 20 percent of the total project costs.

We believe that a limited number of large surface transportation projects each year will continue to need the types of credit instruments offered under TIFIA. Project sponsors and DOT staff are still exploring how best to utilize this credit assistance, and we welcome congressional guidance and dialog during this evolutionary program period.

A second financing tool used by States has been the issuance of Grant Anticipation Revenue Vehicles, or GARVEEs. These bonds enable States to pay debt service and other bond-related expenses with future Federal-aid highway apportionments.

A GARVEE generates up-front capital for major highway projects and enables a State to accelerate project construction, and spread the cost of a facility over its useful life. With projects in place sooner, costs are lower and safety and economic benefits are realized earlier. In total, six States have issued 14 GARVEE bonds totaling more than $2.5 billion to be repaid using a portion of their future Federal-aid highway funds.

A third significant project finance tool is the State Infrastructure Bank, or SIB, which is a revolving fund administered by a State. Federally capitalized SIBs were first authorized under the provisions of the National Highway System Designation Act of 1995. SIBs provide various forms of credit assistance. As loans are repaid, a SIB's capital is replenished and can be used to support new projects.

As of June 2002, SIBs had entered into almost 300 loan agreements, for a total of $4 billion of loans. This level of activity indicates that the SIB program is ready to move beyond its pilot phase to become a permanent program.

Looking ahead, the use of TIFIA, GARVEEs and SIBs are moving from innovative to mainstream. This reflects significant success, but it does not indicate that the needs of project finance have been completely met.

Secretary Mineta has issued a clear challenge to those of us in the Department in our development of a reauthorization proposal for TEA–21, asking us to expand innovative finance programs to encourage private sector investment.

We are considering options for further leveraging Federal resources for surface transportation. Among these options are enhancing the use of innovative finance in intermodal freight projects and adapting the financing techniques used in other public work sectors. The challenge is to build on our successes to date, but not set unrealistic expectations for the future.

We look forward to working with our partners in the State DOTs, metropolitan planning organizations, and private industry to apply innovative funding strategies that extend the financial means of our individual stakeholders.

Senator Jeffords, we look forward to working with you and the Congress to craft the next surface transportation legislation.

Thank you for the opportunity to testify today. I will be happy to answer any questions.

Senator JEFFORDS. Well, thank you very much for your excellent testimony. I extend my good thoughts to your Secretary. We have been friends for over 20 years, and I now have the opportunity to work closely with him on this. I am looking forward to it.

Ms. SCHEINBERG. Thank you.

Senator JEFFORDS. Next, we have JayEtta Hecker, Director of Physical Infrastructure Issues at the GAO. Please proceed.

STATEMENT OF JAYETTA HECKER, DIRECTOR OF PHYSICAL INFRASTRUCTURE ISSUES, GENERAL ACCOUNTING OFFICE, WASHINGTON, DC

Ms. HECKER. Thank you, Mr. Chairman. I am very pleased to be here, and appreciate the historic occasion of the two committees working together. As you and others have said, there could be no topic that more justifies that kind of collaboration.

First, the use and performance of innovative financing mechanisms; second, the cost involved in alternative approaches; and finally, selected issues for reauthorization.

I will skip over the use of the existing programs. I think Phyllis clearly described 6 States with GARVEEs, 32 States with SIBs, and 9 States with having agreements in TIFIA.

What I will do, is summarize the key advantages and limitations that have been identified in some of the studies and some of our own interviews with different States.

There is no doubt that one of the most significant advantages of these new financing and grant management tools is that they accelerate project construction. That is unequivocally a real result for many of these projects.

It is also very clear that they increase the tools in the State, local, or regional toolbox. They are financing multi-billion dollar long-term investments and you need tools that do that wisely and well.

The third advantage, is they have the potential to leverage Federal investment. Some of our work on the costs will discuss what we mean by leveraging and what we are really measuring with some of the different approaches.

The limitations on the use of these tools are real. The biggest one, of course, is States' willingness and authority. You have a lot of States that are very cautious about debt financing and financing projects in a manner other than on a pay-as-you-go basis.

There is also a skill issue. At a hearing last week, we talked about the skill capability in the DOTs. This is a brand-new kind of skill, financing and bond market specialists. It is very different than highway engineering.

Also, it is mostly affected by legislators at the State level or the local level and their willingness to look at these different tools.

There are also limitations in Federal and State law. The application of TIFIA is limited to projects costing over $100 million. Only 5 States are allowed to use TEA–21 funds to capitalize their SIBs.

Then there are State laws that restrict public/private partnerships and, of course, there are Federal tax policies on private activity bonds. So, there are a whole range of factors that are really behind some of the limitations in the extensive application of these new tools.

Our real contribution today is, in part, to examine options for financing $10 billion though four different approaches. Basically, we compare the Federal grants, similar to the current highway program, with an 80/20 match; a TIFIA-like Federal loan; State tax credit bonds that are basically similar to the AASHTO proposal. Of course, the credit is from Federal taxes. State-issued tax-exempt bonds are again, exempt from Federal taxes.

I have two charts that I present. One, is about the short-versus the long-term costs of the different tools, and they vary quite dramatically. The other chart compares the State versus Federal costs, as well as other parties.

Depending on how the programs are structured and who ends up paying can vary considerably not only across the alternatives, but even within them. Then the risks vary.

Looking at the tax credit bond, for example, the total cost of that, in present value terms, is nearly $13 billion compared to $10 billion that it would cost in direct appropriations in the grant program. The tax credit bond also varies quite a bit in its distribution of costs between the Federal Government and State and other parties.

The tax credit bonds, because of the costs of borrowing and are paying investors, cost $12.7 billion, but most of that is borne by the Federal Government in a tax credit bond. Compare that with the TIFIA direct loan, where most of the costs, with the 33 percent limitation, are borne by the State and other parties.

The broad overview here is that there is, in fact, only modest success in leveraging private investment. We are getting debt financing, new debt to the table, which is significant and has benefits.

But these approaches have limits in how mu ch they are really bringing private equity capital and real investors to the table who are absorbing a substantial amount of the risk.

That goes back to some of the limitations that I cited earlier. There are limited projects that really can generate their own revenue. That is in part a reflection of how we finance highways and that users tend to view highways as free. There are conflicts with the Federal tax-exempt finance rules and the cap on the private activity bonds, and the State laws.

So, you have got some restrictions inherent in the current system that are limiting how much private investment in highways and other intermodal facilities you can bring to the table.

These financing tools are a critical part of reauthorization. They decide on whether current users or future users pay, they decide on the extent to which we continue to rely on user financing or switch toward the use of general revenues, and they have very different results in the use of State and Federal funds.

We have ongoing work for your committee and are looking forward to being able to provide more detail on this. I think, as you and others have said, some of the real opportunities are to provide

new structures or to get broader applicability of these to projects of national concern, intermodal needs, and to focus on the effect on promoting the efficiency in the transportation sector.

That concludes my statement, Mr. Chairman.

Senator JEFFORDS. Thank you very much.

I think I will ask you the first question. While many States have embraced transportation financing techniques, several States seem resistant to these tools.

What precludes some States from the use of innovative financing?

Ms. HECKER. There is a concern among many States about moving further from pay-as-you-go to debt financing, as well as State DOTs unfamiliar with these approaches.

There are also a range of State laws that could apply, restrictions on public/private partnerships that are written into State laws. There are State laws that prohibit committing their future apportionment to debt repayment and thus prohibit the use of GARVEEs.

We've talked with several of the States who are applying these tools and are very excited about it. So it seems once folks get involved, they are pretty enthusiastic.

Senator JEFFORDS. I want to bring sort of a current situation and ask you what difference makes now, when we have had this huge downturn in the economy and the threats to various means of financing. How does that impact what may or may not be a better way to borrow, or what kind of financing instruments you have put on the rockets?

Ms. HECKER. Well, certainly there is more interest in looking for alternative sources with the revenue conditions and budget pressures at both the Federal and State level. So, the impetus of the economic downturn actually increases interest in these tools.

The ultimate financing question, though, is really not the tool itself. It is how the debt is going to be paid for. That is really what we are looking at, and we encourage the committee to keep very transparent.

If you look at the TIFIA loans where you get over 70 percent at the private and State level, most of it is different State taxes that get dedicated. In only a few instances do you really have private equity. So, there is borrowing going on and new taxes being raised.

As the instruments are broadened and extended, the issue is the extent to which costs are borne by current versus future users, and the extent to which costs are borne by general taxpayers versus users.

Senator JEFFORDS. Thank you.

Mr. Seltzer, in your testimony you state that "capital is notoriously unsentimental, and finance techniques used for transportation projects must compete for investor demand against other investment products in the marketplace."

What conditions need to be in place to make transportation projects more attractive when competing for private investment?

Mr. SELTZER. Well, Senator, you yourself in your statement indicated that the first ingredient or prerequisite is identifying the revenue stream. It has to be stable and reliable enough to attract investors. If it is debt financing, typically there is a watershed invest-

ment-grade rating category that indicates it is not a speculative type of investment.

Some of the innovative finance tools that your committee will be considering could help advance debt financing through providing various forms of credit enhancements such as the TIFIA program that Ms. Scheinberg mentioned.

Senator JEFFORDS. Ms. Scheinberg, currently the threshold for projects to be eligible for TIFIA programs is $100 million. How would lowering the threshold for projects to $50 million affect the program?

Ms. SCHEINBERG. Senator Jeffords, we are not sure. We have no experience with anyone coming in and saying they could not meet the $100 million threshold. So, we cannot tell you that that is a barrier to this program.

The program, as you probably know, is new to the users and there is a fair amount of learning that goes on regarding how to engage in the TIFIA program. So its original purpose was for large projects that could not find funding in the traditional categories of funding that the Federal Government provides—large, intermodal, complicated, lumpy projects, as David said.

I think we still have not tapped out those projects. We are still working with folks. We have six letters of interest that have come in that are seriously looking at asking for a TIFIA loan.

We have not seen people who have come in and said, we wish it was a lower threshold, so I cannot really tell you what the difference would make. We have a lower threshold for ITS projects of $30 million and we have not seen any takers on that. That does not seem to have made a difference.

Senator JEFFORDS. Our next generation effort will place greater emphasis on intermodal projects and on project financing. I am concerned that U.S. DOT is not adequately staffed or structured to accommodate this shift in focus.

Do you share my concern? I imagine you will say yes.

Ms. SCHEINBERG. Well, first I would say, yes, we are also very focused on intermodal in general, and freight in particular, which we believe needs much more attention than it has received in the past.

As far as our staffing, we are looking at this. I can tell you that it is a topic of discussion in the Department, organizationally, financially, and with resource attention.

We are looking at this issue of freight very seriously, both how to help the freight sector and how to deal with it internally in DOT.

Senator JEFFORDS. Well, I want to thank you, all three of you, for very helpful testimony. I assure you, we will be taking advantage of your expertise as time goes by to assist us as we move forward to try and improve the ability to finance these projects.

Thank you very much.

Mr. SELTZER. Thank you, Mr. Chairman.

Ms. SCHEINBERG. Thank you.

Ms. HECKER. Thank you, Mr. Chairman.

Senator JEFFORDS. I want to let everyone know that we are going to have votes starting, two votes, in the next few minutes. So we will postpone the testimony on the next panel. You can relax and

await my return. Since it takes about 20 minutes for the first vote and I have to wait for the second vote, it will probably be about 25 minutes before we resume.

So if anybody wants to take a break, take a break.

[Whereupon, at 10:29 a.m. the hearing was recessed.]

[At 11:16 a.m. the hearing was reconvened.]

Senator JEFFORDS. The hearing will come to order. I am sorry for the delay, but we are in the process of saving the Nation, so it took a little bit longer than we anticipated.

[Laughter.]

Welcome, panel No. 2. Our first witness is the Honorable Janice Hahn, Councilwoman for the city of Los Angeles, California, on behalf of the Alameda Corridor Transportation Authority. We have been waiting anxiously for your testimony because of all the exciting work that you have been involved in. Please proceed.

STATEMENT OF HON. JANICE HAHN, COUNCILWOMAN, CITY OF LOS ANGELES, LOS ANGELES, CA, ON BEHALF OF THE ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY; ACCOMPANIED BY DEAN MARTIN, ALAMEDA CORRIDOR'S CHIEF FINANCIAL OFFICER, AND JOSEPH BURTON, GENERAL COUNSEL.

Ms. HAHN. Thank you, Mr. Chairman. Good morning. Thank you for this opportunity to be here today. Besides being a city councilwoman in Los Angeles, I serve as the chairwoman of the Governing Board of the Alameda Corridor Transportation Authority.

So, on behalf of the city of Los Angeles, the mayor, Jim Hahn, my brother, the city of Long Beach, Mayor Beverly O'neill, and the Corridor Authority's Governing Board and our CEO Jim Hankla, I am honored to be here today.

Accompanying me today are Dean Martin, the Corridor Authority's chief financial officer, and Joseph Burton, our general counsel.

The Alameda Corridor Transportation Authority, or ACTA, is a joint powers authority created by the Cities of Long Beach and Los Angeles in 1989 to oversee the financing, design, and construction of the Alameda Corridor.

The project was monumentally complex, running through eight different government jurisdictions in urban Los Angeles County, requiring multiple detailed partnerships between public and private entities, and presenting extensive engineering challenges.

One of the key partnerships that has been vital over the years has been with the U.S. Congress. We greatly appreciated the strong support you and your colleagues provided to ACTA in developing the innovative loan from the Department of Transportation.

Indeed, the Federal Government, by its $400 million Department of Transportation loan, became the first financial partner in this magnificently successful project. We are particularly thankful for the strong leadership demonstrated by many of you in Congress, including our two distinguished Senators, Dianne Feinstein and Barbara Boxer, along with Congressman Steve Horn and Congresswoman Juanita Millender–McDonald. Without their vision and support, it is unlikely the Alameda Corridor would be in operation today, strengthening the Nation's global economic competitiveness.

The $2.4 billion Alameda Corridor, one of the Nation's public works projects, opened on time and on budget on April 15th of this year.

A container train from the ports of Los Angeles and Long Beach to the transcontinental rail yards near downtown Los Angeles used to take more than 2 hours and wreak havoc to L.A. traffic at dozens of crossings. It now takes about 45 minutes, avoiding traffic conflicts.

As cargo volumes increase, this enhanced speed and efficiency is critical. More than 100 trains per day are expected on the Alameda Corridor by the year 2020.

We have demonstrated that governments can work together, and they can work with the private sector, putting aside competition for the benefit of greater economic and societal good.

We have proven that communities do not have to sacrifice quality of life to benefit from international trade and port and economic activity. The volume of containers doubled in the 1990's, and last year reached more than $10 million 20-foot containers. Last year, our ports handled more than $200 billion in cargo, or about one-quarter to one-third of the Nation's waterborne commerce.

ACTA consolidated four branch lines serving the ports into a 20-mile freight rail expressway that is completely grade separated, including a 10-mile long 30-foot trench that runs through older, economically disadvantaged industrial neighborhoods south of downtown Los Angeles.

The linchpin of ACTA's funding plan was designation of the Alameda Corridor as a high-priority corridor in the 1995 National Highway System's Designation Act. That designation cleared the way for Congress to appropriate $59 million needed to back the $400 million loan to the project from the U.S. Department of Transportation.

That was the leverage, if you will, for the biggest piece of our financing package, more than $1.1 billion in proceeds from revenue bonds sold by ACTA. The bond and the Federal loan are being retired by corridor use fees and paid by the railroads.

The funding breaks down roughly like this: 46 percent from ACTA revenue bonds, 16 percent from the U.S. DOT loan, 16 percent from the ports, 16 percent from California's State and local grants, much of it administered by the L.A. County Metropolitan Transportation Authority, and 6 percent from other sources.

There are many reasons why our project stayed on schedule, but at the top of the list are permit-facilitating agreements with corridor cities, relocating agreements with utility companies, and our decision to use a design-build contract with the Mid–Corridor Trench.

Among the direct community benefits, the Alameda Corridor is projected to reduce emissions from idling trucks and automobiles by 54 percent, slash delays at railroad crossings by 90 percent, and cut noise pollution by 90 percent.

Disadvantaged firms have earned contracts worth more than $285 million, meeting our goal of 22 percent DBE participation. The goal of our Alameda Corridor job training and development program was to provide job training and placement services to 1,000 residents of the corridor communities.

We exceeded that goal. Almost 1,300 residents received construction industry-specific job training, and of those, 600 were placed in construction trade union apprenticeships. The Alameda Corridor Conservation Corps provided the life skill training to 447 young people from that community.

In the future, ACTA and the California DOT are working at an innovative, cooperative agreement to develop plans for a truck expressway that would provide a "life-line" link between Terminal Island at the ports and the Pacific Coast Highway at Alameda Street.

The Alameda Corridor truck expressway is intended to speed the flow of containers into the Southern California marketplace. This project could be ready for approval as early as March, 2003.

At ACTA, we believe that by restructuring our Federal loan we can undertake this critical truck expressway project without any additional Federal financial support. But we need this committee——

Senator JEFFORDS. Would you repeat that, please?

[Laughter.]

Ms. HAHN. I am glad you asked for that. Hold my time, Mr. Chairman. At ACTA, we believe that by restructuring our Federal loan we can undertake this critical truck expressway project without any additional Federal financial support, but we need this committee to help us get Congress to give the approval to DOT to allow us to do this.

Let me just give you a few recommendations for your committee as you are looking at reauthorization of TEA–21. We think the planning and funding of intermodal projects of national significance directly benefiting international trade should be sponsored at the highest levels within the Office of the Secretary of Transportation.

There should be a national policy establishing the linkage between the promotion of free trade and the support for critical intermodal infrastructure, moving goods to every corner of the United States. Public-private partnerships do, in fact, work and should be promoted and encouraged by Federal transportation legislation.

We think a specific funding category is needed to support intermodal infrastructure projects and trade connector projects. Consideration should be given to new and innovative funding strategies for the maritime intermodal systems, infrastructure improvements enhancing good movements.

The Corridor benefited from the DOT being willing to undertake some risks and provide loan terms that were not available on a commercial basis. The Federal participation gave private investors confidence in the project and made our bond financing possible.

Most important in my mind is this. The success of the Alameda Corridor has shown that Federal investment in trade-related infrastructure can benefit the economy without sacrificing the quality of life issues.

Thank you for inviting me. I am happy to answer any questions.

Senator JEFFORDS. Thank you very much.

The Honorable Peter Rahn. Please proceed.

STATEMENT OF HON. PETER RAHN, SECRETARY, NEW MEXICO DEPARTMENT OF TRANSPORTATION, SANTA FE, NM

Mr. RAHN. Good morning, Mr. Chairman. I am Pete Rahn. I am the Secretary of the New Mexico State Highway and Transportation Department and I am very pleased to be here today to testify before this very unique joint hearing.

It seems so important that the two committees work smoothly together in the reauthorization of the National Highway Funding bill, which is absolutely critical to the States and their transportation systems.

Mr. Chairman, I am here to not only urge, but plead, that Congress not only allow, but actually encourage, innovative public-private partnerships. Public-private partnerships draw on the experiences and expertise of both sides to perfect just tremendous success in projects like New Mexico 44, which is now called U.S. 550.

New Mexico traditionally has been a pay-as-you-go State, which meant we paid as we went downhill and lost more and more of our system.

New Mexico 44 is, I believe, a national example of a successful project that brought together the Federal Government, State government, and private concerns to open up a corridor into northwest New Mexico that is providing economic opportunity and greatly improved safety for those people traveling on that roadway.

New Mexico 44 stretches 141 miles from just north of Albuquerque into northwest New Mexico. Northwest New Mexico did not have a four-lane highway for the entire corridor of the State.

This corridor has opened up economic opportunity in the region of Farmington and Bloomfield in which they are now experiencing growth at twice the rate of the average of the State of New Mexico.

The project itself brought together innovative financing, innovative procurement, innovative contracting, and innovative construction. I need to give credit to the Federal Highway Administration as a very critical partner in developing this project.

The project itself was a 118-mile corridor that utilized innovative financing in the form of GARVEE bonds. I understand it is not very flattering to Jane Garvey that our particular bonds were named "naked" GARVEE bonds because they did not have the guarantee of the State government, but only the revenue stream of future Federal programs to back up the issuance of those bonds. The bonds were issued for 15 years. We also utilized the soft match provisions of TEA–21.

Our procurement was unique in that we were able to utilize, not design-build, but the traditional low-bid process in a very unique way in which we secured a developer, and the developer designed the project, provided the designs back to the department, we utilized low bid, selected the contractor, presented the contractor back to the developer which managed the construction of it, and then warranteed the project for 20 years. Twenty years, to our belief, is the longest period of time that a highway has ever been warranteed in the United States.

From concept to contract, the project took us 15 months. From contract to construction of a 118-mile long four-lane road was 28 months. Using traditional methods, we estimate it would have taken us 27 years to have built that roadway utilizing the tradi-

tional 3-and 5-mile increments that most DOTs undertake in constructing long corridors.

The warranty is a $114 million guarantee for performance of the roadway for 20 years. It is a no-fault guarantee that we estimate will save the State $89 million over the life of the warrantee.

Coke Industries, which was the developer, has $50 million of their own assets at risk within the warranty and have produced a roadway from their design and management of the contractors that is smoother and will last longer than any road built in New Mexico today.

Utilizing the leveraging of Federal revenue streams at very competitive interest rates, our overall bonding program, of which the GARVEE bonds are only once piece, has an average interest rate of 4.47 percent, when the Federal Highway Administration estimates inflation in the construction industry at 4.5 percent. So the value of a road in place today is greater than the value of a road in place tomorrow.

I will close by just saying that I believe it is very important that Congress, as it is looking at reauthorization, not only allow the DOTs the flexibility to use Federal revenues in the ways best suited for their particular States, but the importance of a stable revenue stream that the States can depend upon is critical to our ability to leverage those dollars through using innovative financing, whether it is bonding or any of the other ways.

The last point I would make, Mr. Chairman, is just simply that if Congress wants to encourage private investment in our transportation system, I believe there is going to have to be a mechanism for the private sector to invest on par with government tax-free bonds in order for that investment to occur.

Thank you, Mr. Chairman.

Senator JEFFORDS. Thank you. Excellent presentation.

Our next witness is John Horsley, executive director of the American Association of State Highway and Transportation Officials right here in Washington, DC. Please proceed.

STATEMENT OF JOHN HORSLEY, EXECUTIVE DIRECTOR, AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, WASHINGTON, DC

Mr. HORSLEY. Thank you, Mr. Chairman.

First, we want to commend you and Senator Baucus for convening this joint hearing, and commend you, Senator Reid, and your colleagues in the Senate for fully restoring highway funding for fiscal year 2003 to the $31.8 billion level that Governors, States, and many others have been pushing for. It is vital that you succeed, and we want to commend you and the Senate for your leadership.

We also hope you will convey our thanks to Senator Baucus for his leadership in moving the 2.5 cents of gasohol revenues that now go to the general fund over to the Highway Trust Fund, and some of the other work that he is doing, including pushing for use of the interest in the Highway Trust Fund in order to put that into our cash-flow and be able to put it to work.

So, I want to thank you both for holding this hearing today. I heard a lot of good things so far, and look forward to Jeff's testimony.

Pete is one of my bosses, so I will try to represent you well, Pete.

Mr. Chairman, we believe that the central issue on reauthorization will be how to grow the program. Huge safety, preservation and capacity needs exist in every region of the country.

To fund them, AASHTO believes Congress must find a way to increase highway funding from $34 billion in fiscal year 2004 to at least $41 billion in 2009, and annual transit funding over the next 6 years from $7.5 billion to $10 billion.

The challenge, is how to fashion a funding solution that can achieve these goals and garner the bipartisan support needed for enactment next year.

AASHTO has explored a menu of options for generating additional program revenues, including tapping Highway Trust Fund reserves, gasohol transfers, indexing, and raising fuel taxes. While the program could grow somewhat without raising taxes, it would fall short of meeting national needs.

We also directed our staff to explore the feasibility of leveraging new revenues through a federally chartered transportation finance corporation which could achieve AASHTO's goals for highway and transit funding in coordination with all of the other proposals, such as those proposed by Chairman Baucus.

They have developed a creative proposal which appears feasible and has been well received. Let me describe it for you in brief.

Under this concept, Congress would be asked to charter a nonprofit transportation finance corporation, authorized to issue $60 billion in tax credit bonds over 6 years. We describe this as program finance rather than project finance.

Thirty-four billion dollars would go to highways and be apportioned to States through Federal highways, and $8.5 billion, 20 percent, would be apportioned to transit agencies; $17 billion of the bond proceeds would be invested in government securities which, over 25 years, would generate a return sufficient to pay off the bond principal.

The Department of Treasury would be reimbursed for the annual cost of the tax credits from the Highway Trust Fund. There would be no impact on the Federal deficit. The TFC would leverage approximately $18 billion in new revenues into an increase of nearly $43 billion in program funding.

When we tested this concept with seven Wall Street investment banks and two rating agencies, this is what we heard. No. 1, tax credit bonds are marketable. Capital markets can absorb the amount of bonds being discussed.

Second, bond marketability and liquidity are enhanced by a central issuer, and there is a broad potential investor base, especially if the tax credits could be decoupled from the bond principal.

Our analysis shows that AASHTO's funding targets through fiscal year 2009 could be achieved through the Transportation Finance Corporation without indexing or raising taxes. Over the longer term, however, the program for the following 4 years would slip slightly before it resumed positive growth again in fiscal year 2013.

When the TFC is combined with indexing, not only does the program continue with healthy growth from fiscal year 2010 on, even higher funding levels in the $41 billion for highways and the $10 billion for transit would be possible.

We believe this idea has potential, and stand ready to work with Congress to find a way to grow the program using this technique, or other techniques.

In addition to this concept for program financing, we also believe reauthorization needs to make improvements in several project financing tools such as extending State Infrastructure Bank to all 50 States, lowering the threshold for TIFIA loans from $100 million down to $50 million, and working with you to change the terms of the RRIF program.

I will be glad to submit the balance of my testimony for the record.

Senator JEFFORDS. Thank you. Excellent testimony.

Our last witness is Jeff Carey, Managing Director of Merrill Lynch & Co., New York, NY.

STATEMENT OF JEFF CAREY, MANAGING DIRECTOR, MERRILL LYNCH & CO., INC., NEW YORK, NY

Mr. CAREY. Mr. Chairman, ladies and gentlemen, I am a managing director in public finance at Merrill Lynch. I have had the privilege to work with U.S. DOT, Federal Highway officials, as well as our clients, State transportation officials, and other project sponsors during the last decade on the development and implementation of innovative finance mechanisms.

Thank you for inviting me to provide a wrap-up commentary from a capital markets perspective at today's joint hearings and for encouraging private sector participation during your on-ramp to reauthorization.

Public finance industry professionals are pleased to have played a role in creating a strong market reception for the new transportation funding tools and expanded flexibility for public-private partnerships.

We commend these panel participants, the leadership from DOT and Federal Highway, other State transportation officials, and private sponsors for the dramatic evolution from Federal aid funding to the wide array of financing vehicles and programs introduced and utilized over the last 8 years.

To briefly reflect on the prior testimony, ISTEA, post–ISTEA initiatives, and TEA–21 implementation have produced many market-related accomplishments, dramatically increased bondholder investment in transportation projects and State programs; new and/or specially dedicated revenue sources, particularly for the purpose of paying off debt obligations; broad market acceptance in the use of Federal aid funding for debt instrument financing; more coordination with other funding partners beyond just the States, and lower financing costs and increased project flexibility and feasibility through Federal credit enhancement.

Addressing characteristics sought by capital markets and private sector project sponsors provides efficient market access and innovative transportation finance opportunities.

Coining an earlier term, the "unsentimental characteristics" sought by capital markets participants include: sound, understandable credits; evidence of government support at the Federal and State level; strong debt service payment coverage; predictability in Federal programs and a consistency with an evolution of new funding instruments, something that the MEGA–Fund and Trust Acts would enhance; market rate investment returns for bonds, development costs, and equity investment; reasonable and reliable timing in terms of the receipt of grants and revenues; acronyms that capture Federal programs' spirit and promote investor familiarity; and volume market profile, and liquidity.

For example, the track record and predictability of Federal aid highway programs enabled GARVEE bonds to be structured without the double-barreled credit of other State credit-backed stops, as described earlier in New Mexico. It was the strong issuance history of municipal bond banks in States like Vermont that served as the model for the development of State Infrastructure Banks or SIBs in the mid–1990's.

Mr. Chairman, I agree that SIBs such as Vermont's can provide an extremely flexible and responsive financing tool. How various innovative financing components have been used by public agencies and received by the markets provides a strong road map for reauthorization.

When SIBs were created as part of the 1995 Act, the pilot program for 10 State transportation revolving funds became very popular in 1996, in part because supplemental Federal funding was available for seed capitalization.

Thirty-two States have active SIBs and have made different levels of highway or other project assistance primarily through loans, despite widespread under-capitalization and the curtailment of the program in TEA–21.

Limited capitalization has resulted from the inability to use Federal aid funds outside of five States and the application of Federal requirements and rules to all moneys deposited in the SIB revolving fund, regardless of whether the source was a State, a public contribution, or repaid loan proceeds. In addition, only two States have leveraged their SIBs with bonds.

As a flexible, State-directed tool, SIBs have a greater potential to provide loans and credit enhancement that can be realized through further modifications as part of Reauthorization.

Reauthorization should provide incentives for public-private market-based partnerships that finance, develop, operate, and maintain highways, mass transit facilities, high-speed rail and freight rail, and intermodal facilities. This could be accomplished by permitting the targeted use of a new class of private activity bonds, or by modifying certain restrictions in the Internal Revenue Code on tax-exempt bond financing of transportation modes. We commend the Senate and this committee's earlier consideration of HICSA, HIPA, and, most recently, the Multimodal Transportation Financing Act.

Mr. Chairman, my office is across the street from the World Trade Center site. As workers in downtown Manhattan, we greatly appreciated your passage of Federal legislation creating a Liberty Zone for the redevelopment of lower Manhattan and for the cre-

ation of a new type of tax-exempt private activity bonds, Liberty Bonds, for the rebuilding and economic revitalization of New York City. Transportation infrastructure financing deserves a bond mechanism similar to Liberty Bonds under Reauthorization to attract more private investment, as well as to increase the use of new construction techniques, cost controls, performance guarantees, and technologies, as also described by the New Mexico Secretary.

Past "innovative finance" should become mainstream transportation finance under TEA–21 Reauthorization, and the Federal Government should provide additional, new financing tools and initiatives, at least on a pilot basis.

The market's perception of the integrity of the Federal Highway Trust Fund would be greatly enhanced by the MEGA–TRUST Act and the MEGA–INNOVATE Act, providing tax-credit bond proceeds to augment gas tax revenues.

The success of innovative finance places a higher level of responsibility on the Federal reauthorization process to maintain the characteristics that attract strong capital markets and private sector participation.

We want to meet your vision, Mr. Chairman, and your challenge to structure and sell U.S. transportation credits to investor portfolios in U.S. municipal markets and in other appropriate markets.

Thank you.

Senator JEFFORDS. Well, thank you. Excellent testimony, all of you. I am very appreciative, as I think we are going to make some good progress this year.

The first question is for Janice Hahn. Design-build was utilized on the Mid–Corridor Trench portion of the Alameda Corridor. How important was this approach to project the development in your efforts to finance and build the Alameda Corridor?

Ms. HAHN. Well, I think design-build was really one of the reasons that this project came in on time and on budget. It was so important, that actually we had to get an ordinance passed by the City Council of Los Angeles, because previously that was not allowed under the normal building of projects and the RFP proposals. So we estimate that that concept saved the project 18 months in terms of streamlining the majority of that project.

Senator JEFFORDS. Thank you.

I note that the Alameda project was sponsored by ACTA, a special-purpose entity. Does this institutional arrangement provide any advantages?

Ms. HAHN. Well, certainly the whole structure and the cooperative agreements that we came to, joining together two cities, Los Angeles and Long Beach, both rival ports and competing railroads, and then with the public entity of ACTA, provided really a very unique partnership and agreement. I must say, as chairwoman of this Governing Board of ACTA, it is a very small, focused governing board. I think that really is the reason this is so successful.

Senator JEFFORDS. David Seltzer, in an answer to my earlier question, said that one of the keys to attracting private investors is a reliable revenue stream. Janice, can you tell us more about your project's revenue stream?

Ms. HAHN. Well, that really was another huge piece of success, is we locked in a great revenue stream, which was the containers

themselves. The containers have been there. They are there now, and more are coming every year.

As a matter of fact, as I mentioned, we have 10 million containers using the Corridor on an annual basis. The charge is about $15 per 20-foot container, so you can see that that is an incredible revenue stream that we have locked in for a very long time.

Senator JEFFORDS. Peter, as a member of the AASHTO Board of Directors, what are your thoughts on that organization's funding proposal?

Mr. RAHN. Mr. Chairman, I support their proposal because I believe it is a way for us to get more money into infrastructure today. I hope that that was one of the things that was made clear by my testimony, was the belief that transportation infrastructure is more valuable in place today than it is tomorrow.

The proposal from AASHTO is a vehicle by which this country can invest in more infrastructure, thereby supporting our economic activity, as well as quality of life and safety of its citizens. I believe it is a very innovative approach. I believe it is workable, and I am hopeful that Congress will approve it.

Senator JEFFORDS. John, in your testimony you state that "finance tools are useful, but only fill a niche in program and project funding."

What changes are needed in reauthorization to allow for more financing of transportation projects?

Mr. HORSLEY. Mr. Chairman, there is need for change at both levels. At the Federal legislative level, we think the authority to extend State Infrastructure Banks to all 50 States, for example, should be included in your bill. There is, I think, a great interest in the success of the five States that are currently authorized.

We would seek your authority to extend it to all 50 States, but with the understanding that all Title 23 requirements come with the extension of that authority, including Davis–Bacon, for example. We are willing to continue to advance the program in partnership with a broad base of interests, including labor, that wants the Davis–Bacon provision to apply to future funding cycles.

Many of our smaller States have told us that the $100 million restriction in TIFIA is too tight, and they have smaller projects that would benefit from either the additional loan security or other finance enhancements of TIFIA. So, we'd like to have you take a look a dropping that threshold.

The terms and conditions of RRIF includes restrictions that Treasury has put on that are too tight, and we think, if you could take a look at flexing the terms of finance for railroad finance, that would be helpful.

Now, let me tell you, at the State level we have a long way to go. For example, New Mexico represented by Pete here, California and Florida. But we have some very sophisticated States that have long track records of innovative finance and are using those tools well.

We have 17 States that we understand are statutorily barred from using debt finance. So when it comes to enhancing project finance, we have some change that also needs to take place at the State level so they can put to work GARVEEs and some of the

other excellent techniques that you have approved over the last 6 years.

Senator JEFFORDS. A major piece of your testimony centers on the creation of a Transportation Finance Corporation. Under your proposal, the TFC would issue tax credit bonds. We have heard testimony from GAO that these instruments are the most costly long-term to the Federal Government. Why does AASHTO consider this to be the most appropriate bonding mechanism for the Federal aid program?

Mr. HORSLEY. Well, Mr. Chairman, we are looking for the art of the possible. When we tried to put together a vehicle that, as Pete was describing, could leverage revenues that are currently available to achieve the funding targets that we are seeking for fiscal years 2004 to 2009, we looked at several options.

We looked at whether municipal bonds issued at the State level would work, and concluded they would not because so many States have obstacles, either statutory or constitutional, to the issuance of debt and the utilization of GARVEEs in some of the current techniques, so we figured that that would not extend universal help to all 50 States.

We looked at the utilization of municipal bonds at the Federal level and figured that would compete directly with Treasury's, so that was not as good a vehicle. We then looked at the appeal of the tax credit bonds. It was currently pending in RAIL–21 as a vehicle for funding high-speed rail and had been used previously to fund schools through so-called QSABs.

But our conclusion was that the TFC was the most efficient, most viable method that would also score well under Federal scoring rules and just in practical terms, would get us, with current revenues or revenues enhanced with indexing, to the funding targets that States feel are essential, which is over $40 billion for highways and over $10 billion for transit.

Senator JEFFORDS. Does it make sense to issue bonds to support the mainline work of State DOTs, namely system preservation? Would it not be more appropriate to reserve debt financing for capital improvements, and particularly for those projects with associated revenue streams?

Mr. HORSLEY. Mr. Chairman, the Transportation Finance Corporation funding, that we are talking about, we classify as program finance, which would then be available to States to use for all of those purposes.

But we are looking for a near-term practical solution that gives you a measure you can pass with bipartisan support to boost funding for the next cycle to the funding levels we are after.

When it comes to the use of the issuance of municipal bond debt at the State level, I think each State has to make a judgment whether they issue long-term debt, for long-term purposes, such as schools, water and sewer plants, and most hospitals.

Almost every other area of public infrastructure is financed through debt. We think that transportation has been slower than those other entities to come to the table and use debt finance for long-term infrastructure. But we think the time has come.

As you have from both of these panels, the market is there and the transportation agencies are there and are utilizing debt finance

on an increasing basis. But the one differentiation I wanted to make was between the program finance, which would flow out to States for utilization as if it were cash over the next 6 years, and then Pete could leverage it as he saw fit through further leverage through GARVEEs and other means, as opposed to project finance, which we also support.

Senator JEFFORDS. Mr. Carey, as I mentioned in my opening remarks, I have a vision that investment in U.S. transportation infrastructure would become a component of every fund manager's portfolio. Based on your experience, what measures should Congress consider to expand private sector investment to assist in making transportation a solid investment choice?

Mr. CAREY. I think it is a focus on the previously stated "unsentimental characteristics" in terms of maintaining predictability and Federal program consistency in the introduction of new instruments. Also, to provide an opportunity for market rate investment returns on transportation project finance.

Also, as has been described in some of the proposals today, an opportunity to look at new taxable instruments, as well as variations on existing tax-exempt instruments, to broaden the existing capital markets participation in transportation finance.

I have to stress, however, that the municipal markets in the United States are unique in the world. These markets are incredibly deep, conservative, and provide guidance for Federal credit assistance and other initiatives on the part of the Federal Government under TIFIA.

Also, these markets provide a lot of examples that have been adopted for transportation "innovative finance" over the last 8 years. They are incredibly easy for States and local governments to access, which is not the case in the taxable markets or in foreign government markets.

Senator JEFFORDS. Well, thank you very much, all of you. I find that you have done such a wonderful job, I am not even going to ask you the final question I had because you have already answered it with all of your testimony. So, you have a grade A+ for your participation today.

[Laughter.]

I would like you to know that.

But we will also reserve the right to continue to hound you until such time as we come through with a perfect solution. Thank you very much. That goes for both panels. This has been a very excellent hearing. I look forward to working with you as we continue forward to give our people the best advantages we can to make this the best transportation bill that ever occurred. Thank you very much.

[Whereupon, at 11:58 a.m. the hearing was concluded.]

[Additional statements submitted for the record follow:]

STATEMENT OF SENATOR JON S. CORZINE, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Thank you, Chairman Jeffords and Chairman Baucus, for holding this joint hearing on the success we have had on expanding the reach of the highway trust fund through innovative financing and how we can continue that success in the reauthorization of TEA–21. I look forward to hearing from our witnesses.

Chairman Jeffords and Baucus, it is clear that we need to consider alternative means to finance our important highway and mass transit projects. AASHTO estimates that the annual level of investment needed to maintain current conditions and performance of our highway systems is $92 billion. For mass transit, the amount is $19 billion. We are falling far short of this under the authorized amounts of TEA–21. To get even close, we need to look at all sources of funding, including financing.

Congress enacted financing provisions in TEA–21. Under the "Transportation Infrastructure Finance and Innovation Act" (TIFEA), the Department of Transportation may provide secured loans, lines of credit and loan guarantees to public and private sponsors of eligible surface transportation projects. $530 million was authorized for this program.

Chairman Jeffords and Baucus, we need to look at what good has been done under TIFEA, what needs to be changed, and what can be done in addition to TIFEA. I look forward to working with you both to explore ways to do this.

STATEMENT OF DAVID SELTZER, DISTINGUISHED PRACTITIONER, THE NATIONAL CENTER FOR INNOVATIONS IN PUBLIC FINANCE, UNIVERSITY OF SOUTHERN CALIFORNIA

A FEDERAL POLICY COMPARATOR FOR PUTTING "INNOVATIVE FINANCE" IN CONTEXT

Good morning, ladies and gentlemen. My name is David Seltzer, and I am a principal at Mercator Advisors, LLC, a consulting firm that advises public, private and nonprofit organizations on infrastructure financing issues. I also am affiliated with The University of Southern California's National Center for Innovations in Public Finance. The National Center, established 2 years ago, undertakes research and helps provide mid-career professional training in the field of infrastructure finance, including the growing use of public-private partnerships for project delivery. I would like to submit for the record a copy of a report USC published last year on California's 10-year experience with Innovations in Public Finance, which may prove informative to your committees.

Previously, I had the privilege of serving as Capital Markets Advisor for 3 years at the U.S. Department of Transportation during TEA–21's authorization, and before I that spent over 20 years assembling bond issues for transportation and other public agencies as an investment banker. So having worked in the public and private sectors, I have clearly violated both ends of the timeless dictum of "neither a borrower nor a lender be."

You will be hearing testimony this morning from a distinguished array of Federal, State, local and private sector experts in connection with new financing initiatives for reauthorization. Since many of the new ideas draw upon tax incentives as well as other Federal policy tools, I commend you on making this is a joint hearing of both the tax writing and surface transportation authorizing committees.

I found when in Federal service that the wide array of financial tools, techniques and even terminology can be bewildering. If I may, I'd like to put on my academic hat for a couple of minutes and try to present an analytic framework that may be helpful in comparing so-called "Innovative Finance" options.

The term "innovative finance" in Federal transportation parlance encompasses not only new financing techniques such as State Infrastructure Banks and TIFIA credit support, but also new approaches in the areas of project delivery, asset management, and service operations. In many cases, the techniques involve some form of public and private sector partnering. Private participation is seen as offering the potential to transfer risks, achieve production or operating efficiencies, and attract additional capital.

In order to systematically analyze the cost-and policy-effectiveness of an innovative finance proposal, I believe it would be useful to employ a "Federal Policy Comparator." A comparator is a scientific instrument used for measuring the features of different objects. In much the same way, it should be possible to compare various innovative finance proposals within an analytic framework to determine which proposals would be most effective.

The Federal Policy Comparator would seek answers to three central questions:

1. Which Federal Policy Incentives are most suitable to attaining the proposal's objectives?

2. Does the proposal achieve balance among Sponsors, Investors and Policymakers? And

3. What is the Budgetary Treatment of the proposal?

1. Which Federal Policy Incentives are Most Suitable? Aside from conventional grants, the Federal Government has available to it three major types of incentives it can use to stimulate capital investment:

- Regulatory Incentives make existing programs and tools more flexible, in order to expand project resources or accelerate project delivery. (GARVEE Bonds are one such example, in that they broadened allowable uses for grants to include paying debt service on bond issues that fund eligible projects. Other regulatory reforms include design-build contracting, in-kind match and environmental streamlining.)
- Tax Incentives involve modifying the Internal Revenue Code to attract investors into transportation projects. (Examples include private activity bonds, tax credit bonds, and tax-oriented leasing.)
- Credit Incentives provide Federal assistance in the form of Federal loans or loan guarantees to reduce the cost of financing and fill capital gaps. (Examples include Federal credit instruments provided through TIFIA and the Railroad Rehabilitation and Improvement Financing (RRIF) program.)

Generally, there is a tradeoff between the budgetary cost of the incentive and its degree of effectiveness in making the desired capital investment feasible. For instance, many regulatory reforms have little or no budgetary cost, but they also generally provide only very incremental assistance in advancing projects. Tax measures typically are a "helpful but not sufficient" pre-condition for investment; the project must be on the margin of viability to benefit from them. Credit assistance can fill funding gaps and attract co-investment, but its uncertain cost depends on risk factors and interest rate subsidies. For instance, a complex and capital-intensive initiative such as Maglev may confer significant mobility, environmental and technology benefits. However, it also may well require deeper tax and/or credit subsidies in order to bring projects to fruition than that afforded by an incentive such as private activity bond eligibility.

2. Does the Proposal Achieve Balance Among Sponsors, Investors and Policymakers? To be successful, each innovative financing initiative should be designed to meet the requirements of three distinct groups of stakeholders. First, the proposal must be attractive to project sponsors-the public or private entity responsible for delivering the project. Attractiveness to the project sponsor can be measured in terms of its cost-effectiveness, flexibility, and ease of implementation. Second, the proposal must make sense to investors-offering them a competitive risk-adjusted rate of return. Capital is notoriously unsentimental, and the innovative finance tool must compete for investor demand against other investment products in the marketplace. And finally, the concept must make sense to Federal policymakers. This entails not only achieving public policy objectives but also being affordable in terms of budgetary cost. These three groups-project sponsors, investors and policymakers—can be thought of as the legs of a three-legged stool. If any one leg of the stool has shortcomings, the proposal will wobble, and probably not be supportable.

For example, dating back to the 1993 Federal Infrastructure Investment Commission, there has been a wide-stated interest in trying to voluntarily attract pension fund capital into the infrastructure sector. Public, union and corporate plans represent over $3.6 trillion of assets, yet they have virtually no U.S. transportation projects in their portfolios. Why? Because the dominant financing vehicle to date has been tax-exempt municipal bonds. While the tax-exempt market will continue to be an absolutely critical component of infrastructure financing, pension funds, as tax-exempt entities, place no value on the tax-exemption. Pension funds gladly would purchase infrastructure debt if it were offered at higher taxable yields, but that has limited appeal for the project sponsors who can access the municipal market. Consequently, the three-legged stool is uneven. (I note that various proposals have been introduced recently to create a "win-win" security that is both cost-effective for borrowers and competitively priced for pension fund lenders-while at the same time satisfying Federal policy drivers.)

3. Finally, what is the Budgetary Treatment of the proposal? Efficient markets rely upon transparent pricing signals to function properly. However, oftentimes when Federal proposals are being developed, the key pricing information-budget scoring-is at best translucent, if not completely opaque. It seems it is the mysterious scoring of a proposal, and not its policy effectiveness, that too frequently drives the ultimate policy decision—perhaps a case of the "tail wagging the dog." Better information on budgetary costs earlier on in the process would benefit the development and evaluation of alternative policy options.

Unlike corporate and State and local entities, the Federal Government makes no budgetary distinction between current period operating outlays and long-term capital investments. Nor does it distinguish between full faith and credit general obligations and limited special revenue pledges. From the perspective of infrastructure

advocates, this is both inequitable and inefficient: Inequitable in that costs are not shared by future beneficiaries, and inefficient in that there is a bias toward considering those proposals that have the lowest front-end costs, rather than looking at cost-effectiveness over the long-term.

Some Federal innovative finance concepts attempt to overcome this problem by drawing upon either credit reform budgetary rules (a rare case where Federal accounting is on an accrual basis and conforms to best commercial practices) or by utilizing the tax code (where the PAYGO rules recognize tax expenditures on an annual basis).

While some may consider these tools to be unnecessarily complicated attempts to circumnavigate cash-based accounting, I believe they offer the benefit of rationalizing the budgetary treatment of capital spending and facilitating sound decisionmaking on Federal infrastructure policy.

In conclusion, I submit that by using this three-part Federal Policy Comparator as an analytic framework, policymakers can more systematically compare the budgetary cost with the policy effectiveness of proposals. It would allow comparisons of initiatives as varied as private activity bonds for intermodal facilities, shadow tolling for highways, national or regional loan revolving funds for freight rail, tax credit bonds for high-speed rail, and reinsurance for long-term vendor warranties. By way of illustration, I am including as an attachment a pro-forma Federal Policy Comparator analysis of four current or proposed Federal innovative finance tools for surface transportation—GARVEE Bonds, TIFIA Instruments, Private Activity Bonds and Tax Credit Bonds.

Thank you very much for your time. I would be happy to answer any questions you might have.

ATTACHMENTS

APPENDIX A. FEDERAL POLICY COMPARATOR POWERPOINT SLIDES



Using a Federal Policy Comparator to put "Innovative Finance" in Context

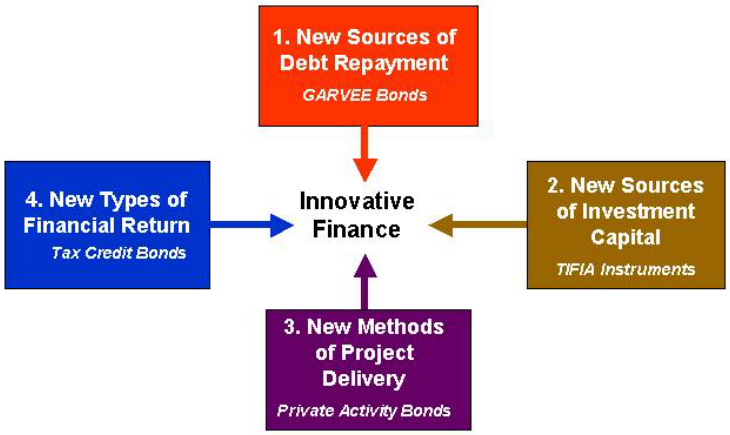
Joint Committee Hearing on Innovative Finance

Senate Committee on Environment and Public Works
Senate Committee on Finance

September 25, 2002

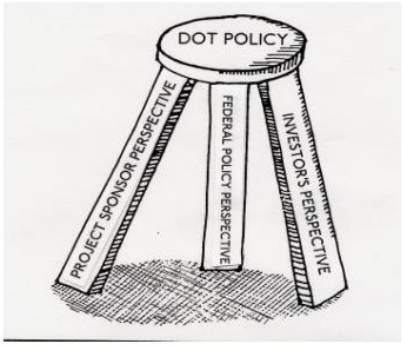
David Seltzer, Distinguished Practitioner
National Center for Innovations in Public Finance
University of Southern California

Four Features of "Innovative Finance" Tools



USC / National Center for Innovations in Public Finance

Balancing the Interests of Three Key Stakeholder Perspectives when Designing Innovative Finance Tools



USC / National Center for Innovations in Public Finance

Project Sponsor Drivers



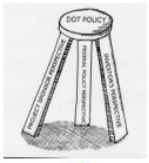
- What is the effective financing cost (IRR)?
- How high is the annual payment factor?
- Is there a direct or contingent financial liability to the sponsor's balance sheet?
- What is the book and legal accounting treatment (e.g. approval requirements, debt ceilings)?
- How difficult is it to implement?

Investor Decision Drivers



- Is the risk-adjusted rate of return competitive?
- Is there a secondary market (liquidity)?
- Are there other investment risks (tax compliance, call risk, etc.)?
- Will it help diversify portfolio exposure?
- Are there any other strategic reasons for investing?

Federal Policy Drivers

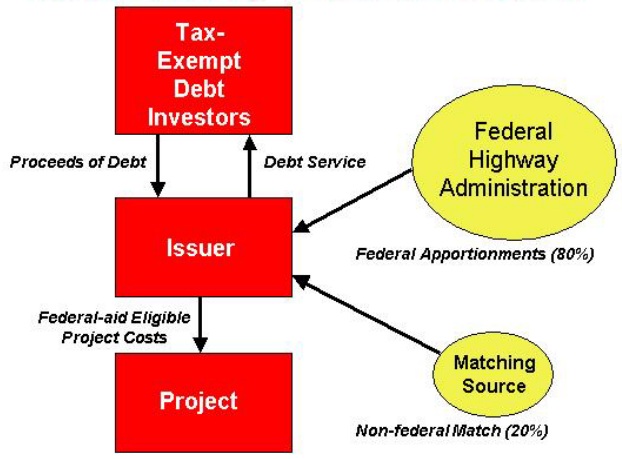


- What is the budgetary cost?
- Is the finance tool cost-effective (how much leveraging)?
- What is the overall economic return (benefit/cost ratio)?
- Does it support federal policy objectives (e.g. access, mobility, safety through better management, private participation, project acceleration)?

1. New Sources of Debt Repayment: GARVEE Bonds (23 U.S.C. 122)

- State issues tax-exempt bonds to fund federal share (e.g. 80%) of Federal-aid eligible project costs.
- Principal and interest are repayable from future years' anticipated FHWA apportionments.
- Bonds may stand alone or be backed by the state.
- State must meet match on a present-value basis.

Flow Chart of GARVEE Bonds



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Project Sponsor Pros and Cons of GARVEE Bonds

Advantages

- Accelerates non-revenue projects (avoided costs and accelerated benefits).
- Avoids having one large "pay-as-you-go" project displace numerous small ones.
- Promotes efficient resource allocation by matching term of payments with life of asset.
- Protects the state's general credit rating (if stand-alone).

Disadvantages

- Reduces out-year capacity / flexibility by consuming future years' grants.
- If stand-alone, may entail slightly higher interest cost than G.O. or State Highway Fund backed debt.
- State may need to obtain legislative authority or voter approval.
- State must demonstrate that acceleration benefits outweigh financing costs.

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Investor Pros and Cons of GARVEE Bonds

Advantages	Disadvantages
✦ Mid-investment grade ratings reflect adequate security.	✦ No assurance that the Federal-aid program will be reauthorized over the life of the bonds (no federal guarantee of payment).
✦ Growing number of states issuing GARVEEs builds political constituency for continuing the Federal-aid program.	✦ Bonds may be non-recourse to the issuer (no state back-stop or security interest in the facility being financed).
✦ Direct assignment of grants to trustee reduces risk.	

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Federal Policy Pros and Cons of GARVEE Bonds

Advantages	Disadvantages
✦ Simple "program" with little additional federal administration.	✦ Some policymakers see tax-exempt bonds as an inefficient subsidy, since the federal revenue loss exceeds the interest savings benefit to the borrower/issuer.
✦ As a regulatory / eligibility initiative, avoids explicit budget scoring.	✦ GARVEE projects are still funded mostly (e.g. 80%) by the federal government (limited leveraging with non-federal funds).
✦ Consistent with efficient / equitable pay-as-you-use funding strategy that accelerates project benefits.	✦ Use of GARVEEs slightly increases the Federal-aid program spend-out rate.

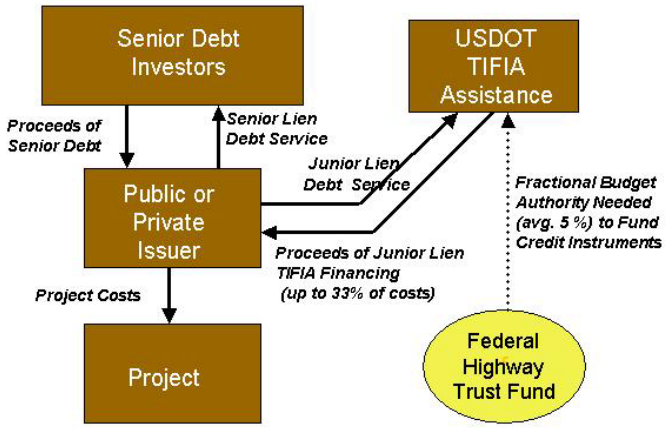
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2. New Sources of Investment Capital: TIFIA Instruments (23 U.S.C. 181-189)

- Direct federal credit assistance in the form of loans, loan guarantees and lines of credit.
- Designed to provide supplemental and subordinate capital for large project financings.
- Twin-test volume cap of the lesser of $10.6 billion in credit authority or $530 million in budget authority.
- Limited to 33% of eligible project costs.
- Project must cost $100 million (or 50% of state's apportionments).
- Project's senior debt must be investment grade ("BBB-" or higher).

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Flow Chart of TIFIA Assistance



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Project Sponsor Pros and Cons of TIFIA

Advantages

- Source of "patient capital" for large projects.
- Flexible payment structures, including deferrals and prepayments.
- TIFIA lending rate (U.S. Treasuries) is competitive with tax-exempt borrowing rates for weaker (low-rated) credits.
- Reduced transaction fees and no credit facility fees.

Disadvantages

- Limited to 33% of project costs.
- Direct loans may not be attractive for stronger (high-rated) projects with access to the tax-exempt market.
- TIFIA makes the entire project subject to federal rules, including NEPA.

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Investor Pros and Cons of TIFIA

Advantages

- Direct loan strengthens senior bondholders' security by shifting up to 33% of borrowings to a junior position.
- Loan guarantee secures bondholders with pledge of the U.S. government.
- Line of credit provides supplemental capital to mitigate revenue "ramp-up" risk.
- Co-investment by federal government indicates public sector commitment to and due diligence on the project.

Disadvantages

- For weaker (low-rated) projects, the "springing lien" may erode the functional subordination of TIFIA assistance.
- Co-investment by the federal government does not imply any U.S. backing of the non-TIFIA debt (TIFIA assistance mitigates but does not eliminate project financing risks).

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Federal Policy Pros and Cons of TIFIA

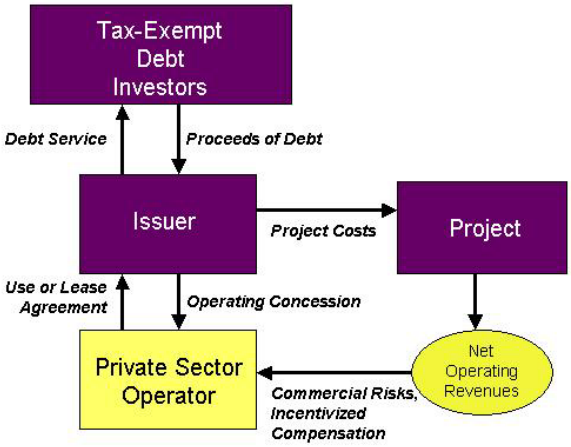
Advantages	Disadvantages
✦ Substantial leverage both internally (fractional risk-scoring) and externally (federal share 33% or less).	✦ Federal government generally is opposed to taking a subordinate lien position.
✦ Costs only 5 cents per dollar lent, on average.	✦ TIFIA assistance for non-project financings may displace rather than induce capital markets participation.
✦ Substantial co-investment by private sector helps ensure fiscal discipline.	✦ "Procrustes' Bed" syndrome: credit applicants are either too risky or too well off, meaning program assistance is either inadvisable or unnecessary!
✦ Investment grade requirement for senior debt limits federal exposure.	
✦ Facilitates large project financings with significant public benefits.	



3. New Methods of Project Delivery: Private Activity Bonds

- ✦ Proposed tax code change (S. 870 – The Multimodal Transportation Financing Act, or "Multitrans").
- ✦ Authorizes certain highway, transit, rail and intermodal projects with ongoing private participation to issue tax-exempt private activity bonds (exempt from volume caps).
- ✦ Allows for-profit companies to share in commercial risks and rewards of projects through long-term management contracts.
- ✦ Permits 2 advance refundings for revenue bond-financed projects (vs. one or none under current law).

Flow Chart of Private Activity Bonds



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Project Sponsor Pros and Cons of Private Activity Bonds

Advantages	Disadvantages
Tax-exempt debt is cheaper (20-25% interest savings in p.v. terms).	Must adhere to IRS requirements concerning investment yields, permitted uses, etc.
Broader universe of investors in the tax-exempt market who understand infrastructure projects.	May not be a deep enough subsidy in and of itself to advance larger, more complex projects.
Familiar funding mechanism to most state and local governments.	
Private participation in development and/or operation aligns motives and reduces costs and risks.	

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Investor Pros and Cons of Private Activity Bonds

Advantages

- Slightly higher yield (approx. 0.10%) due to the Alternative Minimum Tax.
- Reassuring participation of the government in the project approval process through issuer conduit, franchise award, etc.
- Alignment of interests between private developer / operator and investors.
- Potential co-investment by vendors and other project participants.

Disadvantages

- Bonds likely to be non-recourse to the issuer (no "deep pocket").
- Perception of riskier tax status than for governmental purpose bonds.

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Federal Policy Pros and Cons of Private Activity Bonds

Advantages

- Encourages private investment (and associated benefits / efficiencies) in public infrastructure with little administrative cost.
- Levels the playing field by providing the same tax incentives for all modes of transportation.
- Budget scoring *should* be minimal, since much of the financing activity should be a substitution for governmental purpose bonds.

Disadvantages

- Some policymakers see tax-exempt bonds as an inefficient subsidy, since the federal revenue loss exceeds the interest savings benefit to the borrower/issuer.
- Despite the likely "substitution effect," significant tax expenditures are scored against such proposals (up to $18m per $100m of bonds over 10 years).

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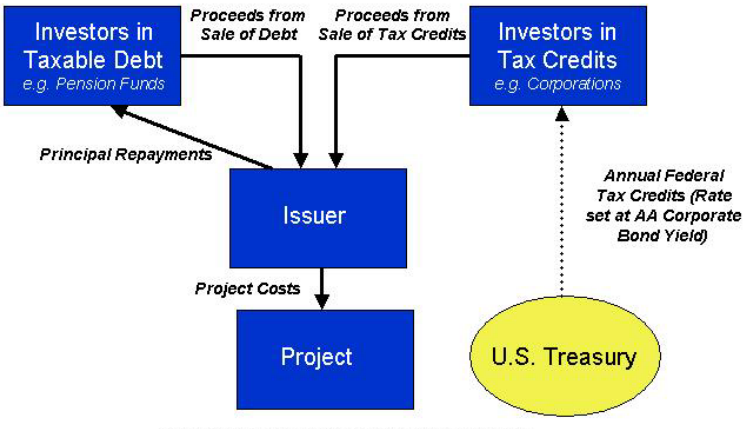
4. New Types of Financial Return: Tax Credit Bonds

- Proposed tax code change (S. 250 – The High-Speed Rail Investment Act of 2001) to provide annual federal tax credits to bond purchasers.
- Investors would receive annual tax credits in lieu of cash interest payments from the issuer.
- Tax credit would be set at mid investment grade corporate bond yield (e.g. 6.50%) and would be taxable.

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Flow Chart of Tax Credit Bonds

(assuming interest is split from principal)



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Project Sponsor Pros and Cons of Tax Credit Bonds

Advantages	Disadvantages
✦ 0% effective cost of borrowing represents approximate 50% total savings in p.v. terms.	✦ Limited investor familiarity may hinder marketability of bonds.
✦ Potential for accessing new category of institutional investors for infrastructure projects – Pension Funds.	✦ Program volume is controlled by Congress, rather than issuers (as with tax-exempt bonds).
✦ Doesn't compete with issuer's traditional investor base.	

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Investor Pros and Cons of Tax Credit Bonds

Advantages	Disadvantages
✦ Should be of reasonably high credit quality, since there is no risk of payment default on the "interest" portion (the tax credit).	✦ Non-cash nature of the interest component limits marketability.
✦ If principal de-coupled from tax credits, opportunity for pension funds to diversify into the infrastructure sector.	✦ New instrument with limited volume lacks an active secondary market, if investor needs to sell due to change in its tax position.
	✦ May face tax risk, if issuer fails to meet federal requirements of the program.

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Federal Policy Pros and Cons of Tax Credit Bonds

Advantages

- Little administrative cost compared to grant and credit programs.
- Some policymakers believe tax credit bonds are a more efficient subsidy than tax-exempt bonds – borrower gets 100% of tax benefit.
- May reduce muni bond tax expenditures, to the extent it substitutes for issuance of tax-exempt bonds.
- New form of public-private partnership, new source of capital for public infrastructure.

Disadvantages

- Compared to tax-exempt bonds, much deeper subsidy (50% vs. 10% debt service savings to borrower) with higher tax expenditures.
- Tax expenditures scored at up to $46m per $100m of bonds over 10 years.

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Innovative Finance Comparator

Finance Mechanism (Policy Tool)	Type of Federal Policy Incentive	Key Benefit of IF Tool to Project Sponsor	Cost of Funds to Project Sponsor	Federal Budgetary Cost (per $100m borrowed)
GARVEE Bonds (20-yr, "A" credit)	Regulatory Reform	Enables States to monetize future Federal grant receivables	4.80%	10 Yr Cash: $79m 20 Yr PV: $100m
TIFIA Instruments (35-yr, "BB+" credit)	Federal Credit	Provides supplemental & subordinate capital for large projects	5.00%	10 Yr Cash: $5m 35 Yr PV: $5m
Private Activity Bonds (20-yr, "A" credit)	Tax Code Change	Allows projects with private participation to access lower interest rates	4.90%	10 Yr Cash: $18m 20 Yr PV: $19m
Tax Credit Bonds (20-yr, "AA" 6.5% credit)	Tax Code Change	Cuts effective financing cost in half by eliminating interest expense	0.00%	10 Yr Cash: $46m 20 Yr PV: $57m

APPENDIX B: FINDINGS & RECOMMENDATIONS: A ROUNDTABLE DISCUSSION OF CALIFORNIA'S EXPERIENCE WITH INNOVATIONS IN PUBLIC FINANCE, THE NATIONAL CENTER FOR INNOVATIONS IN PUBLIC FINANCE, UNIVERSITY OF SOUTHERN CALIFORNIA, APRIL, 2001.

[December 13, 2000]

FINDINGS AND RECOMMENDATIONS, REPORT PREPARED BY THE UNIVERSITY OF SOUTHERN CALIFORNIA, NATIONAL CENTER FOR INNOVATIONS IN PUBLIC FINANCE

A ROUNDTABLE DISCUSSION OF CALIFORNIA'S EXPERIENCE WITH INNOVATIONS IN PUBLIC FINANCE: FINDINGS, RECOMMENDATIONS AND PROCEEDINGS: IMPLICATIONS FOR FINANCING OUR NATION'S INFRASTRUCTURE

(Edited by Daniel V. Flanagan, Jr.; Director, David Seltzer, Distinguished Practitioner, USC; Sarah Layton, President, Advancing Infrastructure, LLC)

UNIVERSITY OF SOUTHERN CALIFORNIA,
NATIONAL CENTER FOR INNOVATIONS IN PUBLIC FINANCE,
Los Angeles, CA April 2, 2001.

DEAR FRIENDS: On December 13, 2000, the University of Southern California hosted a Roundtable policy discussion at USC's Sacramento Center entitled "California's Experience with Innovations in Public Finance." The program was sponsored by a grant received from the United States Department of Transportation. The National Center for Innovations in Public Finance, located within USC's School of Policy, Planning & Development, served as the host coordinator.

As the Director of the National Center, it is my pleasure to enclose a summary of Findings, Recommendations and Proceedings elicited from the participants at the Roundtable. Approximately 75 experts, drawn from governmental, academic and business organizations within California and throughout the country, were in attendance.

The National Center for Innovations in Public Finance is dedicated to exploring how new development and financing techniques involving public-private partnerships could contribute to addressing the nation's infrastructure challenges at the national, State and local levels. We believe sthat many of the ideas and recommendations generated at the Roundtable could serve as important references in future public policy decisions.

For those interested in a more complete record of proceedings, a videotape of the conference as well as a summary of each speaker's remarks may be obtained through the National Center. We would welcome any comments you might have on the Roundtable. I would like to thank the entire faculty and staff at the USC Sacramento Center for their support of this valuable effort.

Sincerely,

DANIEL V. FLANAGAN, JR., *Director*
National Center for Innovations in Public Finance

UNIVERSITY OF SOUTHERN CALIFORNIA

The USC School of Policy, Planning, and Development (SPPD) builds on the strengths of two premier professional schools to address the dynamic intersects of the public, private and nonprofit sectors. Launched on July 1, 1998, the new School combined the former nationally ranked schools of Public Administration and Urban Planning and Development and offers degrees in five core areas—public policy, planning, public administration, health administration and real estate development.

The School's primary mission is to cultivate leaders—the ethical men and women who will design and build our communities, reshape our governmental structures and processes and rethink the relationship between government, citizens and business. We accomplish this in three important ways: teaching that prepares students to lead, shape and manage in the evolving new 21st century world order; research that takes advantage of and contributes to Southern California, the State, the Nation and the world; and action that yields insights and offers solutions to pressing societal problems.

The USC Sacramento Center, located at 1800 I Street, Sacramento, offers Master programs in Public Administration, Health Administration, and Planning and Development. The Center also offers leadership training programs. For more information about the Center and additional programs, please visit www.usc.edu/sacto.

The National Center for Innovations in Public Finance was established in 1999 to promote research and instruction in the field of infrastructure finance. Housed within USC's School of Policy, Planning and Development, the National Center draws upon USC academic faculty and distinguished practitioners from the public and private sectors to teach courses, conduct research projects and provide advice on key public policy issues. The Founder and Executive Director of the National Center is Daniel V. Flanagan, Jr. who has been centrally involved in framing national policy in the areas of deregulation of utilities and in transportation finance.

This report was prepared as part of a project sponsored by the University of Southern California with funding from the Federal Highway Administration, under the terms of a cooperative agreement. The views expressed herein are those of the conference speakers, participants and authors of this report and do not necessarily represent the views of the University of Southern California or the Federal Highway Administration.

INTRODUCTION

Ten years have passed since the first toll road franchises were awarded by the California Department of Transportation in December 1990, under Assembly Bill No. 680 (A.B. 680). To date, only one of the four projects selected through that process-the SR 91 Express toll lanesactually has been built and is operational. Yet this landmark legislation and other initiatives across the State for highways, seaports, transit, intercity rail, and airports have made California the nation's leading incubator for using public-private partnerships to develop, finance and manage transportation facilities and services.

The California experiment with public-private partnerships has seen a number of new approaches used to deliver and manage transportation projects. In the highway sector, in addition to the SR 91 project, three major new toll roads have combined design-build development teams, a project-finance approach, and Federal credit assistance: a second AB 680 franchise—the SR 125 toll road south of San Diego, which is scheduled to come to market during 2001—as well as two new toll roads developed in the mid–1990's by the Orange County Transportation Corridor Agencies.

In the transit sector, major new capital investments such as the BART Airport Extension and the recently awarded Los Angeles-Pasadena light rail line have drawn upon novel design-build procurement techniques. The Alameda Corridor freight rail project represents a unique joint venture between two major rail carriers, the Ports of Long Beach and Los Angeles, and numerous other local, State and Federal stakeholders. Several new private sector initiatives are being pursued across the State in the aviation sector.

Outside of California, one sees unmistakable evidence both in other States and at the Federal level of greater willingness to experiment with innovative public-private approaches to address infrastructure investment needs. Taken together, these developments indicate that the evolution-if not the revolution—is well underway in how large infrastructure investments are being developed and financed.

With a decade's experience in California, it is timely to look back and candidly assess the strengths and weaknesses of using public-private partnerships for major transportation projects.

Among the questions that need to be explored are:

- What kinds of projects are most suitable for public-private partnerships?
- Are public policy objectives adequately being served through these public-private approaches?
- Have there been demonstrable advantages in terms of expedited project completion, greater cost-effectiveness, or reduced public sector risk?
- What are the appropriate roles for the public and private sectors at various stages of each project's development?
- Does the current development process properly balance social objectives such as environmental considerations and fair labor practices with capital investment needs?
- Which institutional models and capital structures appear to work best in terms of both economic efficiency and social equity?

The lessons learned from California's experience—as well as that of other States and from recent Federal activities—could provide valuable insights into what new policies to consider for the upcoming State of California budget considerations and for the Federal reauthorization of the TEA–21 transportation bill in 2003.

POLICY DRIVER I: ASSESSING THE STATE OF THE STATE

The State Economy

California's economy-really a series of major regional sub-economies-has changed dramatically in recent years. The State domestic product is now of similar magnitude to the gross national products of major Western European trading partners such as Italy, the United Kingdom, and France. Moreover, California has been the epicenter of the e-economy. And yet, as profound as the emergence of e-commerce has been, the "new" economy is very much dependent on the infrastructure of the "old"; businesses are increasingly reliant upon timely delivery of goods and services. At the same time, the mobility of e-business, which allows employers to locate their places of employment "virtually" anywhere, makes good transportation links critical if the State is to remain an attractive venue for these high value enterprises. The State's population is expected to grow by another 10 million residents by 2020, placing further burdens on aging transport infrastructure systems to move people and goods safely, quickly and cost-effectively.

Past State Investment Policy

Investment in transportation infrastructure within the State has not kept pace with either the growth of population or the increase in travel demand. California's per capita investment in transport has declined by two-thirds in real terms since the 1960's. Forty years ago, transportation spending represented 23 percent of the State budget; today, it comprises about 6 percent. One of the major reasons for underinvestment has been the fiscal constraints of the tax limitation measures enacted in the 1960's and 1970's. The current electricity crisis has also added a new uncertainty as to budgeting for transportation.

Presently, there is no exclusive dedicated State funding source for transportation, so it has had to compete with other governmental and social service programs for annual funding through the political process. Because of the lengthy lead-time required to develop major infrastructure projects, such investments are dependent upon stable and reliable long-term funding commitments. And, as with the electricity sector, new capital formation has been curtailed because of increased concerns about environmental issues. As a result, transportation services have deteriorated dramatically. For example, the time lost by the average motorist due to freeway delays has doubled over the last decade. Prospects for the future are problematic: Many of the county local option sales taxes adopted in the 1980's for transportation funding expire over the next several years, yet their extension by voters is uncertain.

Recent Initiatives

The State has taken several positive steps in recent months to address these concerns. The Governor's Commission on Building for the 21st Century will soon publish the results of its 18month survey of California's infrastructure investment needs. The final report is expected to cite that California today has over $100 billion in unmet transportation investment needs.

Even prior to the completion of the Commission's report, the State had started leveraging its available funding through mechanisms such as the California Infrastructure and Economic Development Bank and Grant Anticipation Revenue Vehicles (GARVEEs). The Bank is a new $475 million State loan revolving fund designed to make loans to small and mid-sized transportation and other infrastructure projects. GARVEE Bonds, which were authorized by the State legislature last year, are a form of non-tax backed borrowing in anticipation of future year's grant assistance from the Federal Department of Transportation. Another important advance is the enactment of bill A.B. 1473, under which the State would begin preparing annual Five-year Capital Facilities Plans to better integrate capital planning and financial policy decisions.

Yet these measures by themselves will not be sufficient to overcome past years' underinvestment. Simply stated, more resources must be identified, collected and committed. And the State needs to consider how best to leverage these finite resources most effectively. California's recent electricity crisis has underscored the importance of a comprehensive State strategy that responds to market signals as conveyed through the pricing mechanism, to ensure a proper balance between supply and demand. Public-private partnerships (PPP' s) can play a key role in helping solve the problem-especially for the larger, more complicated projects.

Issues to be Addressed

Conferees identified the following issues currently confronting State policymakers:

• There is a clear need for better planning of capital investments-specifically, more closely relating State transportation spending policy to State land use and housing policy. The State should integrate its planning and funding strategies for water systems, drainage, waste management and public buildings with its transportation investment decisions.

• The current allocation formula under S.B. 45 distributes 75 percent of State transportation funding to the metropolitan planning organizations and retains 25 percent to be administered at the State level. This regional emphasis, while valuable in vesting investment decision authority with metropolitan organizations, makes it difficult to address statewide transportation issues on a comprehensive and systematic basis. For example, it is difficult to coordinate actions for inter-regional investments such as intercity high-speed rail or regional airport systems to relieve congestion at heavily used facilities.

As zoning is a local matter, the MPO's cannot control land use policy decisions at the municipal level. Fractionalized zoning policy at the local level often leads to a disconnect between infrastructure planning efforts and actual development activities.

• The plan of finance for new capital projects should explicitly identify not only how to finance upfront acquisition costs but also how to pay yearly operating and maintenance costs over the projects' useful lives. The financial interdependence between asset acquisition and asset maintenance must be firmly established at the outset. The initial capital investment decision should be based upon Life-Cycle Costing, taking into account the best value for money over the long-term economic life of the asset.

• To the extent tax sources fall short, the State should explore user fees, since they send a clear market signal about consumer demand for goods and services. To the extent there are "free" transportation alternatives (such as a freeway with tolled express lanes), the user charge allows individuals to make an economic decision as to whether the timesavings and convenience of the tolled facility are worth the cost. User charges also free up limited grant funds for those projects that are important for reasons of social equity or public policy, but are not financially self-sustaining. By freeing up capacity on non-tolled facilities, user charges actually may benefit those who are not in a position to pay. Ideally, these charges would reflect the user's actual consumption of transportation services, such as fees based on weight-distance or vehicle miles traveled. The challenge in establishing user charges is discerning the benefits that accrue to society as a whole from the benefits accruing to the individual user or some narrower group of beneficiaries.

• In addition to direct user charges, indirect user charges such as supplemental gas taxes, capacity charges on Alternative Fuel Vehicles, and the extension of expiring local option sales taxes also deserve consideration. Once the underlying funding sources are in place, policymakers can select which tactical financing techniques would be most effective.

POLICY DRIVER II: DEFINING ROLES AND RESPONSIBILITIES IN A PUBLIC-PRIVATE PARTNERSHIP (PPP)

For the overwhelming majority of transportation projects and services, traditional governmental ownership, operation and financing will continue to be the most appropriate approach. However for some types of projects-especially those that are large or complex-a joint venture between the public and private sectors may prove advantageous. The non-profit sector may also play a significant role in the institutional structure.

Reasons to Consider PPP's

State and local governments around the country are turning to joint ventures with private sector organizations to meet their capital needs. They are doing so for a variety of reasons, including:

• Production Efficiency. Oftentimes, private firms can build projects faster (if not cheaper), using design-build and other innovative procurement techniques.

• Operating Efficiency. Complex projects may be managed more efficiently, due to greater expertise with innovation and technology, the presence of commercial competition, and the incentive of performance-based compensation.

• Risk Transfer. Private firms may be willing to assume certain risks from the governmental project sponsor as concerns construction, performance, or demand for the facility. However, the private sector should not be viewed as the ultimate repository for all project risks-only for those exposures which are of a business (as opposed to regulatory or political) nature.

• Access to New Sources of Capital. Private firms may be able to help identify new sources of project revenues that can be monetized. In addition, the private sector partners may be willing to invest directly in projects or draw upon other funding sources not typically employed in conventional municipal financing of projects.
• Simplified Project Management. Out-sourcing responsibilities to third party providers should reduce the governmental unit's need for staffing up during construction and allow the organization to maintain its institutional focus on current operations.

Features that make a Project a Good PPP Candidate The following project characteristics lend themselves to a PPP:

• Size and/or complexity issues, which neither the public nor the private sector could resolve adequately on their own.
• Widely acknowledged need for the project (public acceptance).
• Equilibrium and trust among the various public and private stakeholders in the project. Central to achieving this goal is obtaining financial commitments from both public and private participants, to align their interests (i.e., ensure that both public and private participants are "sitting on the same side of the table").
• A governmental sponsor with the policy and legal infrastructure to see the process through.
• Clear demarcation of responsibilities of different parties for securing public approvals, environmental clearances, etc.
• A dependable and bankable revenue stream.
• The "tummy test"—an intangible sense that the project "feels right," being structured as a PPP.

Key Issues Confronting PPP's

While joint ventures can confer substantial benefits, several sensitive public policy issues need to be addressed early on in the project development process:

• Labor Policy. At least for larger capital projects in California, the issue in construction is not labor wage levels, (Davis-Bacon) but labor availability. There is a dearth of qualified workers to build and manage complex projects. Concerns about displacement of governmental workers in PPP's generally can be resolved.
• Unsolicited Proposals. The A.B. 680 program of 1990 has seen one of the four projects built and become operational (SR91 in Orange County). The second project (SR 125 near San Diego) is expected to be financed in spring of 2001. A third (Santa Ana Freeway) is still in the planning stages, and the fourth has been tabled. Each of these projects was identified and advanced by private development teams, not by metropolitan planning organizations (MPO's) or the State. Yet private sector identification and sponsorship of projects is not a problem per se. What is imperative, however, is that the projects be placed on State transportation plans and supported by the host governmental jurisdiction.
• Procurement Rules. In California (as in most States), prevailing law generally does not permit design-build procurement. For the handful of major projects done thus far in California using design-build, either special legislation was required or special legal authority was available. A.B. 680, for example, expressly authorized design-build for its four pilot highway projects. Two measures enacted by the legislature last year, A.B 958 and A.B. 2296, allow design-build to be used by transit agencies and certain counties for larger projects.

Another approach is to establish a Joint Powers Authority, which can draw upon the inherent powers of one of its sponsoring local governmental units to use design-build, as was the case with the Alameda Corridor freight rail project.

At the Federal level, although TEA–21 has liberalized the procurement rules for federally assisted projects, contractors under the National Environmental Protection Act still are prohibited from having an interest in the ultimate development of a project. This rule generally prevents construction firms that assist projects in their environmental review process from continuing to be involved in design and construction. It results in a loss of continuity and discourages entrepreneurial efforts in the critical developmental phase of potential projects.

• Environmental Risk. Environmental permitting and governmental approvals are inherently political processes. Although private developers can play a valuable role in synthesizing the project design with the environmental review process, they are ill equipped to absorb what fundamentally are non-business risks. Moreover, in contrast to other environmental statutes such as the Clean Air and Clean Water Acts, there is no statute of limitations governing challenges to transportation projects under the National Environmental Protection Act. Unlike a decade ago, developers are now unwilling to assume the financial risk of public approvals in these early stages (as in SR 125).

• Exit Strategy. Most of policymakers' efforts thus far on PPP have been focused on developing projects and negotiating entrance strategies for private sector participation. Yet a fundamental requirement for attracting investment capital is liquidity. Insufficient attention has been given to the investor's exit strategy during the life of a franchise, including valuation of the asset or concession. Although there were a number of political issues surrounding the proposed sale of the SR91 franchise, at least part of the controversy was attributable to insufficient local input into evaluating the concession operator's desired exit strategy.

POLICY DRIVER III: SELECTING TOOLS TO GUIDE CAPITAL INVESTMENT

Benefits of Design-Build Procurement

As demonstrated by the two Transportation Corridor Agency toll roads built thus far (total investment of $3 billion) design-build (vs. traditional design-bid-build) can provide substantial benefits for larger projects:

• Simplified Project Management for the governmental project sponsors;
• Better Cost controls (reduced exposure to cost overruns);
• Faster Completion (a recent university study surveying major capital projects determined on average that design-build leads to 33 percent faster construction completion); and
• Base price of hard costs may be comparable or even slightly higher, but savings on soft costs and the other benefits described above often justify it.

Linkage between Investment and Ongoing Asset Management

The relationship between the initial project investment decision and periodic capital maintenance and renewal must be strengthened to preserve the value of the investment over time. On toll roads with a net revenue pledge, the rate covenant covers both capital recovery and operations and maintenance requirements.

For non-tolled facilities, this full-cost recovery can be achieved through synthetic mechanisms. For example, long-term performance warranties from the constructor can require that assets be maintained at a specified service level in exchange for an up-front or ongoing warranty fee.

Another approach, used in the United Kingdom and elsewhere overseas, involves shadow tolling. Under shadow tolls, an operator is paid a per vehicle fee by the governmental sponsor based on throughput, to build and maintain an asset at a defined level.

GASB Statement 34, going into effect for governmental units July 1, 2001, mandates more complete disclosure of governmental infrastructure assets, including recognition of depreciation expense if asset quality deteriorates. Warranties or shadow tolls would link capital investment with capital renewal, and help ensure that infrastructure assets are adequately maintained-both for accounting and transportation purposes.

Special Purpose Entities

California popularized the concept of creating new Special Purpose Public Agencies (like the Orange County Transportation Corridor Agencies, Alameda Corridor Transportation Authority, and LA-Pasadena Rail Construction Authority) to carry out infrastructure development on a project-finance basis. An alternative approach involves the formation of a special purpose notfor-profit corporation under Internal Revenue Service revenue procedure 63–20. For example, two recently opened several hundred million-dollar toll roads, the Pocahontas Parkway in Virginia and the Southern Connector in South Carolina, utilized 63–20 corporations to develop and finance the facilities. Having a singular mission, these entities bring a special focus to completing the projects.

POLICY DRIVER IV: COMPARING DIFFERENT TRANSACTION TEMPLATES

Institutional Models

There are a variety of organizational forms that can be used to advance infrastructure projects. They can be viewed as stretching along a continuum, ranging at one end as conventional public projects to the other end as fully commercialized facilities. The accompanying diagram illustrates four distinct positions along the spectrum from purely public to purely private. Projects can be categorized in terms of whether public or private parties share in the risks and rewards of development, operation and ownership.

INCREASINGLY PUBLIC—INCREASINGLY PRIVATE

The financing component is a discrete element but also may be classified as being either public or private. Financing is considered to be public if either:

a. the capital funding source for the loan or investment is public tax dollars (e.g. a governmental infrastructure bank, revolving fund or public pension fund capitalized with public funds); or

b. if the loan repayment source is derived from or guaranteed by public tax dollars (sales taxes, State Highway Fund moneys, Federal-aid supported, etc.).

On this basis, a loan funded by a State infrastructure bank, even if the borrower is a corporate entity, would be deemed "public financing." Likewise, a privately funded loan for a transit project developed and operated by a private consortium but payable from or guaranteed by the State transportation fund, would be considered public financing. On the other hand, a taxable or tax-exempt revenue bond sold into the capital markets and backed by user charges would be deemed "private," even though the obligations were issued by a public conduit (e.g. Transportation Corridor Agencies, Alameda Corridor). The ultimate determinant is whether public capital is at-risk, either in terms of the initial funding or the ultimate repayment of the obligation.

Matrix of Public-Private Transaction Templates

	Governmental Model	Turnkey Development Model	Warranty/Concession Model	Profit-Sharing Model
Examples of Projects.	LACMTA; Caltrans.	TCA; ACTA; BART Airport; Extn.	Hudson-Bergen; NM44.	Las Vegas Monorail; SR 91, Dulles Greenway
Development	Public	Private	Private	Private
Operation	Public	Public	Private	Private
Ownership	Public	Public	Public	Private
Financing	Public	Public or Private	Public or Private	Private

Models on the left of the table are increasingly public and models on the right are increasingly private.

The four principal financing templates are:

Governmental Model

Starting on the left side of the chart would be governmentally developed, owned and operated projects, using public tax dollars. Examples include Caltrans highway projects or other normal public works spending, either pay-as-you-go or debt financed, with the governmental unit responsible for funding operating and maintenance costs. The vast majority of transportation projects are developed in this fashion.

Turnkey Development Model

Of greater "private" character are turnkey financings, where the projects are developed under a guaranteed maximum price and guaranteed completion date by a private design-build team and then turned over to the governmental sponsor. Because of construction risk transfer, there are financial rewards and penalties to the constructors based upon performance. In some cases, the facilities are financed principally with project-generated revenues (project-financing) such as the San Joaquin Hills and Foothill-Eastern Toll Road projects developed by the Transportation Corridor Agencies in Orange County. In other cases, such as the BART airport extension, the projects are funded conventionally with public grants and local tax dollars.

Warranty/Concession Model

Farther along the spectrum to the right would be projects that are publicly owned, but use private parties not only for development but also for operation/maintenance of the facility. Generally, the compensation is based on a flat fee or a cost-plus basis, rather than a profit-sharing formula based upon the net revenues or patronage volume. The new Hudson-Bergen light rail line in New Jersey falls into this category. Under current tax law, the term and compensation for private management contracts associated with facilities financed with tax-exempt debt is severely constrained, diluting any incentives for superior performance.

Another way to get ongoing private participation without running afoul of the IRS management contract rules is through long-term performance warranties on the physical condition of the infrastructure assets themselves. For example, the New Mexico Corridor 44 road-widening project has entered into a long-term warranty with a private firm for the pavement and bridge structures extending up to 20

years. In both the Hudson-Bergen and the New Mexico 44 projects, the pledged repayment source for debt service is public moneys, not project revenues.

Profit-Sharing Model

Finally, at the far right end are fully commercial projects, involving private development, operation, and even ownership of the facility. Financing sources are largely or entirely project-based revenue streams, rather than public or tax-backed sources. Compensation to the operator is based upon utilization of the facility and/or net income, resulting in performance-based rewards. Major examples of this are the SR91 Express Lanes in Orange County, the Dulles Greenway in Virginia, and the Las Vegas monorail, currently under construction.

No single model or structure can be said to be "the best"; rather, the most suitable model will depend on facts and circumstances surrounding each particular project. Among the factors that will determine which approach is most appropriate are:

- political support for an alternative project delivery method;
- need for project cost and completion date certainty (which is particularly applicable to project financings);
- State law considerations (especially procurement regulations);
- Federal tax code implications (as concerns eligible financing instruments);
- commercial potential of the project, as reflected in capital markets acceptance; and
- degree of risk transfer to the private sector.

As noted above, projects need not be self-liquidating to benefit from a PPP approach. Concession arrangements for subsidized services such as public transport have proven successful overseas because incentivized performance for private operators can produce better service, lower public subsidy, and greater cost transparency. For instance, Melbourne, Australia achieved these enhancements in out-sourcing operations of its commuter rail network.

Nor is a commercial or "privatized" approach incompatible with a cooperative working arrangement with organized labor. In fact, both the management team and the union work force can benefit from entering into a project labor agreement at the outset of the project that squarely addresses prevailing wages, non-disruption of work schedule, and other features that will facilitate the timely, on-budget completion of a high-quality project.

Historically, most transportation projects have been funded either through governmental grants (public equity) or tax-supported municipal bonds (public debt), since these have represented the lowest cost sources of capital. However, there are alternative sources of private sector equity and debt capital that may be drawn upon for infrastructure projects with steady cash-flows linked to economic growth. Low tax bracket institutional investors such as life insurance companies and non-taxable pension funds would benefit from being able to diversify into a new economic sector that presently is absent from their portfolios. Because the major financial vehicle for infrastructure has been tax-exempt bonds, it has not been appropriate for pension funds as tax-exempt entities to purchase such paper when higher-yielding corporate bonds of equal quality are available.

However, several recent developments have lowered the relative funding cost of taxable debt and equity:

- The Federal budget surplus has reduced the supply of Treasury bonds, lowering the benchmark against which taxable paper is priced, relative to municipal bonds.
- Pension funds and insurance companies have gained greater familiarity with project financings, through investing in debt and equity in overseas infrastructure projects and domestic power generation facilities. They are now willing to accept longer term debt obligations with minimal amortization in the early years, cushioning the cash-flow impact on project revenues.
- New Federal programs such as TIFIA (the Transportation Infrastructure Finance and Innovation Act of 1998) provide debt capital on terms which in some cases are even more favorable than those in the municipal bond market. Other proposed legislation such as tax credit bonds would allow de-coupling of the principal from the interest portion, creating a stand-alone taxable debt instrument suitable for retirement funds.
- Finally, even though infrastructure projects are highly capital intensive, cost savings on the operating side from private participation may partially offset the higher capital costs of taxable rate financing.

Taxable Investment Funds. Together, these factors are combining to reduce the disparity in funding cost between the taxable and tax-exempt markets. As a result, project sponsors may now find that it is cost-effective to seek out pension funds and

other taxable market investors to invest equity and debt capital in project financings. As corporate, union and public retirement systems represent $5 trillion in investment assets, even allocating a small portion of their portfolios to invest in U.S. transportation infrastructure could have significant ramifications. They could invest either directly or through pooled investment accounts similar to mutual funds.

"Innovative Finance" Techniques

Innovative approaches that involve PPP's to develop, operate or own transportation assets will lend themselves toward using innovative financing techniques. "Innovative Finance," while not a panacea, can help address these capital investment needs once the underlying payment source for the project has been identified.

Innovative Finance can be defined as the use of external financing approaches that draw upon at least one of the four following elements:

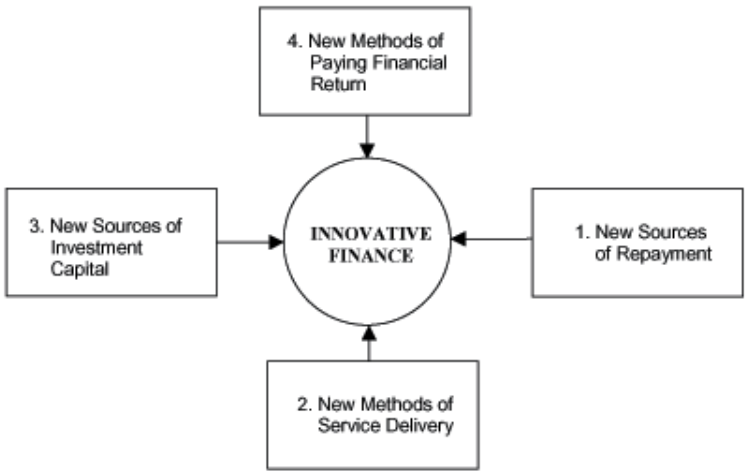
1. New Sources of Repayment that haven't previously been used to secure external financing.

2. New Methods of Service Delivery that offer development, production or operational efficiencies.

3. New Sources of Investment Capital that broaden the funding alternatives for transportation projects beyond conventional tools.

4. New Methods of Paying Financial Return to investors, that either reduce effective financing cost for the project sponsor or shift risks (such as interest rate and financial risk) to third party investors, or do both.

Diagram of Elements Comprising Innovative Finance



Participants at the Roundtable suggested a number of innovative finance ideas relating to repayment streams, service delivery, funding sources, and investment return:

NEW SOURCES OF REPAYMENT

State & Local Taxes

- Extension of Local Option Sales Tax
- New Tax on Alternative Fuel Vehicles
- Inflation adjusted Gas Tax
- Other User-related fees (e.g. weight-distance)
- Non-user related Taxes (internet/mail order sales tax, property transfer tax, etc.)
- A defined percentage of State General Fund Revenues

Other

- Shared revenue from fiber optics, etc. along State rights-of-way

- Tobacco Funds
- State version of GARVEE Bonds (using counties' share of State Gas tax allocation)
- State-aid Intercept mechanism to credit enhance local bonds
- Development Risk Insurance

New Methods of Service Delivery

- Broaden application of innovative procurement techniques such as design-build.
- Modify transit requirement 13(c) [consent required of DOL and local unions to proposed project labor agreements] to make it easier for transit agencies to outsource existing operations/capital improvements via tendering routes to concessionaires.
- Liberalize the management contract rules or seek tax code change (private activity bonds for highways) to allow performance-based compensation to private operators of toll facilities financed with tax-exempt debt.
- Permit outsourcing of highway maintenance activities or enter into long-term warranties to guarantee defined service standard levels of State highways under GASB Statement 34.
- Change statute of limitations under NEPA for challenges, so that it is consistent with other environmental statutes (e.g. within 60 days from the Record of Decision).

New Sources of Investment Capital

- Public (State and local) Pension Funds and Taft-Hartley (union) Pension Funds, investing either directly or through pooled accounts.
- Leveraged Leasing (domestic and cross-border tax-oriented equity).
- Extend TIFIA beyond 2003.
- Reduce threshold project size below $100 million for TIFIA assistance, to make it consistent with the lower thresholds in TEA–21 for using design-build (e.g. $50 million).

New Methods of Paying Financial Return

- Tax Credit bonds (interest paid by U.S. Treasury in the form of a tax credit to the investor).
- Shadow Tolls (per vehicle compensation to private concessionaire).
- Variable Rate bonds for State transportation borrowings to hedge interest rates.

Government Policy Tools

Historically, the public sector has used direct governmental spending to expand transportation capital investment. However, where innovative finance and public-private ventures are involved, it may be possible to generate additional investment through less costly means. To encourage the foregoing innovative finance techniques, the government sector may use these policy tools:

1. Regulatory Incentives-streamlining procedures, removing program restrictions, etc.;

2. Tax Incentives-using the tax code to encourage the free flow of capital into certain desired investment and operational activities; and

3. Credit Incentives-using fractional credit assistance (direct loans or loan guarantees) to leverage a larger multiple of private financing.

Each of the suggestions under the four innovative financing tools may be addressed through regulatory, tax, or credit policy initiatives.

CONCLUSION: ENCOURAGING CONTINUED INNOVATION

The following policy recommendations emerged from the Roundtable discussion:—Process Streamlining. Process reform was recommended in three areas:

- State procurement practices should be simplified for public-private partnerships;
- Regional financing protocols with Federal agencies need to be supported; and
- Environmental review processes should be consolidated with public agency responsibility.

Environmental Risk. Project-based financings must have time-certainty and cost-discipline to attract private debt and equity capital. Because securing environmental and public permitting approvals is fundamentally a governmental rather than a commercial process, the private sector is not equipped to assume the financial re-

sponsibility for obtaining the environmental record of decision. The time period for challenges to projects' environmental impact statements under NEPA should be made consistent with other environmental statutes.

Co-Investment by Public & Private Sector. User fees can be both an effective and equitable way of generating project-funding streams. However, in most cases, project-generated revenues alone will not be sufficient to fully finance the projects. Some level of public investment will be required, and it needn't take the form of contributed capital. For instance, the Alameda Corridor has four distinct layers of debt investment-first tier capital markets, second tier TIFIA loan, third tier capital markets, and fourth tier port loans-as well as lesser amounts of Federal, State and local grant funding. In addition to reducing the burden on project revenues to cash-flow the private investment, public co-investment is useful in that it gives all parties a financial stake in the commercial success of the enterprise.

Subsidy Level. Even where an external operating subsidy is required (e.g. public transit or freeway maintenance), the public sector doesn't have to provide that service. As has been demonstrated overseas, there may be substantial reductions in public subsidy required and/or enhancement of service levels through selective outsourcing of operations to private parties.

Special Purpose Agencies. Major capital projects can benefit by establishing a special purpose entity to undertake development and operations, whose sole responsibility is the project. The organization, which could be a legislatively established new authority, a joint powers authority formed by several jurisdictions, or a private non-profit corporation formed by the principal public and private stakeholders, helps bring a singular institutional focus to completing the project on-time and within budget.

Design-Build. Larger or more complex projects often can accelerate completion and reduce construction and performance risk through design-build procurement. Yet State law may make it difficult to proceed on any other basis than design-bid-build, with its attendant delays and lack of accountability. Also, State and Federal law should allow a contractor to participate in both the environmental analysis of a project and its subsequent construction, to gain the benefit of their continued involvement from project inception to project completion.

Linking Investment & Maintenance. Reliable funding of ongoing project operations and maintenance costs must be identified at the outset, to ensure the best capital investment decision is made. Among the institutional arrangements that can foster this Life-Cycle Costing perspective are long-term franchise agreements (for toll facilities) or shadow toll agreements (for free facilities); or long-term warranties stipulating that specific asset quality levels be maintained over the life of the project.

Role of Innovative Finance. Once a project's revenue stream has been identified, innovative finance techniques can assist in capitalizing the value of the future project revenues to fund the investment today. Federal, State and local policymakers can use regulatory, tax and credit incentives to encourage the use of new financial instruments. The financial tools themselves may draw upon one or more of the following mechanisms: new repayment streams, new procurement methods, new sources of investment capital, and new methods of a paying financial return. Given that many of these financing approaches already are in use in the private sector, a more apt name for "innovative finance" might be "project-based finance."

Continuing Education. Presently, there is very little offered in the way of organized educational programs on the use of PPP's for infrastructure development. The dearth of relevant training extends both to entry-level candidates for public or private positions (Masters programs) and to mid-career corporate and governmental practitioners. An ongoing university-sponsored program on new project development and financing techniques could prove highly useful in further developing both public and private sector management skills in this growing and dynamic discipline.

Table 1: Key Drivers on Innovative Finance Proposals for Project Sponsors, Investors and Federal Policymakers

PERSPECTIVE KEY QUESTIONS PROJECT SPONSOR/BORROWER

- What is the effective financing cost (IRR)?
- How high is the Annual Payment Factor?
- Is the transaction reported as a direct or contingent liability on the Sponsor's balance sheet?
- What legal steps (State legislation, etc.) must be taken to utilize it?
- How difficult is it for Management to implement it?

Investor

- Is the risk-adjusted rate of return competitive?
- Is there a secondary market for the product (liquidity)?
- Are there other investment risks (tax compliance, call risk, etc.)?
- Will it help diversify the investor's portfolio exposure?
- Are there any other strategic reasons for investing aside from its return?

Federal Policymaker

- What is the proposal's budgetary cost?
- Is the finance tool cost-effective (how much leveraging of Federal resources)?
- What is the overall economic return (benefit/cost ratio)?
- How well does it achieve multiple Federal policy objectives?
- Improve Access
- Enhance Mobility
- Shift Risks away from the Government
- Attract Non–Federal Resources / Private Participation
- Accelerate Projects

RESPONSE OF DAVID SELTZER TO ADDITIONAL QUESTION FROM SENATOR BAUCUS

Question. Many of us are concerned about the continued viability of the Highway Trust Fund. That is, with increased fuel economy and incentives for alternative fuels, can the Trust Fund continue to meet our ever-increasing highway needs? In fact, in the MEGA–TRUST Act, I create a commission to look at the Trust Fund and its continued sustainability. When we talk about innovative financing for highways are we talking about a way to supplement the Highway Trust Fund or replacing the Trust Fund with this "new way of doing business?"

Response. Perhaps the most accurate answer is "a new way of doing certain types of business."

The vast majority of highway projects are not capable of generating their own revenue streams, and will continue to be reliant upon grant funding from Federal and State sources. That is why the findings of the National Surface Transportation Infrastructure Financing Commission proposed in S. 2678 will be so vital to policymakers in identifying ways to sustain the Highway Trust Fund in coming years.

However, the term "Innovative Finance" really encompasses a number of different initiatives that can help promote investment in the Nation's surface transportation system.

First, it references grant management techniques that give States greater flexibility in using existing Highway Trust Found resources. GARVEE Bonds are a good example of this; the total resources committed to highways are not increased, but projects can be greatly accelerated, through monetizing future streams of Federal receivables. Another example is State Infrastructure Banks and section 129 loans, where States may use Federal-aid apportionments to fund loans and provide other types of financial assistance.

Second, Innovative Finance connotes innovative procurement methods, such as design-build contracting, which can expedite projects, transfer risks to private parties, and/or save the project sponsor money. The pilot provisions for design-build contracting in TEA–21 provide an excellent vehicle for evaluating such alternative approaches. Further refinements, especially as concerns streamlining Federal approvals, would be beneficial.

Third, the term includes innovative asset management techniques that provide superior value-for-money over the long-term. Initiatives that encourage States to make project investment decisions with regard to the life cycle costing over the economic life of the project should be encouraged. For example, long-term warranties such as those New Mexico has used on its Corridor 44 project, or other long-term performance-based private management contracts, help ensure that the initial capital investment is maintained adequately to optimize its value.

Finally, Innovative Finance includes new financial instruments that either lower the cost of capital obtained from existing sources, identify new sources of capital, or do both. For instance, Federal credit programs such as TIFIA establish the Federal Government as a new source of debt capital on favorable terms for certain types of projects. This can make it easier for projects with their own revenue streams, such as toll roads, to access the capital markets for the balance of their needs. To the extent a project sponsor can more readily borrow against non-Federal revenue streams, the number of claimants on a State's apportionments is reduced.

Other new financial instruments, based on tax code incentives, can reduce the required cash outlays from traditional funding sources by providing a return to inves-

tors in the form of a non-cash tax benefit. Techniques such as tax credit bonds or tax-oriented leasing serve to attract debt and equity capital from private sources, again freeing up traditional revenue sources for other projects.

In summary, the combination of grants management, procurement, asset maintenance and financing techniques comprising "Innovative Finance" should be viewed as an important element of any national transportation policy. But it will never replace the need for a long-term strategy for augmenting Highway Trust Fund resources that are used to fund grants required by most surface transportation investments. Ultimately, the political process will determine the types and amounts of resources directed to the HTF, based on the desired level of investment activity and the perceived role of the Federal Government relative to State, local and other funding partners. .

STATEMENT OF PHYLLIS F. SCHEINBERG, DEPUTY ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS UNITED STATES DEPARTMENT OF TRANSPORTATION

Chairman Jeffords, Chairman Baucus, Ranking Members Smith and Grassley, and members of the committees: Thank you for holding this hearing today and inviting me to testify on Federal innovative finance initiatives for surface transportation projects. These financing techniques, in combination with our traditional grant programs, have become important resources for meeting the transportation challenges facing our Nation. Secretary Mineta, in his testimony last January before the Environment and Public Works Committee, indicated his desire to increase their application.

The Secretary stated that "Expanding and improving innovative financing programs in order to encourage greater private sector investment in the transportation system . . ." will be one of the Department of Transportation's core principles in working with Congress, State and local officials, tribal governments and stakeholders to shape the surface transportation reauthorization legislation. He remains steadfast in his support for these programs.

Defining "Innovative Finance"

Perhaps the first issue to address today is "What is innovative finance?" We increasingly hear the term used in the context of transportation projects, but what does it really mean? We at the Department apply the term to a collection of management techniques and debt finance tools available to supplement and expand the flexibility of the Federal Government's transportation grant programs. We see the primary objectives of innovative finance as leveraging Federal resources, improving utilization of existing funds, accelerating construction timetables, and attracting non–Federal investment in major projects. The quantifiable successes of such innovative finance are beginning to mount.

The July 2002 report entitled "Performance Review of U.S. DOT Innovative Finance Initiatives" states that Federal investments of $8.6 billion have helped to finance projects worth a total of $29 billion, a ratio of $3.40 invested for each Federal dollar. Of this $29 billion, more than 27 percent, or $8 billion, consists of debt that will be repaid from new revenue sources. Sponsors report that more than 50 projects were accelerated from 6 months to 24 years as a result of innovative financing compared to transportation grants. The total economic impacts of $91 billion nationwide represent benefits that have accrued more rapidly than ever possible using a pay-as-you-go method.

While these achievements demonstrate the value of innovative finance techniques and tools, they also deserve a realistic assessment in the context of the grant system, financed by the Highway Trust Fund, that provides the foundation of Federal financial assistance for surface transportation projects.

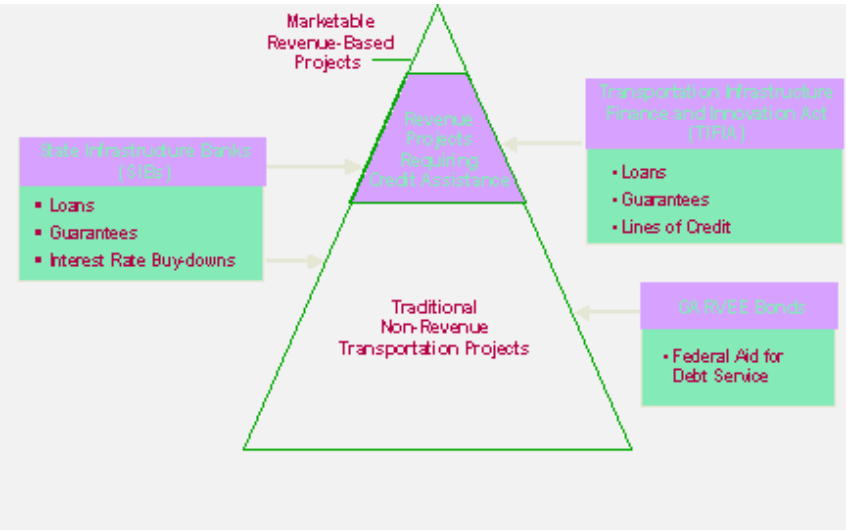
The first assessment in realism is to examine the "innovative" nature of the financial tools. Improving the flexibility of fund administration and creating opportunities to borrow and lend Federal money have been vitally important initiatives, and we can thank numerous role models outside the transportation sector for developing these tools long ago. The "new" or "innovative" feature of these tools, then, derives from their application to the Federal transportation program. Further, these financing techniques have now become better known and accepted by many State and local transportation partners. Because the demand for transportation investment throughout the country consistently exceeds the supply of resources, those regions facing the greatest challenges to mobility have readily embraced—and in many cases paved the way for—the opportunities provided by innovative finance.

The second assessment concerns the potential for innovative finance to ease demands on the current grant funding distributed each year to States and local agen-

cies. That doesn't seem likely. The focus of innovative finance (and perhaps a more appropriate term to designate these tools) is project finance. The techniques supplement existing programs on an as-needed, project-by-project basis. Transportation officials must evaluate each project individually to determine the best financing approach. The grant programs remain the bulk of Federal transportation assistance, supplemented by the extra muscle and flexibility of innovative finance.

The diagram below depicts a pyramid that illustrates the range of surface transportation projects and the innovative tools available for financing them. The base represents the majority of projects: those that rely on grant-based funding, but may benefit from measures that enhance flexibility and resources. Various Federal funds management techniques, such as advance construction, tapered match, and grant-supported debt through Grant Anticipation Revenue Vehicles, or GARVEEs, can help move these projects to construction more quickly. The mid-section represents those projects that can be partially financed with project-related revenues, but may also require some form of public credit assistance. State Infrastructure Banks (SIBs) can assist State, regional, and local projects through low-interest loans, loan guarantees, and other credit enhancements. State loans of Federal grant funds known as Section 129 loans represent another credit assistance technique. The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides credit assistance to a small number of large-scale projects of regional or national significance that might otherwise be delayed or not constructed at all because of risk, complexity, or cost. The peak of the pyramid reflects the very small number of projects able to secure private capital financing without any governmental assistance.

FEDERAL PROJECT FINANCE TOOLS FOR SURFACE TRANSPORTATION



The TIFIA Credit Program

Let me begin with the program that, through the leadership of the Senate during enactment of the Transportation Equity Act for the 21st Century (TEA–21), provides a direct role for the Federal Government to assist large transportation projects. In June 2002, the Department delivered its Report to Congress on the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA), which authorizes the Department of Transportation (DOT) to provide three forms of credit assistance—secured (direct) loans, loan guarantees and standby lines of credit—to surface transportation projects of national or regional significance.

The public policy underlying the TIFIA credit program asserts that the Federal Government can perform a constructive role in supplementing, but not supplanting, existing capital finance markets for large transportation infrastructure projects. As identified by Congress in TEA–21,". . . a Federal credit program for projects of national significance can complement existing funding resources by filling market gaps, thereby leveraging substantial private co-investment." Because the TIFIA pro-

gram offers credit assistance, rather than grant funding, its potential users are infrastructure projects capable of generating their own revenue streams through user charges or other dedicated funding sources.

Identifying a constructive role for Federal credit assistance begins with the acknowledgement that, compared to private investors, the Federal Government's naturally long-term investment horizon means that it can more readily absorb the relatively short-term risks of project financings. Absent typical capital market investor concerns regarding timing of payments and financial liquidity, the Federal Government can become the "patient investor" whose long-term view of asset returns enables the project's non–Federal financial partners to meet their investment goals, allowing the project's sponsors to complete a favorable financing package.

The TIFIA program's pragmatic challenge is to balance the objective of advancing transportation projects with the equally important need to lend prudently and protect the Federal interest. The DOT must apply rigorous credit standards as it fashions assistance to improve the financial prospects of participating projects. The Federal objective is not to minimize its exposure but to optimize its exposure-that is, to take prudent risks in order to leverage Federal resources through attracting private and other non–Federal capital to projects.

The TIFIA program assistance is meant to support expensive, complex and significant transportation investments. In general, a project's eligible costs must be reasonably anticipated to total at least $100 million. Credit assistance is available to highway, transit, passenger rail and multi-modal projects. Other types of eligible projects include intercity passenger rail or bus projects, publicly owned intermodal facilities on or adjacent to the National Highway System, projects that provide ground access to airports or seaports, and surface transportation projects principally involving the installation of Intelligent Transportation Systems (ITS), for which the cost threshold is $30 million. The TIFIA credit assistance is limited to 33 percent of eligible project costs.

Congress has authorized the DOT to provide up to $10.6 billion of TIFIA credit assistance through the TEA–21 authorization period of 1998–2003. From the Highway Trust Fund, Congress authorized $530 million, subject to the annual obligation limitation on Federal-aid appropriations, to pay the subsidy cost of TIFIA credit assistance and related administrative costs. The subsidy cost calculations establish the capital reserves which the DOT must set aside in advance to cover the expected long-term cost to the Government of providing credit assistance, pursuant to the Federal Credit Reform Act of 1990 (FCRA).

To date, the DOT has selected 11 projects, representing $15.7 billion in transportation investment, to receive TIFIA credit assistance. The TIFIA commitments total $3.7 billion in credit assistance at a subsidy cost of about $202 million. The DOT has received 38 letters of interest and 15 applications from project sponsors. All major categories of eligible projects—highway, transit, passenger rail and multimodal—have sought and received credit assistance. The TIFIA credit assistance ranges in size for each project, from $73.5 million to $800 million, mostly in the form of direct Federal loans from the DOT to the project sponsors. These projects are summarized in the table below.

TIFIA Commitments as of September 2002

Project	Project Type	Project Cost	Instrument Type	Credit Amount
Miami Intermodal Center.	Intermodal	$1,349 million	Direct Loan	$269 million
			Direct Loan	$163 million
SR 125 Toll Road	Hwy/Bridge	$450 million	Direct Loan	$94 million
			Line of Credit	$33 million
Farley Penn Station	Passenger Rail	$800 million	Direct Loan	$140 million
			Line of Credit	$20 million
Washington Metro CIP	Transit	$2,324 million	Guarantee	$600 million
Tren Urbano (PR)	Transit	$1,676 million	Direct Loan	$300 million
Tacoma Narrows Bridge	Hwy/Bridge	$835 million	Direct Loan	$240 million
			Line of Credit	$30 million
Cooper River Bridge	Hwy/Bridge	$668 million	Direct Loan	$215 million
Staten Island Ferries	Transit	$482 million	Direct Loan	$159 million
Central Texas Turnpike	Hwy/Bridge	$3,580 million	Direct Loan	$917 million
Reno Rail Corridor	Intermodal	$242 million	Direct Loan	$51 million
			Direct Loan	$5 million
			Direct Loan	$18 million
SF–Oakland Bay Bridge	Hwy/Bridge	$3,305 million	Direct Loan	$450 million

TIFIA Commitments as of September 2002—Continued

Project	Project Type	Project Cost	Instrument Type	Credit Amount
Total		$15,711 million		$3,704 million

Already limited by statute to 33 percent of total project costs, actual TIFIA assistance has averaged 23 percent of project costs. Including grant assistance, total Federal investment in TIFIA projects amounts to 43 percent of total costs. Investments from other government and private sources comprise the remaining 57 percent.

Because credit assistance requires a small fraction of the contract authority needed to provide a similar amount of grant assistance, TIFIA promotes a cost-effective use of Federal resources to encourage co-investment in transportation infrastructure. Federal grant funds that otherwise might be required to support these large projects can then be redirected toward smaller but critical infrastructure investments.

An explicit goal of the TIFIA program is to induce private investment in transportation infrastructure. Private co-investment in the TIFIA project selections totals about $3.1 billion, comprised of more than $3 billion in debt (including State and local debt held by private investors) and nearly $100 million in equity. This co-investment totals approximately 20 percent of the nearly $15.7 billion in total costs.

The DOT believes that a limited number of large surface transportation projects each year will continue to need the types of credit instruments offered under TIFIA. Project sponsors and DOT staff are still exploring how best to utilize this credit assistance, and we welcome congressional guidance and dialog during this evolutionary program period.

As stated in the Conference Report accompanying TEA–21 and TIFIA, "[a] n objective of the program is to help the financial markets develop the capability ultimately to supplant the role of the Federal Government in helping finance the costs of large projects of national significance." The current form of TIFIA administration—within a Federal agency subject to regular budget oversight—enables policymakers to monitor program performance as staff, sponsors and the financial markets gain experience. As current TIFIA projects move into their construction, operation and repayment phases, and as additional projects obtain TIFIA assistance, policymakers will acquire better information with which to determine whether TIFIA should remain within the DOT, "spin off" into a Government corporation or Government sponsored enterprise, or phaseout entirely and rely on the capital markets to meet the program's objectives.

The Department also administers a credit assistance program specifically for the railroad industry: the Railroad Rehabilitation and Improvement Financing Program (RRIF). Also authorized in TEA–21, the RRIF program provides direct loans and loan guarantees to railroads and other public and private ventures in partnership with railroads. The aggregate unpaid principal amount under the program cannot exceed $3.5 billion, and the subsidy cost is covered by a "credit risk premium" paid by or on behalf of the borrower from a non–Federal source. To date, the Federal Railroad Administration (FRA) has approved four RRIF loans for a total of more than $200 million, and six more applications are currently being evaluated.

GARVEE Bonds

Another financing tool among States has been the issuance of Grant Anticipation Revenue Vehicles (GARVEEs): bonds that enable States to pay debt service and other bond-related expenses with future Federal-aid highway apportionments. States are finding GARVEEs to be an attractive financing mechanism to bridge funding gaps and accelerate construction of major corridor projects. The GARVEE generates up-front capital for major highway projects at tax-exempt rates and enables a State to construct a project earlier than using traditional pay-as-you-go grant resources. With projects in place sooner, costs are lower due to inflation savings and the public realizes safety and economic benefits. Paying via future Federal highway reimbursements spreads the cost of the facility over its useful life, rather than just the construction period. GARVEEs expand access to capital markets, supplementing general obligation or revenue bonds.

A GARVEE is a debt-financing instrument authorized to receive Federal reimbursement of debt service and related financing costs. In general, projects funded with the proceeds of a GARVEE debt instrument are subject to the same requirements as other Federal-aid projects with the exception of the reimbursement process. Instead of reimbursements as construction costs are incurred, the reimbursement of GARVEE projects occurs when debt service is due.

Candidates for GARVEE financing are typically large projects, or a program of projects, where the costs of delay outweigh the costs of financing and other borrowing approaches may not be available. In total, six States have issued 14 GARVEE Bonds, totaling more than $2.5 billion, to be repaid using a portion of their future Federal-aid highway funds. The table below summarizes this activity.

GARVEE Transactions as of July 2002

State	Date of Issue	Face Amount of Issue	Projects Financed
Ohio	May–98	$70 million	Various projects including:
	Aug–99	$20 million	Spring–Sandusky and
	Sep–01	$100 million	Maumee river improvements
New Mexico	Sep–98	$100 million	New Mexico SR 44
	Feb–01	$19 million	
Arkansas	Mar–00	$175 million	Interstate Highways
	Jul–01	$185 million	
	Jul–02	$215 million	
Colorado	May–00	$537 million	Any project financed wholly or
	Apr–01	$506 million	in part by Federal funds
	Jun–02	$208 million	
Arizona	Jun–00	$39 million	Maricopa freeway projects
	May–01	$143 million	
Alabama	Apr–02	$200 million	County Bridge Program
Total		$2,517 million.	

State Infrastructure Banks

Another significant project finance tool is the State Infrastructure Bank (SIB), a revolving transportation investment fund administered by a State. A SIB functions as a revolving fund that, much like a bank, can offer loans and other credit products to public and private sponsors of Title 23 highway construction projects or Title 49 transit capital projects. Federally capitalized SIBs were first authorized under the provisions of the National Highway System Designation Act of 1995. The initial infusion of Federal and State matching funds was critical to the startup of a SIB, but States have the opportunity to contribute additional State or local funds to enhance capitalization. SIB assistance may include loans (at or below market rates), loan guarantees, standby lines of credit, letters of credit, certificates of participation, debt service reserve funds, bond insurance, and other forms of non-grant assistance. As loans are repaid, a SIB's capital is replenished and can be used to support a new cycle of projects. And, as has been accomplished in Minnesota and South Carolina, SIBs can also be structured to issue bonds against their capitalization, increasing the amount of funds available for loans.

SIBs complement traditional funding techniques and serve as a useful tool to stretch both Federal and State dollars. The primary benefits of SIBs to transportation investment include:

- Flexible project financing, such as low interest loans and credit assistance that can be tailored to the individual projects;
- Accelerated completion of projects;
- Incentive for increased State and/or local investment;
- Enhanced opportunities for private investment by lowering the financial risk and creating a stronger market condition; and
- Recycling of funds to provide financing for future transportation projects.

The pilot program was originally available to only 10 States, and was later expanded to include 38 States and Puerto Rico. TEA–21 established a new pilot program for the States of California, Florida, Missouri, and Rhode Island. Texas was later authorized to participate in the TEA–21 program. To date, however, only Florida and Missouri have elected to revise their agreements in accordance with TEA–21.

The authorizing Federal legislation allows States to customize the structure and focus of their SIB programs to meet specific requirements. While a SIB can offer many types of financing assistance, loans have been the most popular tool. As of June 2002, 32 States had entered into 294 loan agreements totaling more than $4 billion. This activity has been largely concentrated within six States. The largest SIB, the South Carolina Transportation Infrastructure Bank, has approved financing and begun development of almost $2.4 billion in projects, helping to condense into 7 years a transportation program that would have taken 27 years under a pay-

as-you-go approach. The Florida SIB had executed 32 loan agreements through the end of fiscal year 2001, at a value of $465 million. The Florida SIB has been augmented with a State appropriation of $150 million, and both Ohio and Arizona have also contributed additional State funds to their SIBs. The table below demonstrates the concentration of activity in the six largest SIBs.

State Infrastructure Banks Transactions as of June 2002

State	Number of Agreements	Loan Agreement Amount
South Carolina	6	$2,382 million
Florida	32	$465 million
Arizona	37	$424 million
Texas	37	$252 million
Ohio	39	$141 million
Missouri	11	$73 million
Subtotal	162	$3,738 million
Other States	132	$318 million
Total	294	$4,056 million

Looking Ahead

Although States and local partners have not adopted them evenly, the tools of TIFIA, GARVEEs and SIBs have clearly moved from the innovative to the mainstream. This reflects significant success, but it doesn't indicate that the needs of project finance have been completely met. Secretary Mineta has issued a clear challenge to the Department in our development of a reauthorization proposal for TEA–21, asking us to expand innovative finance programs to encourage private sector investment and examine other means to augment existing revenue streams. As part of our internal reauthorization deliberations, we are considering options for further leveraging Federal resources for surface transportation. Enhancing the use of innovative finance in intermodal projects and examining the financing techniques used in other major public infrastructure investments are among the areas we are looking at. The challenge is to build on our successes to date, but not set unrealistic expectations for the future.

A particular focus is on the issue of private investment, an at-risk contribution to a project with the expectation of repayment from project revenues—and a return on investment—over time. Unlike much of the world, the provision of roads and transit systems in the U.S. is almost completely a public sector responsibility. As has been often pointed out, our system of tax-exempt financing means that the public cost of capital is significantly less expensive than for a private entity. Many public works sectors in the U.S. permit private firms to gain access to tax-exempt capital for the construction of public infrastructure. Legislation has been introduced previously to confer this opportunity to a limited number of highway projects. Before the Department would consider any proposed amendment to the Internal Revenue Code, it would first consult with the Department of the Treasury.

One transportation sector with a high degree of private participation, which deserves a higher profile among public transportation planners and policymakers, concerns the movement of freight. Supporting the efficiency of commercial freight transportation continues to be a cornerstone of the Department's vision for America's transportation system. ISTEA and TEA–21 legislation gave us many tools to bring this vision to reality, and our experience has given us new ideas for programs that will get us even closer to our goal of a seamless transportation network. Greater investments in transportation infrastructure and wider use of information technology will certainly be required to achieve this goal.

The activity of SIBs in many States indicates that this program is ready to move beyond its pilot phase to become a permanent feature of the innovative finance landscape.

The Department looks forward to working with our partners in State DOTs, metropolitan planning organizations, and private industry to apply innovative funding strategies that extend the financial means of our individual stakeholders. And we look forward to working with the Congress to craft the next surface transportation legislation. Working together, the Administration, the Congress, States and localities and the private sector can preserve, enhance, and establish surface transportation programs that will result in increased mobility, safety and prosperity for all Americans.

Thank you for the opportunity to testify before you today. I would be happy to answer any questions you may have.

RESPONSES OF PHYLLIS SCHEINBERG TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. State Infrastructure Banks (SIBs) are currently limited to only a few States. What is the track record of SIBs? Are they performing as anticipated? Are SIBs a viable option that should be available to all States? Do you have suggestions which this committee should consider to improve the effectiveness of SIBs?

Response. Thirty-nine States, including the Commonwealth of Puerto Rico, were authorized by the Department of Transportation to establish a SIB under the National Highway System Designation Act of 1995 (NHS Act). In addition, the Transportation Equity Act for the 21st Century (TEA–21) established a SIB pilot program that was limited to only a few States that already had authorized SIBs under the NHS Act. Specifically, five States (Florida, Missouri, California, Rhode Island, and Texas) were authorized to use TEA–21 funds to capitalize their SIBs. However, only Florida and Missouri have modified their SIB agreements to comply with the TEA–21 requirements and are currently eligible to use TEA–21 funds for SIB capitalization. To date, States have transferred $456 million of Federal funds apportioned in FYs 1996 and 1997 into SIBs and $52.1 million of TEA–21 funds have been transferred to SIBs.

We believe that SIBs have been a viable tool for States that have established them. Of the 39 authorized SIBs, 32 remain active even though only two (Florida and Missouri) are using the additional TEA–21 funds for capitalization. As of June 2002, these States have entered into 294 SIB loan agreements for a total of $4 billion dollars for surface transportation projects. Some benefits of SIBs assistance are flexible project financing, accelerated completion of projects, recycling of funds, increased State and/or local investment, and enhanced private investment and economic development opportunities.

There is an important distinction between the SIB provisions in the NHS Act and TEA–21. For SIBs operating under the provisions of the NHS Act, all "first generation" SIB assisted projects are subject to Federal requirements. Federal requirements, however, do not apply to SIB projects funded with "second and subsequent generation" SIB funds—i.e., funds derived from repayment proceeds of the first generation projects. All SIB projects assisted with TEA–21 funds are subject to Federal requirements regardless of whether they are first generation projects or financed from repayment proceeds of previously assisted projects. Most States seem to prefer the NHS Act provision that does not expand the application of Federal requirements.

Question 2. In my statement I mentioned that the State of South Carolina is undertaking what would be 27 years worth of projects using traditional Federal-aid funding in a span of 7 years. They are able to accomplish this through various transportation financing mechanisms. What challenges does a State face if they use this approach to "jump start" project construction? Are programs like those helping or harming the State's future ability to invest in infrastructure?

Response. One significant challenge involves a State's ability to manage a sudden increase in the number of projects. Another challenge relates to the availability of contractors to perform the work. South Carolina has addressed the first challenge by supplementing its own staff with consultants. In addition, the State has not, to date, reported problems with the availability of contractors.

Accelerating the start of transportation infrastructure projects can result in the twin benefits of (1) cost savings from reduced cost escalation due to inflation and increases in right-of-way costs and (2) earlier returns on economic and safety benefits provided by the new facility.

At this point, we are not aware of instances in which the use of financing mechanisms to "jump start" projects has jeopardized a State's furture ability to invest in infrastructure. For example, States that have issued GARVEE bonds thus far have judiciously imposed coverage tests and dollar limits that they believe are appropriate and marketable. GARVEE bonds are State-issued bonds whose repayment source is future Federal-aid highway apportionments.

Question 3. AASHTO is proposing a Transportation Finance Corporation (TFC) be created in the next reauthorization to increase the size of the Federal program. The TFC would be involved in various financing mechanisms such as bonding. Has DOT investigated or researched similar ideas? What are your thoughts on the viability of such an approach?

Response. DOT is currently formulating its highway reauthorization policies, but has not finalized its proposals. DOT has considered a variety of alternative financing approaches and has solicited input from all relevant stakeholders.

Question 4. In your statement you mention that DOT is pursuing more avenues for transportation financing. We are very interested in this matter including looking at Federal loan guarantees, bonding, tax incentives to purchasing bonds, and a range of other options. One concept I heard was "adapting the financing techniques using other public works sectors". Could you give us examples of other public works techniques? How applicable would they be to transportation investment? What other innovative financing approaches should we work with you on? Are there other models which have worked well in other areas which could be helpful here—for example, the Farm Credit System sells securities to raise funds to make loans. What existing financing ideas regarding other Departments, Government Sponsored Enterprises, Federal or State agencies, or private entities should we at least consider in terms of the reauthorization?

Response. One mechanism that is currently available for certain major public infrastructure projects—but not highways—is private activity bonds. Private activity bonds are tax-exempt financings issued for certain privately developed and operated public infrastructure. Examples of projects that are currently eligible for private activity bonds are airport facilities; docks and wharves; water, wastewater and solid waste disposal facilities; mass commuting facilities; and high speed intercity rail facilities. Whether private activity bonds would be a useful tool for highway financing could be worth investigation.

STATEMENT OF JAYETTA Z. HECKER DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, GENERAL ACCOUNTING OFFICE

Mr. Chairman and members of the committees: We are pleased to be here today to discuss alternative financing for surface transportation infrastructure projects. As Congress considers reauthorizing the Transportation Equity Act for the 21st Century (TEA–21) in 2003, it does so in the face of a continuing need for the Nation to invest in its surface transportation infrastructure and at a time when both the Federal and State governments are experiencing severe financial constraints.[1] Many observers are concerned that a significant gap exists between the availability of funds and immediate needs. In the longer term, questions have been raised about the financial capacity of the Highway Trust Fund to sustain current and future levels of highway and transit spending. This is of particular concern since Congress has by law established a direct link between Highway Trust Fund revenues and surface transportation spending levels.

In recent years, as transportation needs have grown, Congress provided States—in the National Highway System Designation Act of 1995 (NHS) and TEA–21—additional means to make highway investments through alternative financing mechanisms. These alternative mechanisms included State Infrastructure Banks (SIBs)—revolving funds to make or guarantee loans to approved projects; Grant Anticipation Revenue Vehicles (GARVEEs)—which are State issued bonds or notes repayable with future Federal-aid; and credit assistance under the Transportation Infrastructure Finance and Innovation Act (TIFIA)—including loans, loan guarantees, and lines of credit. All are part of the Federal Highway Administration's (FHWA's) Innovative Finance Program. As the time draws nearer to reauthorizing TEA–21, information is needed about the performance of these tools and the potential for these and other proposed tools to help meet the nation's surface transportation infrastructure investment needs.

At the request of your committees, we are examining a range of surface transportation financing issues, including FHWA's Innovative Finance Program and proposed alternative financing approaches. My testimony today is based on the preliminary results of our work and discusses (1) the use and performance of existing innovative financing tools and the factors limiting their use, and (2) the prospective costs of current and newly proposed alternative financing techniques for meeting surface transportation infrastructure investment needs. I will also discuss issues concerning the potential costs and benefits of expanding alternative financing mechanisms to meet our nation's surface transportation needs. My testimony is based on our review of applicable laws, FHWA's evaluation studies and other reports concerning its Innovative Financing Program, and interviews with FHWA officials, transportation officials in eight States, and bond rating companies. It is also based on a cost comparison we conducted of four current and newly proposed financing techniques.

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[1]Performance Budgeting: Opportunities and Challenges. (GAO–02–1106T, Sept.19, 2002).

In summary:

- A number of States are using existing alternative financing tools such as State Infrastructure Banks, GARVEE bonds, and TIFIA loans. These tools can provide States with additional options to accelerate projects and leverage Federal assistance—they can also provide greater flexibility and more funding techniques. However, a number of factors can limit the use of these tools, including some States' preference not to use the tools, restrictions in State law on using them, and restrictions in Federal law on the number of States and types of projects that can use them.
- Federal funding of surface transportation investments includes Federal-aid highway program grant funding appropriated by Congress out of the Highway Trust Fund, loans and loan guarantees, and bonds that are issued by States and that are exempt from Federal taxation. In addition, the use of tax credit bonds—where investors receive a tax credit against their Federal income taxes instead of interest payments from the bond issuers—have been proposed for helping to finance surface transportation investments. Because each of these financing mechanisms is structured differently, we determined that the total cost of providing $10 billion in infrastructure investment using each of these existing or proposed mechanisms ranges from $10 billion to over $13 billion (in present value terms). The mechanisms that involve greater borrowing from the private sector, such as tax-exempt bonds and tax credit bonds, require the least amount of public outlays up front. However, those same mechanisms have the highest long-term costs to the public sector participants in the investments because the latter must compensate the private investors for the risks that they assume. With respect to the Federal Government's contribution, tax credit bonds are the most costly mechanism, while TIFIA loans and tax exempt bonds are the least costly.
- Expanding the use of alternative financing mechanisms has the potential to stimulate additional investment and private participation. But expanding investment in our nation's highways and transit systems raises basic questions of who pays, how much, and when. How alternative financing mechanisms are structured determines how much of the needs are met through Federal funding and how much are met by the States and others. The structure of these mechanisms also determines how much of the cost of meeting our current needs are met by current users and taxpayers versus future users and taxpayers.

Background

The Federal-aid highway program is financed through motor fuel taxes and other levies on highway users. Federal aid for highways is provided largely on a cash basis from the Highway Trust Fund. States have financed roads primarily through a combination of State revenues and Federal aid. Typically, States raise their share of the funds by taxing motor fuels and charging user fees. In addition, debt financing—issuing bonds to pay for highway development and construction—represents about 10 percent of total State funding for highways, although some States make greater use of borrowing than others.

Federal-aid highway funding to States is typically in the form of grants. These grants are distributed from the Highway Trust Fund and apportioned to States based on a series of funding formulas. Funding is subject to grant-matching rules—for most federally funded highway projects, an 80-percent Federal and 20-percent State funding ratio. States are subject to pay-as-you-go rules where they obligate all of the funds needed for a project up front and are reimbursed for project costs as they are incurred.

In the mid–1990's, FHWA and the States tested and evaluated a variety of innovative financing techniques and strategies.[2] Many financing innovations were approved for use through administrative action or legislative changes under NHS and TEA–21. Three of the techniques approved were SIBs, GARVEEs, and TIFIA loans.[3] SIBs are State revolving loan funds that make loans or loan guarantees to approved projects; the loans are subsequently repaid, and recycled back into the revolving fund for additional loans. GARVEEs are any State issued bond or note repayable with future Federal-aid highway funds. Through the issuance of GARVEE bonds, projects are able to meet the need for up-front capital as well as use future Federal

[2]FHWA uses the term "innovative finance" to refer to any funding measure other than grants to States appropriated from the Highway Trust Fund. Most of the innovative measures entail debt financing. The term is used to contrast that approach with traditional methods of funding highway projects.

[3]FHWA's test and evaluation research initiative (TE–045) evaluated a number of other innovations, including flexible match, toll credits, advance construction, partial conversion of advance construction, and tapered match. Many of these techniques were subsequently approved for use.

highway dollars for debt service. TIFIA allows FHWA to provide credit assistance, up to 33 percent of eligible project costs, to sponsors of major transportation projects. Credit assistance can take the form of a loan, loan guarantee, or line of credit. See appendix II for additional information about these financing techniques.

According to FHWA, the goals of its Innovative Finance Program are to accelerate projects by reducing inefficient and unnecessary constraints on States' management of Federal highway funds; expand investment by removing barriers to private investment; encourage the introduction of new revenue streams, particularly for the purpose of retiring debt obligations; and reduce financing and related costs, thus freeing up the savings for investments into the transportation system itself. When Congress established the TIFIA program in TEA–21, it set out goals for the program to offer sponsors of large transportation projects a new tool to leverage limited Federal resources, stimulate additional investment in our nation's infrastructure, and encourage greater private sector participation in meeting our transportation needs.

Alternative Financing Mechanisms Offer States Options, But Factors Limit Their Use

Over the last 8 years, many States have used one or more of the FHWA-sponsored alternative financing tools to fund their highway and transit infrastructure projects. As of June 2002:

- 32 States (including the Commonwealth of Puerto Rico) have established SIBs and have entered into 294 loan agreements with a dollar value of about $4.06 billion;
- 9 States (including the District of Columbia and Commonwealth of Puerto Rico) have entered into TIFIA credit assistance agreements for 11 projects, representing $15.4 billion in transportation investment; and
- 6 States have issued GARVEE bonds with face amounts totaling $2.3 billion.

These mechanisms have given States additional options to accelerate the construction of projects and leverage Federal assistance. It has also provided them with greater flexibility and more funding techniques.

Accelerate Project Construction

States' use of innovative financing techniques has resulted in projects being constructed more quickly than they would be under traditional pay-as-you-go financing. This is because techniques such as SIBs can provide loans to fill a funding gap, which allows the project to move ahead. For example, using a $25 million SIB loan for land acquisition in the initial phase of the Miami Intermodal Center, Florida accelerated the project by 2 years, according to FHWA. Similarly, South Carolina used an array of innovative finance tools when it undertook its "27 in 7 program"—a plan to accomplish infrastructure investment projects that were expected to take 27 years and reduce that to just 7 years. Officials in the States that we contacted that were using FHWA innovative finance tools noted that project acceleration was one of the main reasons for using them.

Leverage Federal Investments

Innovative finance-in particular the TIFIA program-can leverage Federal funds by attracting additional nonFederal investments in infrastructure projects. For example, the TIFIA program funds a lower share of eligible project costs than traditional Federal-aid programs, thus requiring a larger investment by other, non-Federal funding sources. It also attracts private creditors by assuming a lower priority on revenues pledged to repay debt. Bond rating companies told us they view TIFIA as "quasi-equity" because the Federal loan is subordinate to all other debt in terms of repayments and offers debt service grace periods, low interest costs, and flexible repayment terms.

It is often difficult to measure precisely the leveraging effect of the Federal investment. As a recent FHWA evaluation report noted, just comparing the cost of the Federal subsidy with the size of the overall investment can overstate the Federal influence—the key issue being whether the projects assisted were sufficiently creditworthy even without Federal assistance and the Federal impact was to primarily lower the cost of the capital for the project sponsor.

However, TIFIA's features, taken together, can enhance senior project debt ratings and thus make the project more attractive to investors. For example, the $3.2 billion Central Texas Turnpike project—a toll road to serve the Austin-San Antonio corridor—received a $917 million TIFIA loan and will use future toll revenues to repay debt on the project, including revenue bonds issued by the Texas Transportation Commission and the TIFIA loan. According to public finance analysts from two ratings firms, the project leaders were able to offset potential concerns about the uncertain toll road revenue stream by bringing the TIFIA loan to the project's financing.

Provide Greater Flexibility And Additional Financing Techniques

FHWA's innovative finance techniques provide States with greater flexibility when deciding how to put together project financing. By having access to various alternatives, States can finance large transportation projects that they may not have been able to build with pay-as-you-go financing. For example, faced with the challenge of Interstate highway needs of over $1.0 billion, the State of Arkansas determined that GARVEE bonds would make up for the lack of available funding. In June 1999, Arkansas voters approved the issuance of $575 million in GARVEE bonds to help finance this reconstruction on an accelerated schedule. The State will use future Federal funds, together with the required State matching funds and the proceeds from a diesel fuel tax increase, to retire the bonds. The GARVEE bonds allow Arkansas to rebuild approximately 380 miles, or 60 percent of its total Interstate miles, within 5 years.

Factors Can Limit the Use Finance Tools

Although FHWA's innovative financing tools have provided States with of additional options for meeting their needs, a number of factors can limit the use of these tools.

- State DOTs are not always willing to use Federal innovative financing tools, nor do they always see advantages to using them. For example, officials in two States indicated that they had a philosophy against committing their Federal aid funding to debt service. Moreover, not all States see advantages to using FHWA innovative financing tools. For example, one official indicated that his State did not have a need to accelerate projects because the State has only a few relatively small urban areas and thus does not face the congestion problems that would warrant using innovative financing tools more often. Officials in another State noted that because their DOT has the authority to issue tax-exempt bonds as long as the State has a revenue stream to repay the debt, they could obtain financing on their own and at lower cost.
- Not all State DOTs have the authority to use certain financing mechanisms, and others have limitations on the extent to which they can issue debt. For example, California requires voter approval in order to use its allocations from the Highway Trust Fund to pay for debt servicing costs. In Texas, the State constitution prohibits using highway funds to pay the State's debt service. Other States limit the amount of debt that can be incurred. For example, Montana has a debt ceiling of $150 million and is now paying off bonds issued in the late 1970's and early 1980's and plans to issue a GARVEE bond in the next few years.
- Some financing tools have limitations set in law. For example, five States are currently authorized to use TEA–21 Federal-aid funding to capitalize their SIBs. Although other States have created SIBs and use them, they could not use their TEA–21 Federal-aid funding to capitalize them. Similarly, TIFIA credit assistance can be used only for certain projects. TIFIA's requirement that, in general, projects cost at least $100 million restricts its use to large projects.

Costs and Risks of Alternative Financing Mechanisms Vary

We assessed the costs that Federal, State and local governments (or special purpose entities they create) would incur to finance $10 billion in infrastructure investment using four current and newly proposed financing mechanisms for meeting infrastructure investment needs.[4] To date, most Federal funding for highways and transit projects has come through the Federal-aid highway grants—appropriated by Congress from the Highway Trust Fund. Through the TIFIA program, the Federal Government also provides subsidized loans for State highway and transit projects. In addition, the Federal Government also subsidizes State and local bond financing of highways by exempting the interest paid on those bonds from Federal income tax. Another type of tax preference—tax credit bonds—has been used, to a very limited extent, to finance certain school investments. Investors in tax credit bonds receive a tax credit against their Federal income taxes instead of interest payments from

[4]In deriving our comparisons we use current rules and practices relating to State matching expenditures. Specifically, when computing the costs associated with grants we assume that States pay for 20 percent of the investment expenditures; we assume a similar matching rate would be applied if a tax credit bond program were introduced. Our tax-exempt bond example represents independent investments by the State or local governments (or special purpose entities) with no Federal support other than the tax subsidy. In the case of the direct loan program, we assume that the $10 billion of expenditures is financed by approximately the same combination of Federal loans, Federal grants, State, local or special purpose entity bonds, State appropriations, and private investment as the average project currently financed by TIFIA loans. (See app. I for further details of our methodology). However, it is important to note that the current rules and practices could be revised so that any desired cost sharing between the Federal and State governments could be achieved through any of the mechanisms.

the bond issuer.[5] Proposals have been made to extend the use of this relatively new financing mechanism to other public investments, including transportation projects.

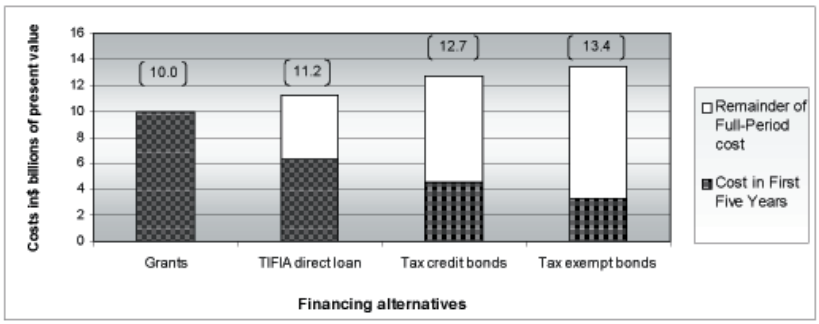
The use of these four mechanisms to finance $10 billion in infrastructure investment result in differences in (1) total costs—and how much of the cost is incurred within the short term 5-year period and how much of it is postponed to the future; (2) sharing costs—or the extent to which States must spend their own money, or obtain private investment, in order to receive the Federal subsidy; and (3) risks—which level of government bears the risk associated with an investment (or compensates others for taking the risk). As a result of these differences, for any given amount of highway investment, combined and Federal Government budget costs will vary, depending on which financing mechanism is used.

Total Costs—And Short-and Long-Term Costs—Differ

Total costs—and how much of the cost is incurred within the short term 5year period and how much of it is postponed to the future—differ under each of the four mechanisms. As figure 1 shows, grant funds are the lowest-cost method to finance a given amount of investment expenditure, $10 billion.[6] The reason for this result is that it is the only alternative that does not involve borrowing from the private sector through the issuance of bonds. Bonds are more expensive than grants because the governments have to compensate private investors for the risks that they assume (in addition to paying them back the present value of the bond principal). However, because the grants alternative does not involve borrowing, all of the public spending on the project must be made up front. The TIFIA direct loan, tax credit bond, and tax-exempt loan alternatives involve increased amounts of borrowing from the private sector and, therefore, increased overall costs.

Grants entail the highest short term costs as these costs, in our example, are all incurred on a pay-as-you-go basis. The tax-exempt bond alternative, which involves the most borrowing and has the highest combined costs, also requires the least amount of public money up front.[7]

Figure 1: Present Value Costs of Financing $10 Billion of Spending on Transportation, Using Alternative Approaches



Source: GAO analysis.

Alternatives Result in Different Shares of the Cost

There are significant differences across the four alternatives in the cost sharing between Federal and State governments. (See fig. 2). Federal costs would be highest under the tax credit bond alternative, under which the Federal Government pays the equivalent of 30 years of interest on the bonds. Grants are the next most costly alternative for the Federal Government. Federal costs for the tax-exempt bond and

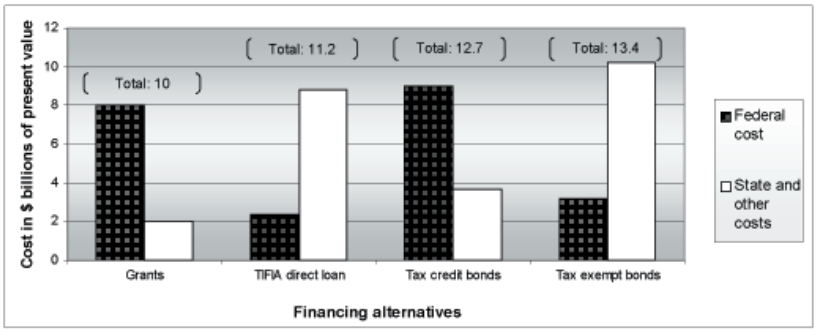
[5]The only tax credit bonds currently in existence are Qualified Zone Academy bonds. State or local governments may issue these bonds to finance improvements in public schools in disadvantaged areas. The issuance limit for these bonds is set at $400 million for 2002 and is allocated to the States on the basis of their portion of the population below the poverty level.

[6]We present our results in present value terms so that the value of dollars spent in the future are adjusted to make them comparable to dollars spent today.

[7]The results presented in figure 1 were computed using current interest rates, which are relatively low by historical standards. At higher interest rates, the combined costs of the alternatives that involve bond financing would be higher, while the costs of grants would remain the same. If we had used bonds with 20-year terms, instead of 30-year terms, in our examples, the costs of the three alternatives that involve bond financing would be lower, but they all would still be greater than the costs of grants.

TIFIA loan alternatives are significantly lower than for tax credit bonds and grants.[8]

Figure 2: Present Value of Federal, State, and Other Costs of Financing $10 Billion of Spending on Transportation, Using Alternative Approaches



Source: GAO analysis.

In some past and current proposals for using tax credit bonds to finance transportation investments, the issuers of the bonds would be allowed to place the proceeds from the sales of some bonds into a "sinking fund" and, thereby, earn investment income that could be used to redeem bond principal. This added feature would reduce (or eliminate) the costs of the bond financing to the issuers, but this would come at a significant additional cost to the Federal Government. For example, in our example where States issue $8 billion of tax credit bonds to finance highway projects, if the States were allowed to issue an additional $ 2.4 billion of bonds to start a sinking fund, they would be able to earn enough investment income to pay back all of the bonds without raising any of their own money. However, this added benefit for the States could increase costs to the Federal Government by about 30 percent—an additional $2.7 billion (in present value), raising the total Federal cost to $11.7 billion.

The Federal Role in Bearing Investment Risk Varies

In some cases private investors participate in highway projects, either by purchasing "nonrecourse" State bonds that will be repaid out of project revenues (such as tolls) or by making equity investments in exchange for a share of future toll revenues.[9] By making these investments the investors are taking the risk that project revenues will be sufficient to pay back their principal, plus an adequate return on their investment. In the case where the nonrecourse bond is a tax-exempt bond, the State must pay an interest rate that provides an adequate after-tax rate of return, including compensation for the risk assumed by the investors. By exempting this interest payment from income tax, the Federal Government is effectively sharing the cost of compensating investors for risk. Nevertheless, the State still bears some of the risk-related cost and, therefore has an incentive to either select investment projects that have lower risks, or select riskier projects only if the expected benefits from those projects are large enough to warrant taking on the additional risk.

In the case of a tax credit bond where project revenues would be the only source of financing to redeem the bonds and the Federal Government would be committed to paying whatever rate of credit investors would demand to purchase bonds at par value, the Federal Government would bear all of the cost of compensating the investors for risk.[10] States would no longer have a financial incentive to balance higher

[8]Using different assumptions could produce different results. For example, Congress could reduce the Federal cost differences across the four alternatives by establishing higher State matching requirements for those programs. In the case of tax credit bonds, setting the rate of credit to substitute for only a fraction of the interest that bond investors would demand would require States to pay the difference.

[9]A nonrecourse bond is not backed by the full faith and credit of the State or local government issuer. Purchasers of such bonds do not have recourse to the issuer's taxing authority for bond repayment.

[10]In the case of Qualified Zone Academy Bonds the statute calls for the credit rate to be set so that the bonds sell at par. Selling at par means that the issuer can sell a bond with a face value of $1,000 to an investor for $1,000. If, alternatively, the credit rate were set at an average interest rate, bonds for riskier projects would have to be sold below par (e.g., a bond with a

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project risks with higher expected project benefits. Alternatively, the credit rate could be set equal to the interest rate that would be required to sell the average State bonds (issued within the same timeframe) at par value. In that case, States would bear the additional cost of selling bonds for projects with above-average risks.

In the case of a TIFIA loan for a project that has private sector participation, the Federal loan does not compensate the private investors for their risk; instead, the Federal Government assumes some of the risk and, thereby, lowers the risk to the private investors and lowers the amount that States have to pay to compensate for that risk.

In summary, Mr. Chairman, alternative financing mechanisms have accelerated the pace of some surface transportation infrastructure improvement projects and provided States additional tools and flexibility to meet their needs—goals of FHWA's Innovative Finance Program. FHWA and the States have made progress to attain the goal Congress set for the TIFIA program—to stimulate additional investment and encourage greater private sector participation—but measuring success involves measuring the leverage effect of the Federal investment, which is often difficult. Our work raises a number of issues concerning the potential costs and benefits of expanding alternative financing mechanisms to meet our nation's surface transportation needs. Congress likely will weigh these potential costs and benefits as it considers reauthorizing TEA–21.

Expanding the use of alternative financing mechanisms has the potential to stimulate additional investment and private participation. But expanding investment in our nation's highways and transit systems raises basic questions of who pays, how much, and when. How alternative financing mechanisms are structured determines how much of the needs are met through Federal funding and how much are met by the States and others. The structure of these mechanisms also determines how much of the cost of meeting our current needs are met by current users and taxpayers versus future users and taxpayers.

While alternative finance mechanisms can leverage Federal investments, they are, in the final analysis, different forms of debt financing. This debt ultimately must be repaid, with interest, either by highway users—through tolls, fuel taxes, or licensing and vehicle fees—or by the general population through increases in general fund taxes or reductions in other government services. Proposals for tax credit bonds would shift the costs of highway investments away from the traditional user-financed sources, unless revenues from the Highway Trust Fund are specifically earmarked to pay for these tax credits.

Mr. Chairman this concludes my prepared statement. I would be pleased to answer any questions you or other members of the committees have.

APPENDIX I: METHODOLOGY FOR ESTIMATING THE COSTS OF TRANSPORTATION FINANCING ALTERNATIVES

We estimated the costs that the Federal, State or local governments (or special purpose entities they create) would incur if they financed $10 billion in infrastructure investment using each of four alternative financing mechanisms: grants, tax credit bonds, tax-exempt bonds, and direct Federal loans. The following subsections explain our cost computations for each alternative. We converted all of our results into present value terms, so that the value of the dollars spent in the future are adjusted to make them comparable to dollars spent today.[1] This adjustment is particularly important when comparing the costs of bond repayment that occur 30 years from now with the costs of grants that occur immediately.

The Cost of Grants

We estimated the cost to the Federal and State governments of traditional grants with a State match. We assume the State was responsible for 20 percent of the investment expenditures. We then found the percentage of Federal grants such that the Federal grant plus the State match totaled $10 billion. This form of matching resulted in the State being responsible for $2 billion of the spending and the Federal Government being responsible for $8 billion.

$1,000 face value might sell for only $950), meaning that the issuer receives less money to spend for a given amount of bonds issued. Conversely, bonds sold for less risky projects could be sold above par, so that issuers receive more funds than the face value of the bonds issued.

[1]For example, current interest rates on long-term bonds indicate that, to the government and investors, the present value of a dollar to be spent 30 years from now is less than 25 cents.

The Cost of Tax Credit Bonds

We estimated the cost to the Federal and State governments of issuing $8 billion in tax credit bonds with a State match of $2 billion. The cost to the Federal Government equals the amount of tax credits that would be paid out over a given loan term.[2] We estimated the amount of credit payment in a given year by multiplying the amount of outstanding bonds in a given year by the credit rate. We assumed that the credit rate would be approximately equal to the interest rates on municipal bonds of comparable maturity, grossed up by the marginal tax rate of bond purchasers.[3] For the results presented in figures 1 and 2 we assumed that the bonds would have a 30-year term and would have a credit rating between Aaa and Baa. The cost to the issuing States would consist of the repayment of bond principal in future years, plus the upfront cost of $2 billion in State appropriations for the matching contribution.

The Cost of Tax-Exempt Bonds

The cost of tax-exempt bonds to the State or local government (or special purpose entity) issuers would consist of the interest payments on the bonds and the repayment of bond principal. The cost to the Federal Government would equal the taxes forgone on the income that bond purchasers would have earned form the investments they would have made if the tax-exempt bonds were not available for purchase. For the results presented in figures 1 and 2 we made the same assumptions regarding the terms and credit rating of the bonds as we did for the tax credit bond alternative. We computed the cost of interest payments by the State by multiplying the amount of outstanding bonds by the current interest rate for municipal bonds with the same term and credit rating. We assumed that the pretax rate of return that bond purchasers would have earned on alternative investments would have been equal to the municipal bond rate divided by one minus the investors' average marginal tax rate. Consequently, the Federal revenue loss was equal to that pretax rate of return, multiplied by the amount of tax-exempt bonds outstanding each year (in this example), and then multiplied by the investors' average marginal tax rate.

Direct Federal Loans

In order to have our direct loan example reflect the financing packages typical of current TIFIA projects, we used data from FHWA's June 2002 Report to Congress[4] to determine what shares of total project expenditures were financed by TIFIA direct loans, Federal grants, bonds issued by State or local governments or by special purpose entities, private investment, and other sources. We assumed that the $10 billion of expenditures in our example was financed by these various sources in roughly the same proportions as they are used, on average, in current TIFIA projects. We estimated the Federal and nonFederal costs of the grants and bond financing components in the same manner as we did for the grants and tax-exempt bond examples above. To compute the Federal cost of the direct loan component, we multiplied the dollar amount of the direct loan in our example by the average amount of Federal subsidy per dollar of TIFIA loans, as reported in the TIFIA report. In the results presented in figure 1, this portion of the Federal cost amounted to $130 million. The nonFederal costs of the loan component consist of the loan repayments and interest payments to the Federal Government. We assumed that the term of the loan was 30 years and that the interest rate was set equal to the Federal cost of funds, which is TIFIA's policy. The private investment (other than through bonds), which accounted for less than 1 percent of the spending, and the "other" sources, which accounted for about 3 percent of the spending, were treated as money spend immediately on the project.

Sensitivity Analysis

A number of factors—including general interest rate levels, the terms of the bonds or loans, the individual risks of the projects being financed—affect the relative costs of the various alternatives. For this reason, we examined multiple scenarios for each alternative. In particular, current interest rates are relatively low by historical standards. In our alternative scenarios we used higher interest rates, typical of those in the early 1990's. At higher interest rates, the combined costs of the alternatives that involve bond financing would be higher, while the costs of grants would

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[2]Although the credits that investors earn on tax credit bonds are taxable, we assume that any tax the Federal Government would gain from this source would be offset by the tax that investors would have paid on income from the investments they would have made if the tax credit bonds were not available for purchase.

[3]For the tax credit and tax-exempt bond computations we based our rates on municipal bond interest rates reported in the August 22, 2002 issue of the Bond Buyer.

[4]U.S. Department of Transportation, TIFIA Report to Congress, June 2002.

remain the same. If we had used bonds with 20-year terms, instead of 30-year terms in the examples, the costs of the three alternatives that involve bond financing would be lower, but they would still be greater than the costs of grants.

APPENDIX II: STATES' USE OF INNOVATIVE FINANCING TOOLS

State Infrastructure Banks

One of the earliest techniques tested to fund transportation infrastructure was revolving loan funds. Prior to 1995, Federal law did not permit States to allocate Federal highway funds to capitalize revolving loan funds. However, in the early 1990's, transportation officials began to explore the possibility of adding revolving loan fund capitalization to the list of eligible uses for certain Federal transportation funds. Under such a proposal, Federal funding is used to "capitalize" or provide seed money for the revolving fund. Then money from the revolving fund would be loaned out to projects, repaid, and recycled back into the revolving fund, and subsequently reinvested in the transportation system through additional loans. In 1995, the federally capitalized transportation revolving loan fund concept took shape as the State Infrastructure Bank (SIB) pilot program, authorized under Section 350 of the NHS Act. This pilot program was originally available only to a maximum of 10 States, but then was expanded under the 1997 U.S. DOT Appropriations Act, which appropriated $150 million in Federal general funds for SIB capitalization. TEA–21 established a new SIB pilot program, but limited participation to four States—California, Florida, Missouri, and Rhode Island. Texas subsequently obtained authorization under TEA–21. These States may enter into cooperative agreements with the U.S. DOT to capitalize their banks with Federal-aid funds authorized in TEA–21 for fiscal years 1998 through 2003. Of the States currently authorized, only Florida and Missouri have capitalized their SIBs with TEA–21 funds.

Table 1: State's use of SIBs

State	Number of agreements	Loan agreement amount ($ 000)	Disbursements to date ($ 000)
Alabama.			
Alaska	1	$2,737	$2,737
Arizona	37	$424,287	$216,104
Arkansas	1	$31	$31
California.			
Colorado	2	$400	$400
Connecticut.			
Delaware	1	$6,000	$6,000
D.C..			
Florida	32	$465,000	$98,600
Georgia.			
Hawaii.			
Idaho.			
Illinois.			
Indiana	1	$3,000	$1,122
Iowa	2	$2,874	$2,874
Kansas.			
Kentucky.			
Louisiana.			
Maine	23	$1,758	$1,478
Maryland.			
Massachusetts.			
Michigan	23	$17,034	$13,033
Minnesota	15	$95,719	$41,000
Mississippi.			
Missouri	11	$73,251	$67,801
Montana.			
Nebraska	1	$3,360	$3,360
Nevada.			
New Hampshire.			
New Jersey.			
New Mexico	1	$541	$541
New York	2	$12,000	$12,000
North Carolina	1	$1,575	$1,575

Table 1: State's use of SIBs—Continued

State	Number of agreements	Loan agreement amount ($ 000)	Disbursements to date ($ 000)
North Dakota	2	$3,565	$1,565
Ohio	39	$141,231	$116,422
Oklahoma.			
Oregon	12	$17,471	$17,471
Pennsylvania	23	$17,403	$17,403
Puerto Rico	1	$15,000	$15,000
Rhode Island	1	$1,311	$1,311
South Carolina	6	$2,382,000	$1,124,000
South Dakota	1	$11,740	$11,740
Tennessee	1	$1,875	$1,875
Texas	37	$252,013	$225,461
Utah	1	$2,888	$2,888
Vermont	3	$1,023	$1,000
Virginia	1	$18,000	$18,000
Washington	1	$700	$385
West Virginia.			
Wisconsin	3	$1,814	$1,814
Wyoming	8	$77,977	$42,441
Total	294	$4,055,578	$2,067,432

Source: FHWA, June 2002

Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance

As part of TEA–21, Congress authorized the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) to provide credit assistance, in the form of direct loans, loan guarantees, and standby lines of credit to projects of national significance. The TIFIA legislation authorized $10.6 billion in credit assistance and $530 million in subsidy cost to cover the expected long-term cost to the government for providing credit assistance. TIFIA credit assistance is available to highway, transit, passenger rail and multi-modal project, as well as projects involving installation of intelligent transportation systems (ITS).

The TIFIA statute sets forth a number of prerequisites for participation in the TIFIA program. The project costs must be reasonably expected to total at least $100 million, or alternatively, at least 50 percent of the State's annual apportionment of Federal-aid highway funds, whichever is less. For projects involving ITS, eligible project costs must be expected to total at least $30 million. Projects must be listed on the State's transportation improvement program, have a dedicated revenue source for repayment, and must receive an investment grade rating for their senior debt. Finally, TIFIA assistance cannot exceed 33 percent of the project costs and the final maturity date of any TIFIA credit assistance cannot exceed 35 years after the project's substantial completion date.

Table 2: State's use of TIFIA credit assistance

State	Project name	Project description	Project cost ($ millions)	Instrument type	Credit amount ($ millions)	Primary revenue pledge
California	SR 125 Toll—1999	Road Highway/ Bridge Construction of 11 mi 4-lane toll road in San Diego.	$455	Direct loan Line of credit	$94.000 User. $33.000 Charges	
	San Francisco-Oakland Bay Bridge—2002.	Replacement of SF-Oakland Bay Bridge east span.	$3,305 Direct loan.	$450.000 Toll surcharge.		
D.C	Washington Metro—1999.	Transit capital improvement program.	$2,324 Guarantee.	$600.000 Other.		

Table 2: State's use of TIFIA credit assistance—Continued

State	Project name	Project description	Project cost ($ millions)	Instrument type	Credit amount ($ millions)	Primary revenue pledge
Florida	Miami Intermodal Center—1999.	Multi-modal center for Miami Intern'l Airport, including car rental garage, intermodal center, people mover, and roadways.	$1,349 Direct loan. Direct loan	$269.076 Tax revenue. $163.676 User charges		
Nevada	Reno Rail Corridor	Intermodal	$280 Direct loan.	$73.500 Other.		
New York	Farley Penn Station—1999. $140.000 Other	Intermodal	$800 Direct loan.			
Line of credit	$20.000 Other					
	Staten Island Ferries—2000.	Transit	$482 Direct loan.	$159.068 Other.		
Puerto Rico	Tren Urbano—1999	Transit rail line	$1,676 Direct loan.	$300.000 Tax revenues.		
South Carolina	Cooper River Bridge	Replace double bridges over the Cooper River, connecting Charleston and Mt. Pleasant.	$668 Direct loan.	$215.000 Other.		
Texas	Central Texas Turnpike—2001.	Construct 120+ mi. toll facilities to ease I–35 congestion.	$3,220 Direct loan.	$917.000 User charges.		
Washington	Tacoma Narrows Bridge—2000.	Construct new parallel bridge, toll plaza, and approach roadways.	$835 Direct loan. Line of credit	$240.000 User. $30.000 charges (both)		
Total			$15,393.			

Source: FHWA, June 2002.

Grant Anticipation Revenue Vehicles (GARVEEs)

Grant anticipation revenue vehicles (GARVEEs) are another tool States can use to finance highway infrastructure projects. GARVEE bonds are any bond or note repayable with future Federal-aid highway funds. The NHS Act and TEA–21 brought about changes that enabled States to use Federal-aid highway apportionments to pay debt service and other bondrelated expenses and strengthened the predictability of States' Federal-aid allocation. While GARVEEs do not generate new revenue, the new eligibility of bond-related costs for Federal-aid reimbursement provides States with one more option for repaying debt service. Candidate projects are typically large enough to merit borrowing rather than pay-as-you-go grant funding; do not have access to a revenue stream (such as local taxes or tolls) or other forms of repayment (State appropriations); and have support from the State's DOT to reserve a portion of future year Federal-aid highway funds to fund debt service. In some cases, States may elect to pledge other sources of revenue, such as State fuel tax revenue, as a backstop in the event that future Federal-aid highway funds are not available.

Table 3: State's use of GARVEE bonds

State	Date of issuance	Face amount of issue	Projects	Backstop financing
Alabama	Apr–02	$200 million	County Bridge Program	All Federal construction reimbursements. Also insured
Arizona	Jun–00	$39.4 million	Maricopa freeway projects	Certain sub-account transfers
	May–01	$142.9 million		
Arkansas	Mar–00	$175 million	Interstate highways	Full faith and credit of State, plus State motor fuel taxes
	Jul–01	$185 million		
Colorado	May 00	$537 million	Any project financed wholly or in part by Federal funds.	Federal highway funds as allocated annually by CDOT; other State funds
	Apr–01	$506.4 million		
	Jun–02	$208.3 million		
New Mexico	Sep–98	$100.2 million	New Mexico SR 44	No backstop; bond insurance obtained
	Feb–01	$18.5 million		
Ohio	May–98	$70 million	Spring-Sandusky project and Maumee River Bridge Improvements.	Moral obligation pledge to use State gas tax funds and seek general fund appropriations in the event of Federal shortfall
	Aug–99	$20 million		
	Sep–01	$100 million		
Total		$2,301.7 million.		

Source: FHWA, June 2002

Responses by JayEtta Hecker to Additional Questions from Senator Baucus

Question 1. One way of organizing some of these ideas are selling bonds for project specific financing versus using bond proceeds to supplement the Highway Trust Fund. Will you comment on the advantages and disadvantages of each?

Response. Mr. Chairman, in the competition for finite transportation resources, selling bonds to help finance a specific project can help advance a project that might otherwise go unfunded or be delayed. In addition, project-specific financing can be useful for large-dollar projects that would otherwise take up a large portion of a State's Federal highway apportioned funds in any given year. However, as we indicated in our statement, given the restrictions in some State laws and the views of some State officials, project-specific financing currently has limited applicability. As a result, not all States can use project specific financing, nor can it be used for all projects. In addition, State officials will weigh the risks associated with project-based bonds against the expected benefits from those projects to determine whether the added risk is justified.

In the short term, using bond proceeds to supplement the Highway Trust Fund would increase the available funding, and this additional funding would then be apportioned to all the States. This approach could enable a wider range of projects to be advanced. If the Federal Government sold these bonds, they would be less risky than project-specific bonds. Consequently, investors would not demand as high an interest rate as they would for the project-specific bonds. However, this debt would ultimately have to be repaid—either by the general population through increases in general fund taxes or reductions in other government services, or by earmarking funds from the Highway Trust Fund. If funds were earmarked from the Highway Trust Fund to repay the bonds in the future, highway funding would not be increased. Rather, costs would be shifted to future users.

Raising new sources of funding presents Congress with the option of devising alternatives to the existing formula-based grant program for delivering funds, in either a project-or program-based fashion. This could open the possibility of engaging new approaches to deal with seemingly intractable transportation problems and national priorities. For example, DOT and FHWA have concluded that the reliability and effectiveness of the freight transportation system is being constrained because of increasing demand and capacity limitations. Many observers have questioned the ability of our surface transportation systems to keep pace with the growing demands being placed upon them as pressure continues to build on already congested road and rail connections to major U.S. seaports and at border crossings. Either a project-based or a program-based financing approach could target funds to these or other major national priorities.

RESPONSES BY JAYETTA HECKER TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. In your statement you make reference to the lack of qualified personnel at the Department of Transportation in regard to financing. How many positions (FTE) does the DOT currently have invested in finance personnel? What is your best guess as to the percentage of those FTEs having the necessary skill sets to advance a more aggressive transportation financing program?

Response. Mr. Chairman, FHWA requested 2,412 FTEs for fiscal year 2003. Of these, 99 were for financial manager and financial specialist positions. The degree to which staff in these positions are involved in innovative finance activities varies. They include staff located in each of FHWA's division offices in every State who have some involvement with innovative finance, staff located in headquarters and other locations who specialize in innovative finance, and other staff who are not directly involved with innovative finance but need some knowledge of it.

We have not reviewed DOT's staffing profile in sufficient detail to determine whether the right number of personnel are performing these functions or to assess their skills. But the department—and indeed all Federal agencies—face a growing human capital crisis that threatens their ability to effectively, efficiently, and economically perform their missions and to ensure maximum government performance and accountability for the benefit of the American public. For that reason, as you know, we have designated strategic human capital management as a high-risk concern governmentwide. As I mentioned in my statement, this challenge ripples throughout the State and local transportation agencies that build, maintain, and operate the vast preponderance of the nation's transportation system. About 50 percent of the people who plan, develop, and manage the nation's transportation system will become eligible to retire in the next 5 years. A survey of State departments of transportation conducted by the New Mexico State Highway and Transportation Department in 1999 identified the need to attract, hire, and retain skilled personnel as the greatest human resource issues facing these departments. In addition, the Transportation Research Board has cited the impending shortage of skilled personnel as among our nation's most critical transportation issues.

In our view, addressing human capital challenges requires comprehensive workforce planning strategies to identify the mix of skills needed to accomplish an agency's mission, the skill mix the agency has on hand, whether those employees are expected to retire and when, and a recruiting and hiring strategy to fill the gaps where needs exist. For example, any examination of the transportation finance arena would necessarily reflect the changing nature of the surface transportation program-from a federally funded formula grant program to one involving a multiplicity of funding sources and delivery mechanisms. This change requires people with new skills-for example, persons skilled in public finance who can navigate the private capital markets. DOT has made progress addressing its human capital concerns by publishing its Human Resources Strategic Action Plan for 2001–2003 with goals that call for increased human capital investments and workforce planning. In addition, FHWA is actively working with major national and State transportation organizations and independent experts to identify human capital needs and innovative ways to meet them. Clearly, it is important that the needs of financing the nation's transportation system be part of this assessment. In January 2003, we will be reporting further on human capital challenges faced by DOT and other Federal agencies in our biannual high risk and performance and accountability assessment.

Question 2. One of the outcomes of reauthorization should be the ability to allow for more meaningful investment by the private sector into transportation. Current transportation bonding techniques do not seem to provide the income that the private sector is seeking since we primarily use tax-exempt mechanism. Can you provide more insights on how we can "decouple" the bonding process to make it more attractive to these types of investors? Are there examples where such activity is occurring?

Response. Mr. Chairman, proponents of tax credit bonds have advocated "decoupling" as you suggested. These proponents contend that if the bonds are sold as two separate components-the right to receive the tax credits and the right to receive the principal repayment when the bond comes due-then the bond issuer could receive larger proceeds for selling a bond with a given face value. This practice is known as "stripping." The reason this result is expected is that each component of the bond would be better tailored to suit the requirements of different types of investors. For example, some investors may prefer to receive the periodic benefit of the tax credit and may be less interested in receiving a principal repayment in the distant future. Other investors, such as pension funds or taxpayers setting up individual retirement accounts, have no need for current income or tax benefits and may simply prefer

to receive a certain amount of money at a specified future date. Therefore, the sum that the two different types of investors would be willing to pay for the two components is likely to be larger than the sum that either type of investor would be willing to pay for an "unstripped" bond.

The practice of "stripping" is prevalent in the sale of interest-bearing securities. For example, Treasury bonds with maturities of 10 years or longer generally can be sold as two separate components. However, under current law, no existing tax credit bonds can be stripped. A Treasury department official told us that the monitoring of tax compliance would be more complicated if tax credit bonds were allowed to be stripped. For example, if the tax credits ever had to be recaptured because of noncompliance on the part of issuers, it might be difficult to track down the recipients of the credits if those credits had been resold separately in the secondary market.

Question 3. It seems that our current transportation financing mechanisms work well for large-scale projects. What avenues are available for smaller scale projects? Are there other models which have worked well in other areas which could be helpful here—for example the Farm Credit system sells securities to raise funds to make loans. What existing financing ideas regarding other Departments, Government Sponsored Enterprises, Federal or State agencies, or private entities should we at least consider in terms of the reauthorizations?

While our current transportation financing mechanisms are—for the most part—geared toward larger scale projects, Mr. Chairman, at least one mechanism, SIBs, have effectively supported smaller projects. TIFIA, as you know, is limited by statute to projects with an estimated cost of $100 million or more, and States that have used GARVEEs have generally done so to support the financing needs of large projects. Although SIBs have also been used to fund some large projects-such as the projects in South Carolina's "27 in 7" program-they also support smaller projects in those States that have SIBs. For example, loans in Missouri have averaged $7 million per project, while loans from Maine's SIB have averaged $76,000 per project. FHWA officials told us that SIBs have been effectively used for smaller projects that might otherwise have received a lower priority for funding. However, these projects have required some type of revenue stream in order for the borrower-often a municipality-to repay the loan.

I agree with you, Mr. Chairman, that a variety of financing mechanisms exist in different sectors to bring private participation and investment to the table in support of public goals and purposes. For example, as you pointed out, the Congress has created government-sponsored enterprises (GSE) such as the Farm Credit System-as well as Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System—to provide support for agricultural and home lending beyond what the financial markets would provide in their absence. These GSEs are sophisticated financial institutions with Federal charters that grant them benefits so that they can help achieve their public missions. Among these benefits, GSEs can issue debt in the capital markets at favorable interest rates to help finance a wide range of lending to farmers and homeowners. Our work has shown that these institutions often have unique flexibilities and play a key role in providing services and options that are beyond the capacity of public agencies or financial markets to provide.

However, the Congress did not decide to create these entities lightly. Because of the sophistication of their financial operations, the risks they face, and the requirements of their missions, GSEs require public oversight mechanisms to ensure their safety and soundness, and to ensure that the public purposes for which they were created are being carried out. As such, a decision to create a GSE might best follow a conclusion that one was uniquely positioned to fulfill unmet national needs and priorities and that the benefit of government sponsorship and the role of such an institution in fulfilling those needs and priorities exceeded the costs of creating and operating it. To date, GSEs have not been used for financing public facilities, such as highways. We have completed an extensive body of work on this subject and would be pleased to work with you and the committee staff to examine more specifically the potential application of these and other financing mechanisms to meeting our surface transportation needs.

Question 4. I am interested in attracting private capital to supplement the Highway Trust Fund in meeting the nation's transportation needs. The key consideration for private investors is the availability of a reliable revenue stream to retire debt. Where might we turn to secure such revenue streams?

Response. Mr. Chairman, probably the most prevalent and reliable revenue stream is the user fee. User fees can be in the form of tolls, fuel taxes, or license and vehicle fees—and States have turned to a variety of user fees to finance transportation projects. For example, Arkansas imposed a diesel fuel tax to partially pay

for the GARVEE bonds issued to reconstruct the State's interstate highways, while Illinois increased its vehicle registration fees to finance bonds for its "Illinois First" project—which included a number of significant highway renovations. User fees are increasingly taking less conventional forms—Florida intends to repay part of its TIFIA loan for the Miami Intermodal Center from fees levied on rental cars while New York's Farley Penn Station TIFIA loan is to be repaid from lease payments from the Port Authority of New York and New Jersey, revenues from Amtrak, and rents paid from planned station retail facilities. In addition to highway user fees, many States and localities have tapped property-based sources of financing, including general property taxes, real estate transfer taxes, and developer impact fees to finance surface transporttion projects.

As we discussed in our March 2000 report (Port Infrastructure: Financing of Navigation Projects at Small and Medium-Sized Ports), some States allow local sponsors of Corps of Engineers' navigation projects to levy property taxes or issue general obligation or revenue bonds. General obligation bonds issued to support projects are generally paid for through taxes implemented by State or local governments. Revenue bonds issued to support a particular project are typically paid for out of the revenues generated by that project.

STATEMENT OF JANICE HAHN, MEMBER, LOS ANGELES CITY COUNCIL CHAIRWOMAN, ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Mr. Chairmen, and members of the joint committees, good morning, and thank you for inviting me here today. My name is Janice Hahn. I am a Los Angeles City Councilwoman and serve as Chairwoman of the Governing Board of the Alameda Corridor Transportation Authority. The Alameda Corridor Transportation Authority is a joint-powers authority created by the Cities of Long Beach and Los Angeles in 1989 to oversee the financing, design and construction of the Alameda Corridor. The Governing Board of the Alameda Corridor Transportation Authority is a seven-member board representing the cities of Los Angeles and Long Beach, the ports of Los Angeles and Long Beach and the Los Angeles County Metropolitan Transportation Authority (MTA).

On behalf of city of Los Angeles Mayor James Hahn, city of Long Beach Mayor Beverly O'Neill, the Corridor Authority's Governing Board, and our CEO Jim Hankla, I am honored to be here.

INTRODUCTION

We are commonly called ACTA. ACTA is the public agency that built the Alameda Corridor, a 20-mile-long freight rail expressway linking the Ports of Los Angeles and Long Beach to the rail yards near downtown Los Angeles. The project was monumentally complex, running through eight different government jurisdictions in urban Los Angeles County, requiring multiple detailed partnerships between public and private entities, and presenting extensive engineering challenges.

One of the key partnerships that has been vital over the years has been with the U.S. Congress. We greatly appreciate the strong support you and your colleagues provided to ACTA in developing the innovative loan from the Department of Transportation. We are particularly thankful for the strong leadership demonstrated by many of you in Congress including our two distinguished Senators, Dianne Feinstein and Barbara Boxer along with California Congressman Stephen Horn and Congresswoman Juanita Millender–McDonald. Without their vision and support it is unlikely the Alameda Corridor would be in operation today, strengthening the nation's global economic competitiveness.

Over the years there were many who doubted the Corridor project could be built, let alone on time and on budget. But after more than 15 years of planning and 5 years of constructing the $2.4 billion Alameda Corridor, one of the nation's largest public works projects opened on time and on budget on April 15. Today, more than 35 freight trains per day use the Alameda Corridor, handling containers loaded with shoes, clothing, furniture and other products bound for store shelves throughout the United States. They also deliver to the ports U.S. goods such as petroleum products, machine parts, and agricultural products for shipment to worldwide markets.

A trip from the Ports of Los Angeles and Long Beach to the transcontinental rail yards near downtown Los Angeles used to take more than 2 hours. It now takes about 45 minutes. As cargo volumes increase, this enhanced speed and efficiency will be critical; more than 100 trains per day are expected on the Alameda Corridor by the year 2020. It is important to note that ACTA is collecting revenue from these rail shipments in amounts sufficient to meet its current and future financial obligations.

MODEL FOR SUCCESS

Because of our success, the Alameda Corridor is considered a model for how major public works projects should be constructed. The Corridor illustrates the significance of intermodalism to the future of our economic and transportation systems. Among those praising the Alameda Corridor have been Transportation Secretary Norman Mineta—a long time supporter and friend of the Corridor project—and three of his predecessors, one from the first Bush Administration and two from the Clinton Administration.

At our grand opening ceremony last April, Secretary Mineta said this about the Alameda Corridor: "Its successful completion demonstrates what we can accomplish with innovative financing and public-private cooperation, and it provides a powerful paradigm for the kinds of intermodal infrastructure investment we want to encourage as we begin working with the Congress to develop legislation reauthorizing America's surface transportation programs." We were also pleased to see that just this month in testimony before a joint hearing of the Environment and Public Works and Commerce Committees, Associate Deputy Secretary of Transportation Jeff Shane praised the Corridor project as a national model. The project, he said, "will have far-reaching economic benefits that extend well beyond Southern California." Similarly, in an article written for TrafficWorld, former U.S. Department of Transportation Secretaries Federico Pena and Samuel Skinner said: "The Alameda Corridor is of national significance not only because of its direct economic impact on jobs, taxes and commodity prices but because the corridor serves as a model of how our country can and must expand and modernize our freight transportation system if we are to remain a world-class trading partner." In addition, former U.S. Department of Transportation Secretary Rodney Slater has also been a supporter of the Alameda Corridor project.

We are flattered by the accolades and pleased and proud to share our experience with those who hope to benefit from it. In fact, one of the goals of the ACTA Governing Board is to support other projects that promote international trade and the efficient movement of cargo.

The key to our success can be attributed to two major themes that guided us throughout the planning, financing and construction of the project: First is multi-jurisdictional cooperation. The Alameda Corridor is built on the partnerships forged between competitive public agencies and between those agencies and the private sector. We have demonstrated that governments can work together, and they can work with the private sector, putting aside competition for the benefit of greater economic and societal good. Second is direct and tangible community benefits. The Alameda Corridor provided direct community benefits in the form of significant traffic congestion relief, job training and other programs. We have proven that communities don't have to sacrifice quality of life to benefit from international trade and port and economic activity.

PROJECT NEED AND PLANNING

The roots of our multi-jurisdictional cooperation began to take hold in the early 1980's, when a committee was formed by the Southern California Association of Governments to study ways to accommodate burgeoning trade at the Ports of Los Angeles and Long Beach. The panel included representatives of the ports, the railroad and trucking industries, the Army Corps of Engineers as well as local elected officials and others. The ports had projected—accurately, it turns out—massive cargo increases driven by the growing use of intermodal containers transferred directly from ships to rail cars and trucks. The volume of containers crossing the wharves doubled in the 1990's and last year reached more than 10 million 20-foot containers per year. That figure is expected to exceed 36 million by the year 2020. Last year, the ports handled more than $200 billion in cargo, or about one-quarter to one-third of the nation's waterborne commerce. This has had huge ripple effects in Southern California and across the country in the form of jobs, tax revenues and general economic activity.

In the early 1980's, there was growing concern about the ability of the ground transportation system to accommodate increasing levels of trade-related rail and truck traffic in the port area. By 1989, the cities and ports of Los Angeles and Long Beach had joined forces to form a joint powers authority that later became the Alameda Corridor Transportation Authority. The agency then selected a preferred project: consolidating four branch lines serving the ports into a 20-mile freight rail expressway that is completely grade-separated, including a 10-mile-long 30-foot-deep trench that runs through older, economically disadvantaged industrial neighborhoods south of downtown Los Angeles. The project would eliminate traffic conflicts at more than 200 street-level railroad crossings.

PROJECT FINANCING AND FUNDING

Our broad base of cooperation is also evident in the project's unique finance plan, which draws revenue from a range of both public and private sources.

The linchpin of this funding plan was designation of the Alameda Corridor as a "high-priority corridor" in the 1995 National Highway System Designation Act. That designation cleared the way for Congress to appropriate $59 million needed to back a $400 million loan to the project from the U.S. Department of Transportation. As mentioned previously, Senators Boxer and Feinstein, along with California Congressman Stephen Horn and Congresswoman Juanita Millender–McDonald and other members of our congressional delegation, were instrumental in helping to form a bipartisan congressional coalition to support this effort. It is important to point out that this financing arrangement preceded the passage of TEA–21, and the associated provisions known as TIFIA. ACTA was pleased to work cooperatively with Department of Transportation officials and congressional staff, to be a "trailblazer" with the Office of Management and Budget and forge an innovative arrangement to finance an intermodal project of national significance.

Similarly, at the State level, ACTA worked closely with both Republican and Democrat members of the Legislature, Governor Pete Wilson along with the California Business, Transportation and Housing Agency, the California Transportation Commission and the Department of Transportation to include the project in short- and long-range plans and to expedite State funding. At the local level, ACTA coordinated closely with Mayor Beverly O'Neill of Long Beach and then–Mayor Richard Riordan of Los Angeles for support of the project, and ACTA worked closely with the Los Angeles County Metropolitan Transportation Authority to set aside State and Federal grant funds and local transportation sales tax revenues for use on the Alameda Corridor. And, of course, the ports provided almost $500 million in startup funding and for the purchase of rights-of-way.

The collective assistance offered by Federal, State and local agencies and elected officials provided the base funding—the leverage, if you will—for the biggest piece of our financing package—more than $1.1 billion in proceeds from revenue bonds sold by ACTA. The bonds and the Federal loan are being retired by use fees paid by the railroads. The Use and Operating Agreement between ACTA and Burlington Northern and Santa Fe Railway and Union Pacific Railroad, approved in October 1998, is truly unprecedented. Never before had the competitive railroads cooperated on a project to the extent that they did on the Alameda Corridor. Like the ports, the BNSF and the UP put aside their rivalry to cooperate on a project with positive economic implications at the national, regional and local levels.

In the end, funding for the Alameda Corridor came from multiple public and private sources and resulted from bipartisan support. The funding breaks down roughly like this: 46 percent from ACTA revenue bonds; 16 percent from the U.S. Department of Transportation loan; 16 percent from the ports; 16 percent from California State and local grants, much of it administered by the Los Angeles County Metropolitan Transportation Authority, and 6 percent from other sources.

PROJECT CONSTRUCTION

As with project planning and funding, construction also required extensive cooperation and coordination among multiple entities.

The Alameda Corridor included, among other elements, construction of 51 separate bridge structures, relocation of 1,700 utilities, pouring of 27,000 concrete pilings and removal of 4 million cubic yards of dirt excavated to make way for the Mid–Corridor Trench. More than 1,000 professionals from 124 engineering and construction management firms, as well as more than 8,000 construction workers, contributed to the project. Moreover, construction occurred in eight different government jurisdictions. Any project of the Alameda Corridor's size and scope inevitably encounters hurdles in the construction process that can lead to delays. There are many reasons why our project stayed on schedule, but at the top of the list are our permit facilitating agreements with corridor communities and utility providers, and our decision to use a design-build contract for the Mid–Corridor Trench.

ACTA saved an estimated 18 months on project delivery by utilizing the design-build approach for our largest contract, the Mid–Corridor Trench. The design-build approach allows for the overlapping of some design and construction work and provides greater control over cost and scheduling. Design-build authority was obtained through an ordinance approved by the Los Angeles City Council. This enabled ACTA to subject the contractor to significant liquadative damages if the contract was not completed by a fixed date at a fixed price.

Before construction began, ACTA negotiated separate Memoranda of Understanding with each city along the route, detailing expedited permitting processes,

haul routes for construction traffic and the protocol for lane closures and temporary detours. By agreeing in advance on these and other issues, we streamlined a complex construction process and saved time and money.

DIRECT COMMUNITY BENEFITS

One key to securing the MOUs and additional community cooperation and support was to deliver on our promises of direct community benefits.

By eliminating more than 200 at-grade railroad crossings, the Alameda Corridor is projected to reduce emissions from idling trucks and automobiles by 54 percent, slash delays at railroad crossings by 90 percent and cut noise pollution by 90 percent. The project also reduces traffic congestion through improvements to Alameda Street. But from the start, the ACTA Governing Board wanted to leave a lasting legacy beyond construction of a public works project. This was accomplished by creating several community-based programs.

Through its contractors and various community partnerships, ACTA administered several programs designed to provide local residents and businesses with direct benefits that would long outlive construction. For example:

- The Alameda Corridor Business Outreach Program offered technical assistance, networking workshops and aggressive outreach to provide disadvantaged business enterprises with the tools they need to compete for work on the project. Disadvantaged firms—known as DBEs—have earned contracts worth more than $285 million, meeting our goal for 22 percent DBE participation.
- The goal of our Alameda Corridor Job Training and Development Program was to provide job training and placement services to 1,000 residents of corridor communities. We exceeded that goal—almost 1,300 residents received construction industry-specific job training, and of those 637 were placed in construction-trade union apprenticeships.
- The Alameda Corridor Conservation Corps provided life skills training to 447 young adults from corridor communities, exceeding the goal of 385. While studying for high school class credits, these young adults completed dozens of community beautification projects in corridor communities, including graffiti eradication, tree-planting and debris pickup. After completing the 3-month program, recruits had the option to join the Los Angeles or Long Beach conservation corps chapters full time, phase into a city college program or enroll in a business, vocational, trade school or apprenticeship program.
- And finally, in partnership with the World Trade Center Association Los Angeles–Long Beach, the Alameda Corridor Transportation Authority International Trade Development Program has provided technical training and international trade-specific job skills to 30 entry-level job seekers in local communities. In addition, some 600 local companies seeking inroads into the import or export business have been identified for one-on-one technical assistance. That assistance is being provided throughout this year. This unique program is helping local residents and businesses capitalize on international trade.

These community-based programs ensured that local residents and businesses did not get left behind, that they would receive direct and long-lasting benefits from the project.

THE FUTURE

The efficient movement of cargo through our nation's ports and on our rail lines and highways is a critical issue not only in Southern California—which has the nation's two busiest ports—but the Nation as a whole. The Alameda Corridor is truly the backbone of an emerging trade corridor program in Southern California. Already, others are following our lead, including governmental agencies in Los Angeles, Orange, San Bernardino, and Riverside Counties who are building grade-separation projects.

In addition, ACTA and the California Department of Transportation are working under an innovative cooperative agreement to develop plans for a Truck Expressway that would provide a "life-line" link between Terminal Island at the Ports and the Pacific Coast Highway at Alameda Street. The Alameda Corridor Truck Expressway is intended to speed the flow of containers into the Southern California marketplace. Environmental reports are being prepared, and the project could be ready for approval as early as March 2003. At ACTA, we believe that by restructuring our Federal loan we can undertake this critical Truck Expressway project without any additional Federal financial support.

IMPLICATIONS AND RECOMMENDATIONS

The Alameda Corridor not only creates a more efficient way to distribute cargo, but it also boosts the regional and national economies by keeping the ports competitive and capable of generating additional economic growth. Moreover, it provides direct, long-lasting benefits to local residents and companies, benefiting the entire region with a legacy well beyond actual construction. In short, the Alameda Corridor has demonstrated the benefit of investment in well-planned and well-executed intermodal transportation infrastructure.

As your committees, the full Congress, and the U.S. Department of Transportation begin the TEA–21 reauthorization process, including the formulation of policies to address growing freight rail and truck traffic congestion and other challenges posed by international trade, we respectfully offer these policy recommendations, based on our experience with the Alameda Corridor:

- The planning and funding of intermodal projects of national significance, directly benefiting international trade, should be sponsored at the highest levels within the Office of the Secretary of Transportation. There should be a national policy establishing the linkage between the promotion of free trade and support for the critical intermodal infrastructure moving goods to every corner of the United States. Public-private partnerships do in fact work and should be promoted and encouraged by Federal transportation legislation.
- A specific funding category is needed to support intermodal infrastructure projects, and trade connector projects. Consideration should be given to new and innovative funding strategies for the maritime inter-modal systems, infrastructure improvements enhancing goods movement.
- The Alameda Corridor project benefited from a Department of Transportation willing to undertake risk and provide loan terms that were not available on a commercial basis. This Federal participation gave private investors confidence in the project and made bond financing possible.

Most important, in my mind, is this: The success of the Alameda Corridor has shown that Federal investment in trade-related infrastructure can benefit the economy without sacrificing quality-of-life issues.

Mr. Chairmen, once again, thank you for inviting me here today. That concludes my remarks. I would be happy to address any questions.

STATEMENT OF PETER RAHN, CABINET SECRETARY, NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INNOVATIVE FINANCE: LEVERAGING ORDINARY RESOURCES INTO EXTRAORDINARY SUCCESSES

Mr. Chairman and members of the committee, I appreciate this opportunity to submit testimony concerning the positive benefits that the State of New Mexico has received through innovative financing for transportation, and how our State has leveraged ordinary resources into extraordinary successes.

Flexible and stable revenue from Congress has enabled the New Mexico State Highway and Transportation Department the ability to deliver dramatic results for our citizens through improvement and enhancement of our transportation system. We have developed and implemented new ways to finance and contract highway construction projects.

Since 1998 we have used innovative financing techniques to bond $1.2 billion that advance highway construction projects by as much as 27 years. We are building quality projects that provide enormous returns on investment for the taxpayers and deliver economic benefits today.

New Mexico's strategy is to connect our communities to regional and national economic opportunities by building four-lane corridors. This access has historically been limited to our Interstate system, serving less than 70 percent of our population. Today we have added 653 miles of new four-lane highways that link 96.7 percent of our citizens to these vital economic opportunities.

As well as adding 653 miles of four-lane highways, we have built 4 urban relief routes, 15 interstate interchanges and the Big I, which is the intersection of the Interstates 25 and Interstate 40-that serves as a bridge for regional, national and global commerce. Our efficiency, combined with stable and flexible Federal funding, provides a seamless regional transportation system to serve this commerce and continue the movement of products to market. Our urban citizens are moving more quickly and safely to work, school and medical care.

Innovative finance enabled us to use Grant Anticipation Revenue Vehicle Bonds (GARVEE Bonds) to construct four-lanes on NM 44 from central to northeast New

Mexico. Because of Federal revenue stability, both Standard and Poor's and Moody's rated our bonding proposals at "A" level investment grade. We were able to construct a 118-mile four-lane highway corridor in 28 months with a 20-year warranty that will save the taxpayer $89 million in maintenance costs. This 118-mile corridor would have taken 27 years to construct under traditional methods.

We have also improved the road quality of our Interstate and State Highway system through our innovative financing program. We have reversed a 20 5-year trend in our deteriorating State and interstate highways. Since 1998, we have improved 3,035 miles highways—a 51 percent decrease in our deficient status highway miles. In 1999 only 81.8 percent of our Interstate highway system was rated in good condition—today 98.7 percent of this system is in good condition.

In addition to major improvements to our system, our citizens have benefited through economies of scale. In 1995 New Mexico's cost per mile of four-lane construction was $1.3 million. In 2002, through our large bonding program, we reduced that cost to $740 million per mile. This economy of scale construction saves our State over $182 million in four-lane corridor construction.

Investment in the nations transportation infrastructure yields high returns. Based on information generated by the National Highway Users Alliance, the Big I will save personal and commercial users $8.1 billion in time; $870 million in fuel; $460 million in safety; and another $670 million in environmental impacts. This $286 million investment by Congress will realize a $10.1 billion return on investment. This $10.1 billion return on investment for one project is 34 times greater than the interest paid on our entire bonding program.

It is critically important that we understand and acknowledge our innovative financing program would not be the success that it is without the provision for flexible, stable and reliable funding. States across the country have invested in the national infrastructure based on the guaranteed funding levels. These guarantees have enabled us to program and deliver projects in a predictable financial climate. In fact-based on the FHWA highway construction inflation rate of 4.5 percent—our entire bonding program, with an interest rate of 4.47 percent, delivers $1.2 billion of transportation improvements to New Mexico at a lower cost and the benefit of being used today rather than years in the future.

We can assure our citizen's that all user fees directed to the Highway Trust Fund are being spent for its designated purposes, and we can speak with confidence about the Federal transportation-financing picture over a multi-year period. Strong budgetary mechanisms, balanced planning and streamlining program delivery have made innovative finance work for New Mexico.

RESPONSES OF PETER RAHN TO ADDITIONAL QUESTIONS FROM SEN. BAUCUS

Question 1. I have some concerns about Garvee bonds. I understand the advantage using future apportionments to guarantee bonds, so you can enjoy the additional capital today. But what is going to happen tomorrow when you need to use your future apportionments to build and maintain highways, but the money already been spoken for as repayment for the project you did today?

Response. States have to be adept at what they utilize GARVEE bonds for. Critical projects that produce major returns on investment in the areas of economic development opportunities, safety and congestion relief are most suitable for bonding, especially when the cost of the project is outside the bounds of what can be accommodated within the normal STIP process. By this I mean, that a single project would take an inordinate percentage of the annual construction program to construct. Three of our bonded projects would have each exceeded the total annual construction dollars available to New Mexico and three more would have each exceeded 50 percent.

To utilize GARVEE bonds, or any bonds for that matter, to pay for maintenance activities would be a mistake. Maintenance should be accommodated within existing budgets, as we have provided for in our future plans. However, the notion that new construction projects will be on hold until the issued bonds are retired—and therefore bonds should not be used at all—is flawed. If bonds had not been issued in New Mexico, not only would those other projects be waiting, so would the projects now in place.

The economic benefits of bonding must also be factored into the decision. Building large projects at one time can produce many millions of dollars in savings from economies of scale. Additionally, current low interest rates are attractive when compared to nearly identical inflation costs within the highway construction sector. The true costs are practically the same, but the benefits of use are available today.

Question 2. Why didn't the State just issue State general obligation bonds or private activity bonds? Why chose Garvees?

Response. New Mexico chose to issue GARVEE bonds rather than general obligation bonds due to the ease and speed with which GARVEES could be taken to market versus the lengthy process required by the State constitution to utilize GO bonds. Private activity bonds do not enjoy the same tax advantages as GARVEE bonds.

STATEMENT OF JOHN HORSLEY, EXECUTIVE DIRECTOR, THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

Mr. Chairmen and members of the committees, my name is John Horsley. I am the Executive Director of The American Association of State Highway and Transportation Officials (AASHTO). I am here today to testify on innovative and other financing issues as the Congress begins consideration of legislation to reauthorize the Federal-aid highway and transit programs.

First, I want to thank you both for your leadership in fully restoring highway funding for fiscal year 2003 to $31.8 billion as AASHTO, the National Governors' Association and many others have urged. As I will discuss today, RABA needs to be fixed next year to avoid radical swings in funding levels, but without your help, we would still be facing a disastrous cutback this year.

Senator Baucus, AASHTO would like to commend you for your leadership in transferring the 2.5 cents per gallon of gasohol tax revenues from the General Fund to the Highway Trust Fund and for your efforts to credit interest to the Highway Trust Fund where it belongs and will help greatly.

In addition, I want to thank both Chairmen for demonstrating their leadership by scheduling this very important hearing. I am honored to be invited to testify on these important issues and to offer the views of AASHTO on a variety of financing issues. Mr. Chairmen, I would like to begin by recognizing the contribution that TEA–21 has made to address the nation's need to invest in our highway and transit systems. We have seen record level investment made possible by that legislation and we at AASHTO commend the Congress and these two committees for your contributions to achieving that result. However, as much as that investment has contributed ($208 billion), the national needs continue to far outstrip the available resources. Your holding this hearing gives us the opportunity to recognize those needs and to suggest ways that working together we can increase investment in surface transportation as part of the reauthorization bill while maintaining fiscal discipline.

HIGHWAY AND TRANSIT FINANCING HISTORY

Mr. Chairmen, the Federal-aid highway program since 1956, and since 1982 the mass transit program, have financed critical national transportation investments primarily from the dedicated depository of revenue the Highway Trust Fund. There are a variety of fees deposited in the Trust Fund, but the largest source of income by far has been fees levied on motor fuels (gasoline and diesel). Although the needs for highway and transit investment have dramatically increased, fuel-related user fees have been adjusted only on a sporadic basis. The following chart provides a history of changes in rates since the creation of the Trust Fund in 1956.

Changes in Gasoline Tax: 1956–Present

Year	Total Tax	Highway Account	Mass Transit Account	Deficit Reduction	Leaking Underground Storage Tank
1956	3	3			
1959	4	4			
1983	9	8	1		
1987	9.1	8	1		0.1
1990	14.1	10	1.5	2.5	0.1
1993	18.4	10	1.5	6.8	0.1
1995	18.4	12	2	4.3	0.1
1997	18.4	15.44	2.86	0.1	

Source: FHWA, ''Financing Federal Aid Highways,'' 1999

In concert with increases in user fees there was growth in funding for both the highway and transit programs. The most dramatic growth occurred since 1991 starting with the enactment of ISTEA and reinforced by TEA–21. However, in spite of

this growth, needs continue—by anyone's measures—to far outstrip available Federal, State and local resources. At its completion, TEA–21 will have provided $208 billion for highways, transit and safety, but the needs as measured by the U.S. Department of Transportation are far greater than even this record level investment.

In the 1990's, various innovative financing techniques were piloted and then enacted into law through the National Highway System Designation Act and TEA–21. Among the tools that now are part of many State DOT financing approaches are: eligibility of Federal-funding to pay debt service for project financings; grant anticipation notes also known as GARVEE Bonds; tapered match, which allows States to manage matching shares over the life of a project; and the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) program introduced in TEA–21 that provides secured loans, loan guarantees and standby lines of credit to surface transportation projects of national or regional significance. These tools are useful but only fill a niche in the program and project financing toolkit. We clearly need to do more with innovative financing in the future to enhance the mechanisms, and apply innovative financing to more areas of surface transportation. I will provide ideas for the committees' consideration later in my testimony.

AASHTO'S PROPOSED FUNDING LEVELS FOR REAUTHORIZATION AND FINANCING OPTIONS

Mr. Chairmen, we believe the central issue in reauthorization will be how to grow the program. Huge safety, preservation and capacity needs exist in every region of the country. AASHTO will release shortly its Bottom Line Report, which projects needed highway investment to assure American mobility and to advance our economy.

The report will show that the annual level of investment needed to maintain current conditions and performance of our highway systems is $92 billion. The estimated annual level of investment needed to maintain the current conditions and performance of the nation's transit systems is $19 billion. These investment levels far exceed current investment and we recognize that the magnitude of increase needed is not likely to be made available through the Federal-aid highway program.

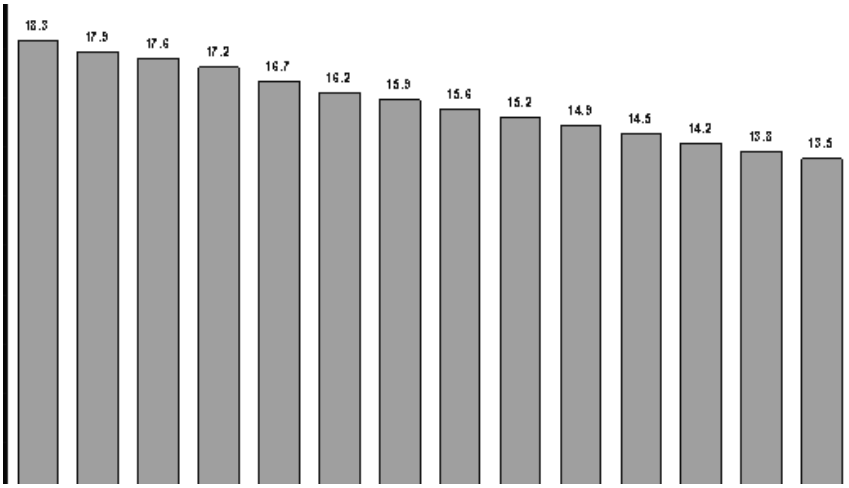
However, to begin to address these needs, AASHTO is seeking a substantial increase in funding over TEA–21 for both the highway and transit programs. Overall, as compared to TEA–21[1] obligation levels for highways and funding for transit, we seek to grow the program from at least $34 billion in fiscal year 2004 to at least $41 billion in fiscal year 2009 for highways and, likewise, from at least $7.5 billion in fiscal year 2004 to at least $10 billion in fiscal year 2009 for transit. These minimum figures represent 35 percent and 45 percent program increases, respectively.

The challenge is how to fashion a funding solution that can achieve these goals and garner the bipartisan support needed for enactment next year.

New sources of funding are needed to significantly grow the program. Without the introduction of new sources of funding, growth in the highway and transit programs will rely on additional revenues from increased travel and truck sales. Based on the latest data available to AASHTO, these revenues would translate to about a 10 percent program increase for highways over the life of a 6-year reauthorization bill.

This increase would not even come close to keeping up with the loss of purchasing power due to inflation. From 1996 projecting through 2009, inflation as measured by the Consumer Price Index results in a 26 percent decline in purchasing power. If reauthorization of TEA–21 includes only "status quo" options for achieving a larger program, we will soon find that the status quo is actually a rather a dramatic decline in investment due to the erosion of purchasing power. The following graph illustrates the impact of inflation on the current user fee rates.

[1]Growth calculations: Highway baseline of $168.7 billion includes TEA–21 obligation limitation, exempt and RABA. Transit baseline includes guaranteed funding of $36.35 billion.



Put another way, based on the Bureau of Labor Statistics inflation calculator, merely to have maintained the purchasing power of the three cent gasoline tax as was instituted in 1956, the gasoline tax today would need to be 20 cents.

Maintaining the status quo is not an option; however, as I said, the challenge is to develop a solution that attains at least $41 billion for highways and $10 billion for transit by 2009 that garners bipartisan support. The AASHTO Board of Directors is considering a menu of funding options to create additional revenues that includes drawing down the Highway Trust Fund reserves; capturing 2.5 cents per gallon gasohol revenues currently going to the General Fund for the Highway Trust Fund; transferring the equivalent of 5.3 cents per gallon of gasohol tax from the General Fund to the Highway Trust Fund to make up for the rate differential between gasohol and gasoline; capturing interest on Highway Trust Fund reserves; increasing General Fund support for transit; selling financial instruments; and indexing and raising Federal fuels taxes.

Although the program could grow somewhat without raising taxes, it would fall short of meeting national needs. AASHTO recognizes that the Congress needs funding and financing options beyond the traditional user fee increase approach. The Board also directed the AASHTO staff to explore the feasibility of leveraging new revenues through a Transportation Finance Corporation. While most of AASHTO's funding options are very straightforward, I would like to take a few minutes to describe the proposal to create a Transportation Finance Corporation, which could achieve AASHTO's goals for highway and transit funding without indexing or a tax increase, in more detail.

TRANSPORTATION FINANCE CORPORATION

In order to help close the sizable funding gap between surface transportation investment needs and projected resources available in the Highway Trust Fund, AASHTO is exploring including among its menu of funding options the concept of establishing a new tax credit bond program to raise revenue in the capital markets. We describe this concept as program finance, rather than project finance.

AASHTO proposes that Congress consider chartering a private, non-profit organization-the Transportation Finance Corporation-to serve as the centralized issuer of tax credit bonds. Approximately $60 billion in bonds would be issued between 2004 and 2009. From the bond proceeds, approximately $34 billion would be distributed to the highway program through FHWA according to an apportionment formula determined by Congress (perhaps similar to the current Federal-aid highway funding formula). About $8.5 billion would be made available to transit agencies on a basis to be determined. From a State (or transit agency) perspective, these funds would essentially be indistinguishable from regular Federal-aid apportionments: States would be required to comply with all Title 23 requirements to use the funds. In summary, the TFC would leverage approximately $18 billion in new revenues into an increase of nearly $43 billion in program funding for fiscal year 2004–2009.

The States would not in any way be liable for the repayment of the bonds. A portion of the bond proceeds (approximately $17 billion) would be set aside at issuance

and deposited in a sinking fund, which would be invested in Federal agency or other high-grade instruments. At maturity, the sinking fund will have grown to be sufficient to repay the bond principal. These taxable bonds would have a term of 20–25 years.

In lieu of interest, the bond holders would receive taxable tax credits that could be applied against the holder's Federal income tax liability. There is a cost to the U.S Treasury for this type of tax credit program. The Treasury would be reimbursed for the budgetary cost of the program (arising from tax expenditures) by additional Highway Trust Fund receipts derived from a new net source of revenue. Thus, there would be no impact on the Federal deficit.

This summer, AASHTO met with seven major bond underwriting firms (investment banks), two ratings agencies, and a bond insurer to assess the viability of the Transportation Finance Corporation proposal from the perspective of the financial community. In our due diligence we investigated the ability of the capital markets to absorb an additional $60 billion in investment; overall marketability of the bonds, including necessary and preferred characteristics of the financial instruments; potential investors; and credit assessment.

In addition, the TFC proposal contemplates up to $5 billion of Federal funding being used to fund a Capital Revolving Fund, which would make available direct loans, loan guarantees and standby lines of credit to a variety of surface transportation projects not readily fundable under existing Federal programs. This fund would be a catalyst to leverage capital for an expanded list of transportation to include, highways, transit, freight rail, passenger rail and security infrastructure. This funding would assist in promoting public private partnerships and attract new private capital to transportation projects.

Overall, we found a high level of interest in the program due to the equity and efficiency advantages of using debt proceeds to finance long-term infrastructure investments. Our key findings:

Tax credit bonds are marketable. The Corporation should be authorized to de-couple the principal from the stream of tax credits, and market each portion of the financing instrument to different groups of buyers on a discounted basis. For example, the principal component is likely to appeal to pension funds, and tax credits should be attractive to financial institutions & corporations. Major individual investors anticipating Federal income tax liability in future years are also potential purchasers of the tax credits, as are individual investors interested in safe, long-term investments. Securities firms would maintain an active and continuous secondary market in both the principal and tax credit portions to assure their liquidity.

Capital markets can absorb TFC paper. The proposed size of the program (an average of $10 billion per year over 6 years) equals 0.2 percent (two tenths of 1 percent) of the U.S. bond markets' $4.6 trillion debt issuance volume in 2001.

Marketability and liquidity are enhanced by a central issuer. Larger, more homogenous issues than the fragmented Qualified Zone Academy Bond (QZAB) school construction program should result in a more efficient secondary market and reduced transactions fees as well as centralized investor information leading to price transparency. A centralized issuer also mitigates tax compliance risk and ensures that all States benefit from the program rather than only States using debt financing.

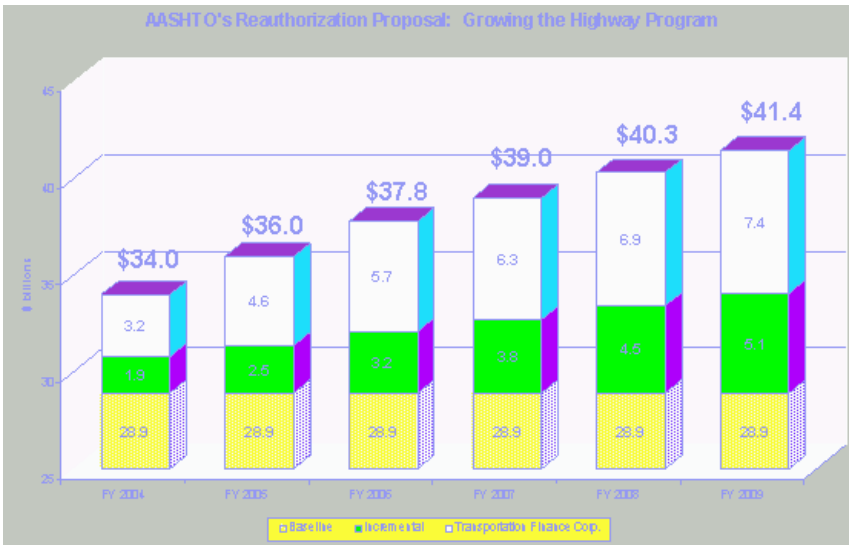
There is a broad potential investor base. Decoupling tax credits from principal will be more efficient and result in a broader investor base. The principal component should appeal to pension funds; tax credits are likely to be attractive to financial institutions and corporations; and allowing individuals to buy credits will broaden the market. The TFC will need to mount an investor education program to develop an efficient market.

Other aspects of the due diligence show that tax credit bonds are likely to be investment grade and, of course, that specific terms of the legislation will be critical to the success of the program.

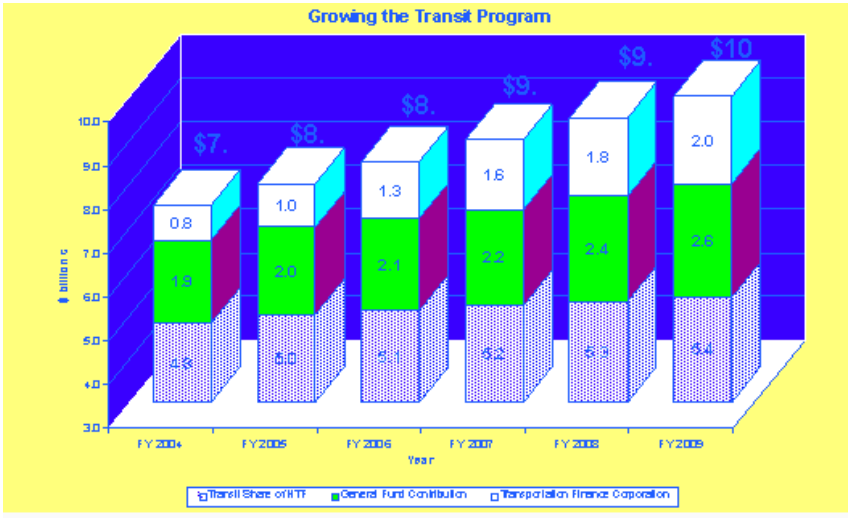
Our analysis shows that AASHTO's funding targets through fiscal year 2009 could be achieved through the Transportation Finance Corporation without indexing or raising fuel taxes. However, the program level would drop below fiscal year 2009 slightly for the following 3 years before it resumes positive growth in 2013. In our modeling, when the TFC concept was combined with indexing, the program continues healthy growth from fiscal year 2010 on. As you can see, the AASHTO staff and our Financial Issues Work Team have developed a creative proposal that appears feasible and has been well received. We commend it to you for your consideration.

Potential Program Growth Summary

The following charts illustrate potential sources of growth in highway and transit program funding.



"Incremental" represents revenues from travel growth, 2.5 cent per gallon gasohol transfer, and drawing down the Highway Trust Fund.



Innovative Financing Options

In addition to the menu of funding options, AASHTO wants to work with the Congress to enhance and strengthen current Innovative Financing tools. These changes include enacting legislation to extend the legislative authority in TEA–21 for State Infrastructure Banks to all States, assuring the continuance of the current innovative financing provisions and making improvements to the TIFIA program. Specifically, regarding TIFIA we recommend that the current $100 million threshold be reduced to $50 million which will serve to expand the universe of projects that can take advantage of this financing tool. In addition we urge the Congress to make clear the intent of the program is to be a minority investor and thus to demonstrate more flexibility in taking credit actions under TIFIA. This is not to suggest that care should not be taken in transactions involving taxpayer money but rather to meet

the program goals which are to round out financing of projects with Federal assistance.

The Board of Directors will be making final decisions on AASHTO's reauthorization financing recommendations in the late fall and I note that Chairman Baucus has included a number of items similar to those on the menu of options in legislation he recently introduced.

OTHER FINANCING ISSUES

Guaranteed Spending

One of the key features of TEA–21 is guaranteed spending. The assurance of stable, predictable funding has made it much easier for States to plan and carry out programs. AASHTO has adopted as a top priority ensuring the continuation of funding guarantees. Funding guarantees are essential to meeting our commitment to the traveling public, which pays the dedicated user fees for highways and transit programs, that they are receiving the benefits of their fees. The return on this investment in transportation programs is ensuring a competitive economy with hundreds of thousands of high-paying American jobs.

RABA Calculations

Another key feature of TEA–21 is the budgetary mechanism known as Revenue Aligned Budget Authority (RABA). This mechanism was designed to ensure that the receipts coming into the Highway Trust Fund Highway Account are fully utilized by the program. This mechanism added over $9 billion to the program thorough fiscal year 2002. However, due to the downturn in the economy, the look-ahead provision of RABA substantially overestimated fiscal year 2001 revenues; thus the RABA adjustment for fiscal year 2003 would have reduced the obligation levels for the highway program by $8.6 billion or 26 percent. AASHTO is pleased that the Congress is moving to restore this much needed investment funding.

AASHTO believes that it is necessary to preserve a RABA mechanism. However, action is necessary to ensure a more stable and predictable outcome. Therefore, we offer an option that would eliminate the look-ahead provision of current law and replace it with a provision that retains the look-back part of the calculation. This likely will make the program funding more stable but also will cause a buildup of revenue in the Highway account. Therefore to ensure full use of the revenue we also recommend including a provision that would reduce the cash balance in the Highway Account to a fixed minimum by raising the program level in the last year of the authorization bill to a level sufficient to reduce the balance.

Long-term Financing

Given the advent of more fuel efficient vehicles and the increasing use of alternative fuels, income to the Highway Trust Fund may be significantly reduced. In order to prepare for future reauthorizations AASHTO recommends that Congress create a Blue Ribbon Commission to study financing options and report its findings prior to the next reauthorization cycle.

CONCLUSIONS

The Federal-aid highway and transit programs have a long history of strong partnership with the States and have made major contributions to creating surface transportation systems that are among the best and safest in the world. However, by all measures surface transportation needs far outstrip investment resources.

AASHTO recognizes the need for additional investment and has proposed program increases of 35 and 45 percent for highways and transit. This increased investment is vital to the nation's economy and assures the continuance of high paying jobs in the transportation sector.

Recognizing the need to offer creative solutions for revenue generation, AASHTO is considering including a proposal for the creation of a Transportation Finance Corporation in its menu of funding options. This federally chartered non-profit corporation would leverage funds for the program and take advantage of the private capital markets for bringing revenue into the program. In addition, the TFC would include a Capital Revolving Fund that could leverage as much as $30 billion in credit support for a variety of transportation programs including, highways, transit, freight, and passenger rail and security infrastructure. This fund will likely serve as a catalyst for generating public/private partnerships and thus further expand investment in transportation programs.

Guaranteed spending is a key feature of TEA–21. It provides predictable funding so that States can plan with a greater degree of certainty. It assures that dedicated

user fees are spent on the programs for which they were collected in a timely manner. One of AASHTO's reauthorization goals is to preserve guaranteed spending.

RABA has served to ensure that increased revenue is utilized for programs without having to wait until the next reauthorization cycle to increase program levels in highways. There needs to be adjustments to the RABA mechanism to make the results more predictable and AASHTO has offered a solution that could accomplish that end.

In the long-term, consideration needs to be given to possible new sources of income and way to collect income to ensure that there is sufficient income to make the investments in transportation necessary to meet the nation's needs in the future.

We look forward to working with the Congress to enact legislation that will ensure continuing maximum possible investment in our transportation system. 1 Growth calculations: Highways baseline of $168.7 billion includes TEA–21 obligation limitation, exempt and RABA. Transit baseline includes guaranteed funding of $36.35 billion.

RESPONSES OF JOHN HORSLEY TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. A major piece of your testimony centers on the creation of a Transportation Finance Corporation. Under your proposal, the TFC would issue tax credit bonds. We have heard testimony from GAO that these instruments are the most costly long-term to the Federal Government. Why does AASHTO consider this to be the most appropriate bonding mechanism for the Federal-aid program?

Response. I think GAO's testimony points out how difficult it is to compare these disparate financing tools on an "apples-to-apples" basis.

On the one hand, it shows that financing transportation improvements by issuing debt—whether through TIFIA credit instruments, tax credit bonds or tax exempt bonds—entails a cost (interest expense) that could be avoided if sufficient grant funds were on hand in the first place. But the problem, of course, is that grant moneys often are not available up front. And obtaining the benefits of accelerating infrastructure investment through debt financing techniques, while perhaps not the least costly method, may in fact be the most cost effective approach taking into account the benefits as well as the costs.

On the other hand, GAO's testimony reveals the different ways in which certain financing tools are used and the different levels of Federal subsidy conferred by those techniques. GAO's cost assumptions attempt to capture the various financial profiles of "typical" transportation projects that might benefit from the different financing tools. For example, under the normal Federal-aid grant reimbursement scenario, the Federal share is 80 percent. Compared to that traditional payas-you-go approach, the various debt financing techniques tend to leverage Federal resources and induce greater non-Federal investment. The average Federal share ranges from about 20 percent for projects funded with tax-exempt bonds to about 25 percent for TIFIA-funded projects to somewhere between 50 and 70 percent for projects funded with tax credit bonds (depending on several underlying assumptions). hi all cases, however, the relative Federal share is less than that of the base case of grant reimbursements.

The important point, I think, is that these different tools may be most cost-effective for different types of projects that require different levels of Federal assistance. If critical infrastructure investments need to be made, and up-front grant funding is not available, then project sponsors simply must look at other financing options. And depending on a particular project's costs, benefits and access to revenues, the use of one or more of the financing tools examined by GAO may prove cost effective.

Mr. Chairman, we are looking for the art of the possible. When we tried to put together a vehicle that, as Pete Rahn was describing, could leverage revenues that are potentially available to achieve the overall funding targets we are seeking for fiscal years 2004–2009, we looked at several options.

We looked at whether simply relying on tax-exempt municipal bonds issued at the State level would work, and concluded it would not—because so many States have obstacles, either statutory or constitutional, to the issuance of debt and the utilization of GARVEEs and some of the other financing techniques. So we figured that simply proposing what is currently allowed would not extend universal help to all 50 States with regard to raising overall transportation funding levels.

We looked at the possible utilization of tax-exempt bonds at the Federal level and figured that would compete directly with Treasury securities, so that was not a good vehicle. We then looked at the appeal of the tax credit bond concept. It was currently pending in RIDE–21 (the Rail Infrastructure Development and Expansion Act

for the 21St Century) as a vehicle for funding high-speed rail, and has been used to help fund schools through the so-called QZAB (Qualified Zone Academy Bond) program.

Our conclusion was that the TFC (Transportation Finance Corporation) was the most efficient, most viable method for boosting surface transportation funding. It would score well under the Federal budgetary scoring rules and, just in practical terms, would get us with current or likely revenues—or revenues enhanced with indexing—to the overall funding targets that the States feel are essential: more than $40 billion annually for highways and more than $10 billion annually for transit.

Question 2. Does it make sense to issue bonds to support the mainline work of State DOTs, namely system preservation? Would it not be more appropriate to reserve debt financing for capital improvements, and particularly for those projects with associated revenue streams?

Response. Mr. Chairman, the Transportation Finance Corporation we are talking about we classify as program financing, which would be available to all States to use for those purposes. TFC proceeds, in our proposal, would be available for the same types of capital outlays eligible under title 23 and title 49 as are Federal-aid grants and GARVEE bonds today. Maintenance and system preservation would still be the responsibility of the States.

We are looking for a near-term practical solution that gives you a measure you can pass with bipartisan support to boost funding for the next cycle to the levels we are after.

When it comes to the issuance of municipal bonds at the State level, I think each State has to make a judgment about whether they should issue long-term debt for long-term purposes, such as schools, water and sewer plants, and hospitals.

Almost every other area of public infrastructure is financed significantly through debt. We think that transportation has been slower than those other sectors to come to the table and use debt financing for long-term infrastructure. But we think the time has come.

As you have heard from both of these panels, the market is there and the transportation agencies are there and are utilizing debt financing on an increasing basis. But the one differentiation I wanted to make was between program finance, which would generate grants from bond proceeds that flow out to all the States as cash over the 6-year reauthorization period—and then State DOTs could leverage it further by issuing GARVEEs or through other means—as opposed to project finance (bonds earmarked for a particular project), which States can do today and which we also support.

STATEMENT OF JEFFREY CAREY, MANAGING DIRECTOR, MUNICIPAL MARKETS, MERRILL LYNCH & CO.

MAINSTREAMING INNOVATIVE FINANCE: A CAPITAL MARKETS PERSPECTIVE

Chairmen, Ranking Members, members of the committees, ladies and gentlemen, I am Jeff Carey, a Managing Director in Municipal Markets at Merrill Lynch. As a 24-year veteran in public, transportation, and infrastructure finance, I have had the privilege to work with U.S. Department of Transportation and Federal Highway Administration officials, as well as our clients, State transportation officials and other project sponsors, during the last decade on the development and implementation of "Innovative Finance" mechanisms for Federal-aid transportation programs. Thank you for inviting me to provide a wrap-up commentary from a Capital Markets perspective at today's Joint Hearing.

You have heard testimony this morning from two very experienced panels of U.S. DOT and State transportation officials, a city councilwoman, the GAO, and Professor Seltzer on the very significant accomplishments of the DOT Innovative Finance Initiatives. Public finance industry professionals are pleased to have played a role in creating the strong market reception for the new transportation funding tools and expanded flexibility for public/private partnerships. We commend these panel participants, and the leadership from DOT and FHwA, other State transportation officials, and private sponsors for the dramatic evolution from the Eisenhower-era, Federal-aid funding to the wide array of financing instruments and programs introduced and utilized over the last 8 years.

To briefly reflect on the prior testimony involving program and project finance and case studies, ISTEA, post–ISTEA initiatives and TEA–21 implementation have produced the following market-related accomplishments: 1) dramatically increasing bondholder investment in transportation projects and State programs; 2) new and/or specially dedicated revenue streams, particularly for the purpose of retiring debt

obligations; 3) broad market acceptance of the use of Federal-aid funding for debt instrument financing; 4) more coordination with other funding partners beyond States, and; 5) lower financing costs and increased project feasibility through Federal credit enhancement.

1. Addressing characteristics sought by the Capital Markets and private sector project sponsors provides efficient market access and innovative transportation finance opportunities. What do market intermediaries underwriters, rating agencies, bond issuers, project sponsors and institutional and individual investors want?

Characteristics

- Sound, understandable credits
- Evidence of government support
- Strong debt service payment coverage
- Predictability and Federal program consistency with evolution of new instruments
- Market rate investment returns for bonds, development costs, and equity
- Reasonable and reliable timing of issuer's revenue/grant receipts
- Acronyms that capture the Federal programs' spirit and promote investor familiarity
- Diversified range of investment opportunities
- Volume, market profile, and liquidity

For example, the track record and predictability of the Federal-aid highway program since the Eisenhower-era has enabled Grant Anticipation Revenue Vehicles (GARVEE) bonds to be structured without the double-barrel credit of other State credit backstops, as first used in New Mexico.

It was the strong issuance history of municipal bond banks in States such as Vermont, as well as the successful use of State wastewater and clean water revolving funds, that served as the model for the development of State Infrastructure Banks (SIBs) in the mid–1990's.

And it was the broad market acceptance of municipal bond insurance and bank letters of credit that provided a model for the development of TIFIA credit assistance and pre–TIFIA successes such as the Alameda Corridor multi-modal project.

As David Seltzer commented in the first panel, are the Federal policy incentives in Innovative Finance initiatives suitable to attract and expand capital markets investment? And are the programmatic tools and requirements balanced to provide the characteristics sought by debt investors and private sponsors, as well as public entities?

2. How various Innovative Financing components have been used by public agencies and, in some cases, private sponsors, and received by the markets provides a roadmap for surface transportation reauthorization.

When State Infrastructure Banks (SIBs) were created as part of the NHS Act in 1995, the pilot program for 10 State transportation revolving funds became very popular in 1996, in part, because of supplemental Federal funding for "seed" capitalization matched with non–Federal funds. As highlighted in FHwA's State Infrastructure Bank Review from earlier this year, 32 States have active SIBs and have made different levels of highway and transit project assistance primarily through loans, despite widespread under-capitalization and the curtailment of the program in TEA–21. Limited capitalization has resulted from the inability to use Federal-aid funds, outside of four States, and the application of Federal requirements to all moneys deposited in the SIB, regardless of whether the source was State or private contributions, or repaid loans. In addition, only two States have leveraged their SIB programs through the issuance of bonds.

As a flexible, State-directed tool, SIBs have greater potential to provide loans and credit enhancement that can be realized through further modification as part of Reauthorization:

- Extend the program to included all States;
- Expand capitalization to meet demands with supplemental Federal appropriations and by permitting the use of future Federal-aid funds to capitalize SIBs;
- Rollback the imposition of Federal requirements on SIB-funded projects, or, at least, exempt "recycled" loan repayments and State contributions, as permitted under the 1995 NHS Act Pilot Program;
- Encourage States to expand capitalization by leveraging their SIB program through the issuance of bonds; and
- Remove "pilot" moniker from the SIB Pilot Program to send strong signal of on-going Federal support.

Reauthorization should provide incentives for public/private, market-based partnerships that finance, develop, operate, and maintain highways, mass transit facili-

ties, high-speed rail and freight rail, and inter-modal facilities. This could be accomplished by permitting the targeted use of $15–20 billion of a new class of private activity bonds, and/or by modifying certain restrictions in the Internal Revenue Code on tax-exempt bond financing of transportation modes. We commend the members of the Senate and the Finance Committee for your prior consideration of the Highway Innovation and Cost Savings Act (HICSA, 1999), the Highway Infrastructure Privatization Act (HIPA, 1997), and, most recently, the Multi–Modal Transportation Financing Act (Multitrans).

My office is across West Street from the World Trade Center site. As workers in downtown Manhattan, we greatly appreciated your passage of Federal legislation creating a "Liberty Zone" for the redevelopment of lower Manhattan and for the creation of a new type of tax-exempt private activity bonds, Liberty Bonds, for the rebuilding and economic revitalization of New York City.

Existing tax law discourages private investment in transportation projects, prohibiting lower cost tax-exempt financing for projects involving private equity investment and incentive-based, private sector operating contracts. Transportation infrastructure financing deserves a bond mechanism similar to Liberty Bonds under Reauthorization to attract more private investment, as well as increase the use of new construction techniques, cost controls, performance guarantees and technologies. A new class of private activity bonds for qualified highway infrastructure, mass commuting vehicles, and other transportation projects would expand the application of the tax-exempt financing and lower the cost of capital, making public-private partnerships more attractive to public sector sponsors than conventional approaches.

3. Past "Innovative Finance" should become mainstream transportation finance under TEA–21 reauthorization and the Federal Government should provide new financing tools and initiatives, at least on a pilot basis. From a financial markets perspective, Congress should use this opportunity to make refinements to more clearly articulate transportation financial assistance goals and send a consistent message as to how the Federal Government is going to act toward investors, project sponsors and all program participants.

- TEA–21's funding guarantees and firewalls that permit the flexible use of GARVEE Bonds beyond multiple reauthorization periods should be maintained, and radical swings in budgetary funding from RABA (Revenue Aligned Budgetary Authority) should be avoided. Similarly, transit funding guarantees should also be preserved.
- Examine the creation of a government corporation, perhaps in a form discussed by AASHTO, to provide a focus on transportation infrastructure finance, possibly administer a portion of DOT's financing programs, and provide a basis for new financing tools, such as tax credit bonds. Federal Government corporations have helped the capital markets create strong and liquid markets to fulfill other policy and programmatic objectives.

The creation and implementation of U.S. DOT Innovative Financing Initiatives over the last 8 years has prompted an even more vigorous debate about transportation financing issues, challenges, and future innovation with the coming year's surface transportation reauthorization. This ongoing debate, coupled with past and current Program successes, will encourage a further willingness to look beyond Federal-aid grant reimbursement, introduce additional players in transportation finance and enlarge the spectrum of instruments and programs to attract additional private and capital markets investment. The success of Innovative Finance places a higher level of responsibility on the Federal reauthorization process to maintain the characteristics attracting strong capital markets participation. Municipal Markets participants will continue to work with Congress, DOT, States, local governments, and private sector sponsors to maximize leverage and investment levels in transportation infrastructure over the coming authorization period and beyond.

I am pleased to have the opportunity to participate in today's Joint Hearing with such knowledgeable witnesses. Thank you, again, for the opportunity to testify. I look forward to responding to any questions you may have.

RESPONSES OF JEFFREY CAREY TO ADDITIONAL QUESTIONS FROM SENATOR BAUCUS

Question 1. The Capital Markets would positively view and receive a Tax Credit bond proposal where the proceeds of the bonds are deposited directly into the Trust Fund. First, raising and depositing additional funds to the Trust Fund will supplement and diversify the sources of Trust funding, adding to the proposed sources from the MEGA–TRUST Act, and further address characteristics sought by the capital markets, as noted in my testimony. This additional, predictable funding will fur-

ther strength GARVEE credits and other Federal aid highway derived project financing.

Response. In your question, you correctly acknowledge that QZABs, as the only existing tax credit bonds, provide little guidance for the market's receptivity due to relatively small issuance volume, disparate issuers, and credit considerations. The proposed year sale of $3 billion, Qualified Highway Bonds by Treasury under the MEGA–INNOVATE Act responds to some tax credit bond marketability concerns by providing larger issuance volume over the Reauthorization period by a centralized issuer. Market participants continue to believe that the centralized issuance of tax credit bonds where the tax credit can be decoupled, or stripped, from the principal repayment stream could attract major buyer interest, as well as active trading by securities dealers. Decoupling would broaden the market for the bonds since tax credit bonds are hybrids, with a tax-advantaged non-cash piece (the credits) and a cash-on-cash piece (the principal), attracting different types of investors. This follows the Senate Finance Committee Chairman's goal to attract new and different taxable bond and tax credit investors to supplement the current, dominant buyers of tax-exempt transportation bonding.

Question 2. The advantages and disadvantages of using some of the proposed Tax Credit bond proceeds to go into a sinking fund to repayment bond principal closely relate to using a centralized issuer, either Treasury or dedicated national transportation issuer.

Response.

Advantages of a Sinking Fund:

- Should result in very low risk of default of principal, if sinking fund investments are limited to highly rated instruments;
- Homogenizes the creditworthiness of different series of bonds, enhancing marketability/liquidity (no local issuer variances); and
- Overcomes disparities among States in terms of their legal ability to incur debt or their political willingness to do so.

Disadvantages of a Sinking Fund:

- Somewhat inefficient from a tax viewpoint, in that 30 percent (plus or minus) of the tax expenditures are for bonds that are funding the retirement of principal rather than funding new transportation projects.
- At some point, it may be difficult to find attractively priced, highly rated, long-term defeasance investments in sufficient volume.

RESPONSES OF JEFFREY CAREY TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. As many in the Senate will recall, Private Activity Bond (PABs) rules were historically an outgrowth of the perceived overuse of industrial development bonds, where purely corporate investments were nominally financed through a State or local industrial development authority to gain tax exemption without adequately serving governmentally perceived, economic development or service objectives. As a result of successive Federal tax acts and IRS regulations, we now have a patchwork of inconsistent tax rules—i.e., seaports and airports can issue PABs not subject to volume cap; transit systems can finance infrastructure with PABs, but subject to volume cap. Neither transit rolling stock nor highways can be financed with tax-exempt bonds at all if there is what is termed "private use" and a so-called "private security interest." Within TEA–21 Reauthorization, the Senate should consider providing a new concept centered on whether the transportation project is of "public benefit." If a highway (or transit line) is publicly available to any user, what difference should it make if there is incidental private management of the asset? The State or local political subdivision would already have determined that the public (and taxpayers) would benefit from private sector participation

Response. Private participation is not just applicable to the development of toll roads. Even greater potential application is outsourcing the asset maintenance of expressways and freeways to private firms which agree to maintain roads to publicly required standards, in compliance with GASB 34. Current IRS "Qualified Management Contract" provisions do not permit incentive, performance-based compensation. Allowing the financial interests of the private sector developer/manager (in combination with private equity) to be aligned with the tax-exempt bond investors (i.e., maximize net revenues) should facilitate the financing for additional transportation projects. Tolls and private sponsor or participant returns can be regulated using a rate covenant (governmental utility model) or regulated return on capital (investor-owned utility model) mechanics. The Multimodal Transportation Financing

Act ("MultiTRANs", S. 870) would achieve most of the aforementioned, desired tax law or regulatory reforms.

Question 2. One of the outcomes of reauthorization should be the ability to allow for more meaningful investment by the private sector into transportation. There seems to be barriers for participation for numerous large investment sectors. One example is pension plans or retirement investment sector. Current transportation bonding techniques do not provide the income this sector is seeking since we primarily use tax-exempt mechanisms. Can you provide more insights on how we can "decouple" the bonding process to make it more attractive to these types of investors? Are there examples where such activity is occurring? Are there changes that need to be made to statue to assist this type of activity?

Response. As your question correctly recognizes, pension funds represent one of the largest sources of capital in the economy—for the 1,000 largest plans in the U.S., the total assets are $3.6 trillion in defined benefit plans and $1.2 trillion in defined contribution plans (2001). Pension funds are invested in multiple asset classes (including overseas infrastructure) with the exception of domestic infrastructure. Yet, as tax-exempt entities they have no demand for lower returns on tax-exempt securities. An objective going back to the 1993 Infrastructure Investment Commission—develop an investment product that is cost-effective to the transportation project sponsor (overwhelmingly, a public sector entity eligible to issue tax-exempt bonds), while at the same time providing competitive, pre-tax returns to the pension funds. One possibility, highlighted above, is decoupled tax credit bonds. The tax credits could be sold to taxable investors, leaving a zero coupon, taxable bond with a sufficient credit rating to be marketed to pension funds—providing a secure long-term asset to offset long-term liabilities (retirement benefits). It is important to note that decoupling routinely occurs with other market instruments, including U.S. Treasury bonds (since 1985) and the mortgage-backed securities market.

[From The Bond Buyer, Wednesday, June 12, 2002, Vol. 340]

SENATE PANEL LEADERS LOBBY DOT TO USE INNOVATION IN ITS FUNDING

(By Humberto Sanchez)

WASHINGTON—Leaders of the Senate Finance and Environment and Public Works committees urged the Department of Transportation yesterday to investigate new ways to leverage Federal funds to finance the construction of needed infrastructure, including using a centralized entity to fund loans and issue taxable tax-credit bonds.

In a letter sent to Transportation Secretary Norman Y. Mineta, Sens. James M. Jeffords, I-Vt., chairman of the public works panel, Max Baucus, D-Mont., chairman of the finance committee, and 11 other senators said they want the DOT to look closer at "ways to leverage limited Federal resources through so-called 'innovative finance' techniques."

The senators also said they believe that additional research into the matter "would benefit the administration and the Congress as we develop" reauthorization proposals for the Transportation Equity Act for the 21st Century, which expires Sept. 30, 2003.

The senators—including public works ranking member Robert C. Smith, R-N.H., and finance ranking member Charles E. Grassley, R-Iowa—said they are interested in exploring the possibility of "using a centralized entity to fund loans and provide credit enhancement, and the use of tax credit bonds as a financing vehicle for transportation infrastructure," according to the letter.

The letter comes as the American Association of State Highway and Transportation Officials is floating a similar proposal in which a federally chartered corporation would be authorized to sell taxable tax-credit bonds in order to provide funds to States for construction of roads, mass transit, and rail.

Under the AASHTO plan, the transportation finance corporation would use new or increased Federal funds to back a $60 billion tax-credit bond issue that, over 6 years, would increase funding for highways by $34 billion, $8.5 billion for transit, and $5 billion for other needs, including rail.

The senators wrote that "a detailed examination of some of these fairly complex financial tools and vehicles is warranted." They also said that they look forward to "close coordination regarding the continuation of" State infrastructure banks—which provide low-interest loans to local governments to build transportation infrastructure—and the TIFIA program, which provides direct loans, loan guarantees, and

lines of credit for up to 33 percent of the construction cost of transportation projects costing at least $100 million.

A joint public works and finance committee hearing on innovative finance is being planned for late September.

[From the Bond Buyer, Thursday, August 1, 2002, Vol. 341, No. 31440]

SENATE PANEL TELLS TIFIA PROGRAM TO MAKE DO WITH 2002 LEFTOVERS

(By Humberto Sanchez)

Because the TIFIA program has only awarded funds to 11 transportation projects since it was launched in 1998, the Senate Appropriations Committee has decided not to provide any more funds to the slow-starting financing program in fiscal 2003.

Under the $64.6 billion fiscal 2003 transportation funding bill that was approved by the committee last week, the $130 million that was authorized under the Transportation Infrastructure Finance and Innovation Act to provide credit assistance to large transportation projects would be shifted to three other programs in the fiscal year that starts Oct. 1. Those are the transportation and community and system preservation pilot program, the national corridor planning and development program, and the coordinated border infrastructure and safety program.

The proposed diversion of funds means that any transportation projects selected for TIFIA loans, loan guarantees, or lines of credit in fiscal 2003 would have to make do with the $96.million that program administrators estimate is left over from the $120 million authorized in the current fiscal year.

So far, in fiscal 2002—which ends Sept. 30—the Department of Transportation has designated just one project for TIFIA assistance—a subsidy to back a $450 million loan for a $3.3 billion plan to fortify and rebuild parts of. the San Francisco-Oakland Bay Bridge that was severely damaged by an earthquake 12 years ago. Although the Texas Turnpike Authority closed on a $916.76 million TIFIA loan Monday, that aid was actually approved in 2001.

"We think we'll have enough to finance any projects that we anticipate," said Max Inman, acting head of the DOT office that oversees the TIFIA program. "Hopefully it won't have an impact. But you never know what might happen later in the year. Currently, we are not seeing anything that would be beyond the anticipated need.".

Documents accompanying the transportation appropriations bill—which was approved last Thursday and is currently awaiting consideration by the full Senate—explain that the committee diverted the funds because it believes that demand for credit assistance has not kept pace with the amount of subsidy available under the program. Meanwhile, the House Appropriations Committee has not started work on its bill and has not decided whether to follow the Senate panel and transfer TIFIA funds to other projects.

While TIFIA program administrators agree that the program has more funds than it will likely use, they contend that the program could assist more projects after project sponsors and TIFIA administrators get used to the subtleties of the program.

Despite the diversion of funds, the program has strong support. "The committee believes that TIFIA is an important part of the Federal Government's overall infrastructure investment effort—one that is likely to grow in importance and size in the future," the Senate Appropriations Committee said in the report accompanying the 2003 transportation bill.

Last month Transportation Secretary Norman Y. Mineta lauded the program and noted that it will be included in the Bush Administration's plan to reauthorize the Transportation Equity Act for the 21st Century, or TEA–21, which expires on Sept. 31, 2003. Mineta will unveil the proposal in the fiscal 2004 budget, which is due to be sent to Congress in February.

The Senate Environmental and Public Works Committee and the Finance Committee plan to hold a hearing in September on innovative finance where ways of making the program more efficient will be explored.

To date, the DOT has selected 11 projects in eight States, the District of Columbia, and Puerto Rico to receive TIFIA assistance. At a budgetary cost of slightly more than $200 million to the Federal Government, the projects have provided $3.7 billion in credit assistance that has backed transportation investments worth more than $15 billion. The program provides direct loans, loan guarantees, and lines of credit—in lieu of traditional grants—and can cover up to 33 percent of the cost of major surface transportation projects that cost at least $100 million.

[From The Bond Buyer, Tuesday, September 3, 2002, Vol. 341, No. 31462]

ROAD REVOLUTION COMING?

(By Humberto Sanchez)

WASHINGTON—First of a two-part series.

FANNIE MAE AND FREDDIE MAC REVOLUTIONIZED THE MORTGAGE BUSINESS.

Now a plan being floated by the American Association of State Highway and Transportation Officials wants to copy that success by establishing the Transportation Finance Corporation, a centralized, federally chartered entity that would issue taxable tax-credit bonds to finance transportation infrastructure projects.

Fannie Mae and Freddie Mac are publicly held corporations that were established by the Federal Government to increase the availability of home mortgages by establishing a liquid, well-functioning home loan secondary market. The corporations, known as government-sponsored enterprises, or GSES, purchase mortgages from banks and financial firms and package them into securities that are sold to investors. The banks' financial firms use the money from the sale of the home loans to make more loans.

But the TFC, whose name some believe will be shortened by lobbyists and congressional staffers to Trannie Mae or Trans Mac, would be designed to increase Federal investment in transportation infrastructure by establishing an active market for tax-credit bonds.

The plan, calls for Congress to charter the TFC as a new, private, nonprofit organization that would be authorized to sell about $60 billion in tax-credit bonds over 6 years. The bond proceeds would be given as grants to States primarily to help finance highway and transit projects, and the Treasury would provide a tax credit to investors in lieu of interest payments.

AASHTO—the lobbying group representing State departments of transportation—is currently shopping the proposal around to Congress, investment bankers, and rating agencies to assess its viability. Depending upon the level of interest in the plan, the association will vote later this fall on whether to adopt the proposal as part of its lobbying campaign to reauthorize the 1998 Transportation Equity Act for the 21st Century, which expires Sept. 30, 2003.

But while AASHTO maintains that preliminary responses to the proposal have been positive, the success of the plan rests on its ability to balance Congress' cost concerns with the transportation finance interests of States and the interest of investors.

HOW THE TFC WOULD WORK

Under AASHTO's plan, the TFC would issue the $60 billion in tax-credit bonds over 6 years, starting the year TEA–21 is reauthorized and extending through the transportation act's proposed 6-year life span.

"The bonds would have a 20-to 25-year life," said Jack Basso, AASHTO's director of management and business development. "We would cycle them out so that we have a 25-year level of activity because of the way the bonds are issued over time."

Of the $60 billion in bond proceeds, about $17 billion would be set aside in a sinking fund that would be used to pay back the principal. The sinking fund would invest in Treasuries or other similarly safe instruments that, over time, should yield enough to pay back the principal.

"We are assuming that we will get about a 6 percent return on our investment, and our market research says that that is perfectly reasonable," Basso said. "At the end of that 25-year cycle, that $17 billion will have grown sufficient to pay off the principal of the bonds—the $60 billion."

The plan also calls for repaying the Federal Government for the income tax credits—which go to bondholders in lieu of debt service payments—through one or more strategies that are currently being explored by the association.

States would be required to provide a 20 percent match to receive their share of the bond proceeds, which would be distributed to States through apportionment formulas similar to the ones currently used to redistribute gas tax receipts collected into the highway trust fund. States would not be liable for repayment of the bonds because a portion about 30 percent of the bond proceeds would be invested in a sinking fund that would raise the money to pay back the bond principal, and the tax credits would be paid by the Treasury.

However, the plan calls for the tax credits—which AASHTO estimates will cost the Federal Government roughly $19 billion—to be repaid by one or more methods

from a list of possible strategies. The list includes drawing down reserves in the highway trust fund, collecting the interest on fund reserves, a gas tax increase, or indexing the gas tax.

Other possibilities AASHTO is exploring to generate funds to pay for the tax credits include capturing the 2.5 cents for each gallon of ethanol sold that now goes into the general fund rather than the highway trust fund, and the 5.3 cents per gallon subsidy that encourages the use of ethanol and ethanol blended fuels, such as gasohol.

The highway trust fund—a pool of money created by gasoline and highway user taxes and tapped to finance the nation's highway and transit projects—is the primary funding source for highway and transit construction. Transportation infrastructure advocates are concerned that increased use of ethanol would deplete the trust fund.

Ethanol is currently taxed at 13.1 cents per gallon—5.3 cents a gallon less than gasoline. However, 2.5 cents of the 13.1 cents goes into the Treasury's general fund, rather than the highway trust fund. AASHTO believes that the trust fund could gain an additional $3 billion to $4 billion over 6 years by capturing that 2.5 cents.

AASHTO would also like to have an amount equal to the 5.3 cents per gallon ethanol subsidy paid into the trust fund, a move the group estimates would add $6 billion to $7 billion to the trust fund over 6 years.

Diverting the 2.5 cents per gallon in ethanol taxes into the trust fund has a good chance of becoming law, the group believes, because it has support in the House and Senate and is included in the energy bill that is currently being negotiated by the two chambers. If the energy bill fails to become law, which many observers expect, Sen. Max Baucus, D-Mont., who heads the Senate Finance Committee, is expected to push legislation he introduced in June to get both the 2.5 cents and the equivalent of the 5.3 cents in reduced taxes per gallon of ethanol paid into the trust fund.

in addition to the ethanol-related funds, the group anticipates that the highway trust fund will grow by an additional $17 billion over 6 years due to an estimated 3 percent increase in travel.

"There is this menu of several possible options," said Bryan Grote, a principal with Mercator Advisors, which is working on the plan with the group. "AASHTO is not advocating any particular option at the moment, they are just saying that from one or more of those menu items, you could possibly raise additional revenues that would off set the budget costs of the tax credits of this proposal."

POLITICS

The inclusion of a device to repay the $19 billion in tax credits gives the measure a significant advantage in gaining approval from Congress, the plan's proponents believe.

"In order for this to have any kind of realistic consideration, they have to propose some budgetary offset to the cost of those tax credits," said Grote, a former official with the Department of Transportation.

There are currently two tax-credit bond measures pending in Congress, and AASHTO believes that the TFC proposal has an advantage over both. The pending measures include a bill in the House that would authorize States to issue $12 billion in taxable tax-credit bonds and $12 billion in tax-exempt bonds over 10 years for high-speed rail projects and legislation in the Senate that would authorize Amtrak to issue $12 billion in tax-credit bonds over 10 years for high-speed rail projects.

"What makes this proposal unique, as opposed to other proposals of this nature, like the high-speed rail bill or the Amtrak bill, is that we propose a way to raise revenue to pay the tax-credit costs," said AASHTO's Basso. "Our strategies will allow us to raise the money and reimburse the Treasury for the cost of those tax credits. That's a very significant and distinguishing feature in this matter," he said.

Despite any advantages the plan may have, Members of Congress still need to be convinced.

One objection Congress may have to the plan, according to a staffer, is that the proposal would, in effect, take the funds out of Congress' control and put it in the hands of the board that would run the TFC.

However, AASHTO maintains that the TFC board would just administer the operation of the entity and the issuing of the bonds. The bond proceeds would be distributed to the States according to a congressionally approved formula.

"The board's purpose would be to administer the bonds; do the fiduciary work that's necessary from an investor's standpoint," Basso said. "But principally the decisions on money would work exactly as they do now because the bulk of the highway and transit funding, almost all of it, would go out under congressionally mandated formulas. The program, from the State's perspective, would look and feel and

work pretty much as it does today; the difference is where the money's coming from," he said.

The principal committees that would need convincing are the two tax-writing committees—the Senate Finance Committee and the House Ways and Means Committee.

The transportation authorizing committees—the House Transportation and Infrastructure Committee and the Senate Environment and Public Works Committee—would also have jurisdiction. The Senate Banking Committee, in addition, would have a say in the legislation because it oversees the nation's transit program.

While it"s early in the process of selling the plan to Congress, AASHTO officials maintain the reception to it so far has been favorable.

"It's important that we work with the Congress to help find some way to increase transportation funding," said Pennsylvania Transportation Secretary Bradley L. Mallory, who is also AASHTO's president. And "the political reception to the plan has been good."

But that does not surprise AASHTO officials, since some of the chairmen of these committees are very amenable to innovative finance ideas for transportation projects.

For example, Sens. James M. Jeffords, I-Vt., chairman of the public works panel, and Baucus plan to hold a joint Environment and Public Works and Finance committee hearing on innovative finance as soon as this month.

The two, along with 11 other senators, sent a letter on June 11 to Transportation Secretary Norman Y. Mineta, asking him to investigate new ways to leverage Federal funds to finance the construction of needed infrastructure, including using a centralized entity to fund loans and issue taxable tax-credit bonds.

The senators—including Robert C. Smith, R-N.H., and Charles E. Grassley, R-Iowa, the top Republicans on the public works and finance committees—said they are interested in exploring the possibility of "using a centralized entity to fund loans and provide credit enhancement, and the use of tax credit bonds as a financing vehicle for transportation infrastructure," according to the letter.

In the House, Rep. Thomas E. Petri, R-Wis., chairman of the Transportation and Infrastructure Committee's highways and transit subcommittee, has shown interest in the plan, noting at a hearing in May that AASHTO had "stepped up to bat."

Officials in the Bush Administration are also exploring the plan, but have not endorsed it.

At a hearing in May, Federal Highway Administration chief Mary E. Peters told a congressional panel that she had met with AASHTO representatives and is reviewing their initiatives.

"We are actively working at a number of the options but have not yet taken an administration position on any," Peters said.

STATES' NEEDS

States have long argued that increasing traffic congestion around the Nation has resulted in a pressing need to build additional roads and highways, as well as to maintain and improve aging ones. According to the DOT, an annual investment of $56.6 billion is needed over the next 20 years just to maintain the physical condition of existing highways and bridges.

To meet these needs, AASHTO wants to increase funding each year to $41.4 billion for highways and to $10 billion for transit by the end of the 6-year life span of the successor to TEA–21. By comparison, the Federal Government in fiscal 2002 provided $31.8 billion for highway programs and $6.8 billion for transit.

The TFC, the proceeds of which would work in conjunction with the highway trust fund, would play a crucial role in achieving those funding levels and would increase funding by $34 billion over 6 years for highways and $8.5 billion for transit, AASHTO officials maintain. The plan also would provide $5 billion for a capital revolving fund that would help finance other needs, such as freight rail, intermodal projects, passenger rail, and transportation security infrastructure. The $5 billion could be generated, over 6-years, from the menu of revenue-generating options, but the association has not specified where the funds would come from. The revolving fund would provide direct loans, lines of credit, and loan guarantees.

"The dollars that we have in the system just don't come anywhere near meeting the needs at the State, city, and county level," said John Horsley, AASHTO executive director. "When we look at what is needed out there and where we stand in the current program, it is clear that we need to substantially grow the program."

Previously, it was a gas tax increase that provided additional funding for road construction. During the administrations of Presidents George Bush and Bill Clin-

ton, highway trust fund revenues—which are made up of gas-tax receipts—were doubled.

But, "this time we are not seeing a willingness, or an openness, or an appetite, in Congress or the administration to enact a substantial fuel-tax increase," Horsley said.

The TFC would allow all States to benefit from debt leveraging and innovative finance and meet the funding goals, AASHTO contends.

Horsley noted that bonding and innovative finance "have enabled many States to do substantially more than they could with just current cash-flows or current Federal allocations," and he cited the issuance of Garvees, the use of State infrastructure banks, and the Transportation Infrastructure Finance and Innovation Act in particular.

Grant anticipation revenue vehicles, or Garvees, are backed by annual Federal transportation grants, while State infrastructure banks provide low-interest loans to local governments to build transportation infrastructure. The TIFIA program provides direct loans, loan guarantees, and lines of credit for up to 33 percent of the construction cost of transportation projects costing at least $100 million.

"But we've also seen some States that are restricted by constitution, restricted by statute, or simply haven't, as a matter of practice, gone to debt financing to extend what they could do," Horsley said.

In addition, the primary funding mechanism for highway and transit financing, the highway trust fund, is under fire because gas tax receipts have been down and subsidies for alternative fuels have reduced the fund.

Under TEA–21, receipts going into the highway trust fund were tied to Federal highway and transit funding levels so that the funds could only be used to finance highway and transit projects.

As a result, TEA–21 provided specified funding amounts for highway and transit programs for fiscal 1999 through 2003 and included a provision that the funding levels would be recalculated annually to reflect actual and projected increases and decreases in tax receipts over the 6-year life of the law.

States were initially pleased with this arrangement, and the adjustment, referred to as the revenue aligned budget authority, has added over $9 billion to the nation's highway programs, due primarily to the booming economy of the late 1990's.

But as the economy stalled and estimates of gas-tax receipts turned out to be too optimistic, funding for highways in fiscal 2003 under TEA–21 was set at $23.3 billion—$8.5 billion below the fiscal 2002 funding amount. The cut was included in the president's fiscal 2003 budget, which sought $23.3 billion for highway programs.

But highways will get at least $27.7 billion in 2003 after $4.4 billion was included in the emergency supplemental spending measure approved this summer. In addition, the Senate Appropriations Committee recently approved a $64.6 billion transportation-spending package for fiscal 2003, which included $31.8 billion for highway construction. Most observers believe that fiscal 2003 highway finding will fall somewhere in this range.

State departments of transportation are anxiously watching to see how much highway funding they'll get, because a cut from the $31.8 billion could adversely affect the ability of States to use bonds to finance transportation projects.

"I think what we are doing with the TFC proposal is expanding substantially on the concept of innovative finance," Basso said.

While programs such as TIFIA and State infrastructure banks boosted the number of transportation projects, AASHTO maintains that they are niche programs and don't help finance the most projects in the most States.

Under TIFIA, a project has to cost at least $100 million, a threshold that AASHTO contends is too high to help many States. Also, due to the manner in which TIFIA was authorized, State infrastructure banks finance projects in only a limited number of States. Thirty-nine States are authorized to operate State infrastructure banks, but under TEA–21, only four States—California, Florida, Missouri, and Rhode island—are permitted to augment their funds with new Federal transportation grants. As a result, most State programs have failed to take off to the extent many observers had expected.The TFC proposal, AASHTO maintains, is a broader form of innovative finance and will help more States and finance more projects.

"They work for certain types of projects, but they aren't universal," Basso said. "What we are proposing here is a very centralized, universal attempt to raise money."

Next: How a market for tax credit transportation bonds can be created.

[From Transportation Watch, Thursday, September 26, 2002]

FOR UPCOMING REAUTHORIZATION OF TEA–21 SENATORS EYE EXPANDING INNOVATIVE FINANCE

Senators interested in alternative financing methods for highway and transit projects learned Sept. 25 that while existing programs have accelerated project construction, limitations cause States to continue to look for traditional pay-as-you-go financing.

As Congress prepares for the 2003 reauthorization of the Transportation Equity Act for the 21st Century (TEA–21), lawmakers are looking for ways to boost revenues to the Highway Trust Fund and to develop project financing mechanisms beyond the trust fund that would encourage greater private sector investment.

"As successful as the trust fund has been, our transportation needs far outweigh our resources," Senate Finance Committee Chairman Max Baucus (D-Mont.) said at a rare joint hearing of his committee and the Senate Environment and Public Works Committee.

The three main innovative financing methods currently in use to make highway investments are State Infrastructure Banks (SIBs), Grant Anticipation Revenue Vehicles (GARVEEs) and the Transportation Infrastructure Finance and Innovation Act (TIFIA).

Innovative financing techniques give States additional options to accelerate projects, leverage Federal investments, and increase the "tools in the toolbox" of States and local or regional governments, according to JayEtta Z. Hecker, the General Accounting Office's director of physical infrastructure issues.

According to the Federal Highway Administration, as of June 2002, six States have issued GARVEE bonds that are repayable with future Federal aid totaling $2.3 billion; 32 States have SIBs including 294 loan agreements worth $4.06 billion, that once the loans are repaid, the money will recycle back to the revolving fund; and 9 States have TIFIA credit assistance agreements for 11 projects representing $15.4 billion in investment.

Downsides Noted

With the advantages, however, come a wide array of disadvantages, Hecker said.

State DOTS that are comfortable and used to traditional funding methods are not always willing to use innovative financing nor do they always see the advantage.

"States are very cautious about debt financing," Hecker said. In her written testimony, she said two States said they have a philosophy against committing their Federal dollars to debt service, rendering themselves unable to partake in new funding methods.

There also are a number of limitations in State and Federal law that do not give States the authority to use these funding methods. For example, California requires voter approval to use its trust fund allocations to pay for debt servicing costs, Hecker said. Other States have laws that restrict public-private partnerships.

The TIFIA program has a requirement that projects cost at least $100 million, which limits it to large projects.

In response to a question by Senate environment committee Chairman James M. Jeffords (I-Vt.), Phyllis F. Scheinberg, DOT's deputy assistant secretary for budget and programs, said it was unclear if lowering the TIFIA threshold to $50 million would make a difference.

"No one has come in and said they can't meet the $100 million threshold," Scheinberg said. "We have a $30 million threshold for ITS and don't have takers on that."

Looking to Reauthorization

States also need to determine the short and long-term costs associated with various financing mechanisms to determine which best fits their needs and abilities. They also must decide which form of debt financing is best, with it being repaid by highway users or by the general population, Hecker said.

One public finance industry professional told senators that TEA–21's successor should provide incentives for public/private, market-based partnerships that finance, develop, operate, and maintain highways, mass transit facilities, high-speed and freight rail and inter-modal facilities.

"This could be accomplished by permitting the targeted use of $15-$20 billion of a new class of private activity bonds, and/or by modifying certain restrictions in the Internal Revenue Code on tax-exempt bond financing of transportation modes," said Jeffrey Carey, managing director in Municipal Markets at Merrill Lynch.

Carey also supported a proposal by the American Association of State Highway and Transportation Officials to create the Transportation Finance Corporation, a

federally chartered, nonprofit corporation that would provide increased investment resources through the leveraging of existing resources.

"Federal Government corporations have helped the capital markets create strong and liquid markets to fulfill other policy and programmatic objectives," Carey said.

Even if lawmakers refine some of these innovative finance tools to make them more mainstream, they will not supplant existing funding methods.

"What we discuss today is a complement to our traditional programs, not a replacement," Jeffords said.

Upcoming Highway Hearings

The House Highways and Transit Subcommittee will hold a hearing Sept. 26 on capital and maintenance needs of the highway and transit system. The Senate Transportation, Infrastructure, and Nuclear Safety Subcommittee will hold a hearing Sept. 30 to examine the conditions and performance of the Federal-aid highway system.

The Federal Highway Administration's long-awaited Conditions and Performance Report remains tied up at the Office of Management and Budget and DOT's Office of the Secretary and will not be available until October, a spokesman said. However, it will be discussed at both hearings.

AMERICAN HIGHWAY USERS ALLIANCE

September 24, 2002.

The Honorable MAX BAUCUS,
Chairman, Committee on Finance,

The Honorable JAMES JEFFORDS,
Chairman, Committee on Environment and Public Works,
U.S. Senate,
Washington, D. 20510.

RE: Joint Hearing of September 25, 2002

DEAR CHAIRMEN BAUCUS AND JEFFORDS: The Highway Users Alliance (AHUA) takes this opportunity to briefly address issues regarding the Federal highway program and asks that this letter be included in the record of the hearing of the Finance and Environment and Public Works Committees on this subject.

Your committees are to be commended for holding this hearing on how the Federal Government can finance an increases level of Federal investment in highways—an investment that will provide important benefits country.

As the nation's broadest-based highway advocacy organization and the organization that represents the motorists, truckers, and businesses that pay the taxes that fully fund and rely on our nation's highway and bridge investments, The Highway Users is particularly interested in your joint efforts to improve revenue collection and increase investments.

America's roads have serious and documented funding needs—too many Americans are dying or being injured on roads suffering from outmoded design—traffic congestion is worsening, threatening safety, slowing air quality progress, increasing tailpipe greenhouse gas emissions, wasting fuel, slowing product deliveries, and taking commuters away from their families and other productive exercises.

Some have called for increasing Federal fuel taxes. If there are demonstrated needs and current funding is being invested appropriately, highway users will seriously consider that option. But we believe that your committees must first improve where today's taxes are going, prevent further erosion of available resources, and examine all means available to boost highway revenues without raising taxes.

Thus, we take this opportunity to support S. 2678, the "Maximum Economic Growth for America Through the Highway Trust Fund Act," bi-partisan legislation introduced earlier this year by Chairman Baucus. The 12 co-sponsors of that bill include the following members of the Finance or Environment and Public Works Committees: Senators Daschle, Reid, Graham, Warner, Bond, Thomas, and Crapo. We thank all the supporters of that legislation for their leadership in advancing the provisions of that bill.

Among other provisions, S. 2678 would provide that the 2.5 cents per gallon of tax on gasohol that currently is directed to the General Fund of the Treasury would be deposited in the Highway Account.

In addition, S. 2678 would deposit into the Highway Account an amount equal to the fuel taxes not imposed on gasohol due to the gasohol tax preference. This is in keeping with historical precedence of funding agricultural programs, like ethanol, from the general fund. The bill would not raise the tax imposed on gasohol. This

means that the Highway Account would receive treatment on gasohol comparable to the treatment currently given to the Mass Transit Account. That account, unlike the Highway Account, already receives the same amount of funding for a gallon of gasohol as it does for a gallon of regular gas.

S. 2678 would also resume the practice of crediting the Highway and Mass Transit Accounts of the Highway Trust Fund with interest on their respective balances. While we would prefer that Congress invest those surpluses, the trust fund should receive interest on highway use taxes collected, but not invested.

Increased revenues for the highway program can also come from improved collections. We ask that the two committees work to achieve greater compliance with our tax laws that support the Highway Trust Fund. We have heard, for example, that changing the point of collection of aviation fuel taxes could add billions to the Trust Fund over the life of a reauthorization. Other enforcement steps could be beneficial as well. We urge the Congress to take appropriate steps to achieve the highest possible rate of collection of the taxes due to the Highway Trust Fund.

In addition, we understand that Senator Baucus is exploring additional legislation that would allow the Secretary of the Treasury to sell tax credit bonds. The proceeds would go into the Highway Trust Fund and the General Treasury would be responsible for the principal and interest. We are eager to see this approach advance as an additional means of increasing highway investment.

Mssrs. Chairmen, the American Highway Users Alliance commends the Committees for holding this hearing and urges enactment of legislation, in accord with the points outlined above, to finance increased Federal highway investment. Thank you for your consideration of our views on this important matter.

Respectfully submitted,

WILLIAM D. FAY, *President and CEO,*
American Highway Users Alliance.

STATEMENT OF THE TRANSPORTATION DEPARTMENTS OF MONTANA, IDAHO, NORTH DAKOTA, SOUTH DAKOTA, AND WYOMING

The transportation departments of Montana, Idaho, North Dakota, South Dakota, and Wyoming submit this brief statement for the record of the joint hearing held on this date by the Committee on Finance and the Committee on Environment and Public Works.

We are extremely pleased that, today, there is a consensus in the country that a well funded highway program makes an important and positive contribution to our nation's economic prosperity and quality of life. But we urge the Congress not to rest on that consensus, but to buildupon it and increase today's level of Federal investment. As the Congress receives testimony and prepares to shape legislation to reauthorize federally assisted surface transportation programs, it is important to keep foremost in mind that increased transportation investments will truly advance the public interest and help all citizens and all States.

The two committees are to be commended for holding this hearing. The nation's ability to achieve increased transportation investment requires increased funding. It requires an answer to the question of how the Federal Government will finance its contribution to such an increase.

A very important part of the answer is already before you. Earlier this year, Chairman Baucus, with the co-sponsorship of Senators Crapo, Daschle, Thomas, Craig, Enzi, Johnson, Warner, Reid, Graham, Bond, Harkin, and Carnahan, introduced bi-partisan legislation, S. 2678, that would increase receipts into the Highway Trust Fund without raising taxes.

We support every provision of that legislation.

That legislation would allow the Highway Account of the Highway Trust Fund, which has foregone very significant revenue due to increased gasohol consumption, to be properly credited. The bill would ensure that the 2.5 cents per gallon of tax on gasohol that currently is directed to the General Fund of the Treasury would be deposited in the Highway Account. In addition, the bill would credit the Highway Account with funds equal to the amount of fuel taxes not imposed on gasohol due to the gasohol tax preference (currently 5.3 cents per gallon). The bill would not raise the tax imposed on gasohol. This approach would make the Highway Account whole with respect to taxes either paid or foregone with respect to gasohol consumption. It would allow the Highway Account to finally receive treatment on this issue comparable to the treatment on this issue currently given to the Mass Transit Account which, unlike the Highway Account, already receives the same funding for a gallon of gasohol as it does for a gallon of regular gas.

S. 2678 also properly would reinstate the principle that the Highway and Mass Transit Accounts of the Highway Trust Fund should each be credited with interest on their respective balances. The bill also includes a thoughtful provision requiring a commission to look at long-term issues in financing the surface transportation program.

So, while witnesses today may be emphasizing various innovative ways of financing increased Federal surface transportation investment, we wanted to emphasize our support for the important and straightforward provisions included in S. 2678, the "Maximum Economic Growth for America Through the Highway Trust Fund Act."

As to additional financing mechanisms, at this time we will limit ourselves to a brief positive comment on a concept that we understand to be under development by Senator Baucus. The approach would be for the Secretary of the Treasury to sell bonds with the proceeds being deposited in the Highway Trust Fund. The General Treasury would be responsible for the principal and interest. We welcome the development of this additional approach as a means of serving our national interest in increased investment in highways and transportation.

In closing, we commend Chairman Baucus and Ranking Member Grassley of the Finance Committee and Chairman Jeffords and Ranking Member Smith of the Environment and Public Works Committee for holding this hearing on the important issues of finding ways to finance increased Federal transportation investment. That investment is certainly essential to the economic future of our States and we appreciate this opportunity to offer views on how that might be achieved.

STATEMENT OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

The American Society of Civil Engineers (ASCE) is pleased to provide this statement for the record on financing alternatives for the nation's surface transportation programs.

ASCE, founded in 1852, is the country's oldest national civil engineering organization representing more than 125,000 civil engineers in private practice, government, industry and academia who are dedicated to the advancement of the science and profession of civil engineering. ASCE is a 501(c)(3) non-profit educational and professional society.

ASCE believes the reauthorization of the nation's surface transportation programs should focus on three goals:

- Expanding infrastructure investment
- Enhancing infrastructure delivery
- Maximizing infrastructure effectiveness

ASCE's 2001 Report Card for America's Infrastructure graded the nation's infrastructure a "D+" based on 12 categories, including roads with a grade of "D," bridges with a grade of "C," and transit with a grade of "C-." Roads, bridges and transit have benefited from an increase in Federal and local funding currently allocated to ease road congestion, to repair decaying bridges, and to add transit miles. However, with 29 percent of bridges still ranked as structurally deficient or obsolete and nearly a third of major roads considered to be in poor or mediocre condition, engineers warn that Congress cannot afford to allow promised funding for transportation to lapse. Transit ridership has increased 15 percent since 1995, adding a strain despite unprecedented growth in transit systems and increased funding.

Establishing a sound financial foundation for future surface transportation improvements is an essential part of reauthorization. TEA–21 provided record funding levels to the States and significant improvements have been made to our nation's infrastructure. In spite of these notable efforts, the nation's surface transportation system will require an even more substantial investment. United States Department of Transportation (DOT) data reflect the fact that an investment of $50 billion per year would be needed just to preserve the system in its current condition. With funding as the cornerstone of any attempt to reauthorize TEA–21 it is imperative that a variety of funding issues be advanced as part of ASCE's overall strategy.

Sustaining Infrastructure Investment

ASCE supports the following goals for infrastructure investment.

- A 6-cent increase in the user fee with one cent dedicated to infrastructure safety and security. These new funds should be distributed between highways and transit using the formula approved in TEA–21.
- The user fee on gasoline should be indexed to the Consumer Price Index (CPI) to preserve the purchasing power of the fee.

- The Transportation Trust Fund balances should be managed to maximize investment in the nation's infrastructure.
- Congress should preserve the current firewalls to allow for full use of trust fund revenues for investment in the nation's surface transportation system.
- The reauthorization should maintain the current funding guarantees.
- Congress should stop diverting 2.5 cents of the user fee on ethanol to the General Fund, and put it back into the Highway Trust Fund.
- Make the necessary changes to alter the Revenue Aligned Budget Authority (RABA) to decrease the volatility in the estimates from year to year and ensure a stable user fee based source of funding.
- The current flexibility provisions found in TEA–21 should be maintained. The goal of the flexibility should be to establish a truly multi-modal transportation system for the Nation.

ASCE supports a reliable sustained user fee approach to building and maintaining the nation's highways and transit systems. While ASCE supports a wide variety of innovative approaches to finance surface transportation projects, ASCE feels strongly that the current user fee arrangement is the most equitable and efficient means of ensuring stable transportation funding.

First to be addressed is the issue of raising the user fee on motor fuels. While the gas tax is an important element of the current revenue stream feeding the Federal Highway Trust Fund, it continues to erode in value due to its inherent inelastic nature. Two strategies must be advanced to remedy this condition. First, raise the gasoline user fee by six cents. This would provide a much needed infusion of funding toward the $50 billion per year need. In tandem with raising the motor fuel tax, ASCE believes that it is important to shore up the weakness of the motor fuel tax and its inability to retain value over the long term by adding a provision to the law that would index it based on the Consumer Price Index (CPI). This would allow the rate to adjust and reflect the current economic conditions of the Nation.

Innovative Financing

ASCE supports the innovative financing programs and advocates making programs available to all States where appropriate. Additionally, the Federal Government should make every effort to develop new programs.

ASCE supports the following changes to enhance the existing programs:

Transportation Infrastructure Finance and Innovation Act (TIFIA)

- The TIFIA process for review, approval and negotiation is regarded as burdensome, and could be streamlined.
- TIFIA projects have a minimum eligibility threshold of $100 million and consideration could be given to lowering this to $50 million to expand the pool of projects.
- TIFIA loans could be "fully subordinated". Current TIFIA legislation is written to subordinate TIFIA loans to other creditors. However, in the event of liquidation/default, the TIFIA loan advances to parity status with other creditors. This is known as the "springing lien" provision. It is thought by some that this has limited the availability of other credit. The issue is controversial, with pros and cons on both sides, but reform should be seriously considered.

State Infrastructure Banks (SIBs)

- With the exception of five States (Texas, Rhode Island, Florida, Missouri, and California), TEA–21 did not permit further capitalization of SIBs with Federal funds. It is felt that this has suppressed SIB activity.
- Federal regulations still apply to loan funds that are repaid to the bank, encumbering SIB funded projects with Federal regulatory requirements.

Grant Anticipation Revenue Vehicles (GARVEEs)

- Increase the flexibility of GARVEE bond repayment methods. For example, utilize the total apportionment amount as a source of repayment (i.e., all funding categories), so that no particular funding category is overburdened.

New programs for consideration as part of the next reauthorization are:

- Increased use of user fees, tolls, value pricing, and HOT lanes.
- Possible indexing of highway trust fund motor fuels tax to inflation.
- Establishing a true multimodal funding program (i.e., funds can be used interchangeably for rail, highway, freight, intermodal facilities, etc.).
- Tax credit bonds, private activity bonds, and tax-exempt bonds for privately developed projects.

Tax-based revenues are not sufficient to keep pace with the nation's transportation needs.

There is a compelling need for enhanced funding, to a large extent through user-oriented fees that have been demonstrated to be a well-accepted and equitable source of infrastructure financing. In the case of surface transportation, federally sponsored studies demonstrate the need for higher levels of investment. An additional challenge is to convince our citizens and our elected leaders that we must either "pay now" or "pay later", and that paying now is much more cost-effective and prudent in the long run.

Innovative financing techniques can greatly accelerate infrastructure development and can have a powerful economic stimulus effect compared to conventional methods. This is the current approach in South Carolina, Georgia, Louisiana, Florida, and Texas, where expanded and accelerated transportation investment programs have been announced. Innovative financing techniques, including toll road-based funding, figure heavily in several of these State programs.

The innovative programs in TEA–21 have been a good start, but more needs to be done to expand their scope, and new programs or approaches must be introduced. We must find new and innovative ways to finance the critical transportation infrastructure needs of the Nation.

Life Cycle Cost & Surface Transportation Design

The use of Life-Cycle Cost Analysis (LCCA) principles will raise the awareness of clients of the total cost of projects and promote quality engineering. Short-term design cost savings which lead to high future costs will be exposed as a result of the analysis. In the short-term the cost of projects will increase; however, the useful life of a project will increase, and there may be cost savings in operations and maintenance over the long term.

When the cost of a project is estimated only for design and construction, the long-term costs associated with maintenance, operation, and retiring a project, as well as the cost to the public due to delays, inconvenience and lost commerce are overlooked. The increasing use of bidding to select the design team has resulted in a pattern of reducing engineering effort to remain competitive, with the result of higher construction and life cycle costs.

ASCE encourages the use of Life-Cycle Cost Analysis (LCCA) principles in the design process to evaluate the total cost of projects. The analysis should include initial construction, operation, maintenance, environmental, safety and all other costs reasonably anticipated during the life of the project, whether borne by the project owner or those otherwise affected.

Long-term Viability of Fuel Taxes for Transportation Finance

ASCE supports the need to address impacts on future surface transportation funding and believes that provision should be made in the next surface transportation authorizing legislation to explore the viability of the most promising options to strengthen this funding. In particular, the impacts of fuel cell technology should be studied as well as how to create a mileage based system for funding our nation's surface transportation system as this technology comes to market and lessens the nation's dependence on gasoline as a fuel source for automobiles.

Fuel taxes have long been the mainstay for transportation infrastructure finance, but their future is now uncertain. In many States, there is a strong reluctance to raise fuel taxes, and some State legislatures have even reduced taxes to compensate for the sharp increase in average gasoline prices over the last 2 years. Many localities and States are supplementing or replacing fuel taxes with other sources, such as sales taxes and other general revenue sources. There is also a growing trend to use additives to gasoline for environmental reasons, and the most prominent additive, ethanol, enjoys a Federal exemption from fuel taxes that reduces Federal and State trust fund revenues by some several billion dollars annually. Looking ahead, a slow but steady increase in fleet efficiency—perhaps due to increased market penetration by electric, fuel cell, or hybrid technologies—would reduce the revenue per mile of use generated by users. Whereas cleaner-burning fuels and increased fuel efficiency are desirable policy goals in their own right, particularly in regard to global warming, they may reduce the ability to rely on fuel taxes in the future.

A helpful first step in this process will be the Transportation Research Board's recently initiated Study on Future Funding of the National Highway System, which will describe the current policy framework of transportation finance and evaluate options for a long-term transition to sources other than fuel taxes. The goals of the study are to: (1) determine the extent to which alternatives to fuel taxes will be needed in the next two decades or so; (2) analyze the pros and cons of different alternatives in terms of political feasibility, fairness, and cost; (3) suggest ways in which barriers to these alternatives might be overcome; (4) recommend ways in which the efficiency and fairness of the fuel tax could be enhanced, and (5) rec-

ommend, as necessary, a transition strategy to other revenue sources. The study's first task, to be summarized in an interim report, will provide one or more scenarios to illustrate the time span during which petroleum-based gasoline availability and cost might reduce fuel tax revenues. The interim report has been requested to provide insight to those parties involved in the development of the surface transportation reauthorization legislation, particularly with regard to projections of fuel tax revenues during the next reauthorization cycle. The study will also provide estimates of trends in expenditures for transportation infrastructure from sources other than the fuel tax.

STATEMENT OF ROSS B. CAPON, EXECUTIVE DIRECTOR, NATIONAL ASSOCIATION OF RAILROAD PASSENGERS

Thank you for the opportunity to present this information. Our non-partisan organization has worked since 1967 in support of more and better passenger trains of all types in the U.S. Our vision of the future includes an intercity rail passenger network that connects all regions and metropolitan areas of the country and serves all important transportation routes. Such a vision would be similar to the one adopted with the authorization of the Eisenhower Interstate Highway system in 1956.

It is critical that TEA–3 Reauthorization finally resolve the chronic under-funding of passenger and freight rail transportation by establishing a Federal program that encourages States to invest in both passenger and freight rail development.

At a time of unprecedented highway congestion, the freight railroads are reducing infrastructure improvement projects due to decreasing rates of return on capital investments. Meanwhile, for 31 years, we have subjected Amtrak to unpredictable funding levels that have left our national passenger rail system with a $5 billion backlog in needed capital investments. In California alone, over $100 million in intercity passenger rail investment plans that also would benefit freight operations have been shelved until more Federal funding becomes available. A strong rail system serving both passengers and freight is a national necessity.

Individual States will never fulfill rail funding needs on their own, nor will they sustain the national vision for an efficient freight and intercity passenger rail network beyond their own borders. To realize the national vision, the Federal Government must lead. The traveling public wants intercity passenger rail. The rules for success are simple: Give people half decent service, and they will ride; give them great service, and they will come in droves. Very modest investments in service have brought substantial returns in patronage. To name just a few:

- Downeaster (Portland, Maine to Boston): Inaugurated in December 2001, this new route exceeded all revenue projections for the entire year in only 6 months. Through the summer, the trains often had standees even though third and fourth coaches were added to the original consists (which had one combined cafe/coach/Coastal Club Service car and two coaches). Although driving is an hour faster (without traffic), New Englanders are choosing the train for its convenience and comfort. August ridership was 30,700. With four daily round-trips, that is an average of about 124 passengers per trip.
- Long Distance Sleepers: In the January-March, 2002, quarter, sleeping-car revenues increased 18 percent and travel (measured in passenger-miles) 11 percent above year-earlier levels. Airline revenues were still down about 20 percent.
- Amtrak carries more passengers between New York and Washington than all airlines, and Acela Express/Metroliner service is a big factor in that. When all city-pair combinations between New York and Washington are included, Amtrak's market share of the air-rail segment surpasses 70 percent. Premium Acela Express and Metroliner service has experienced a ridership surge of 35 percent since 2001.
- Amtrak's share of the Boston-Philadelphia air-rail market was 8 percent before Acela and Boston-New Haven electrification, but that rose to 26 percent in the January-March, 2002, quarter (most recent available). This means that, in spite of Amtrak running-times of almost 5 or 6 hours (Acela Express and Acela Regional, respectively), there is more than one Amtrak customer for every three airline passengers. * In the Pacific Northwest, new Talgo trains helped boost ridership from 226,000 in 1993 to 658,000 in 2001. (Passenger-miles rose 2 percent during the first 11 months of fiscal 2002 in spite of the travel recession.) The overall growth from 1993 was based on marginal increases in frequency and speed (with the best Seattle-Portland schedules now taking 31/2 hours, a 53 mph average).
- Capitol Corridor: Since 1998, ridership on this bustling Sacramento-San Jose route has climbed 132 percent, surpassing one million annual passengers.

On the freight side, the Alameda Corridor in the Los Angeles area has improved over 200 grade crossings, reduced truck traffic, and tremendously enhanced the flow

of freight trains between Los Angeles and Long Beach. Not long before, freight-passenger interference was reduced with construction of a rail-over-rail flyover in Los Angeles.

To make similar success stories possible elsewhere in California and the rest of the Nation, the Federal Government must create a partnership with States that supports and encourages investment in passenger and freight rail. Several bills in the House and Senate, such as RIDE–21 and S. 1991, laudably set the framework for a Federal rail infrastructure program, where money should be spent, and how tax-exempt bonds, tax-credit bonds, and expanding the Rail Rehabilitation and Infrastructure (RRIF) program will provide the needed capital. However, none of these bills outline where the cash needed to support these Federal programs will come from.

Thus, the National Association of Railroad Passengers strongly supports the creation of a Rail Trust Fund, similar to those used so effectively for the highway and aviation modes.

While the Rail Trust Fund might eventually derive significant revenue from user fees, user-based revenue sources would not generate much revenue initially. In order for a rail trust fund to reach critical mass, the Federal Government must first "prime the pump" by earmarking revenue from other sources. Highways and aviation systems were already relatively mature before creation of their trust funds.

Some possible Rail Trust Fund sources already exist in the form of taxes levied on the railroads, which, unlike highway and aviation taxes, do not benefit further investment in their respective mode.

This counter-productive precedent has hindered development of both passenger and freight rail for decades. Between 1941 and 1962, the Railroad Ticket Tax raised billions in revenue, none of which went toward enhancing development of the freight or passenger rail service; some revenues actually went toward highway development. Today, through taxes levied on railroads on infrastructure and fuel, we continue to discourage investments in rail by funneling these revenues into the general treasury.

We believe rail should receive a portion of any future increase in gasoline or aviation taxes. We support many State DOTs in the view that they should be allowed to spend flexible gasoline-tax dollars on intercity passenger rail. We do not believe the Nation or the cause of balanced transportation benefits from an 'ironclad' mode-specific approach to trust funds, but in the present context we certainly agree that taxes levied on railroads (including Amtrak) should benefit railroads—passenger and freight.

We know that freight railroads are very sensitive to the possibility that creation of a trust fund would alter the competitive balance among the railroads, or result in rail tax payments cross-subsidizing passenger projects. We believe these challenges can be addressed. General guidelines about overall project balance between competing freight railroads and how improvements must benefit both freight and passenger service could establish a fair process of disbursement for all parties. Other stipulations about the share of allowable projects whose benefits are judged to be "passenger only" could be negotiated. If Congress does not repeal the 4.3 cent diesel tax which Amtrak and the freight railroads currently pay toward general deficit reduction, then the $170 million raised annually from this tax should be directed into a Rail Trust Fund, and no longer be set aside for deficit reduction. This precedent has already been set, as similar airline and highway taxes were redirected into their respective trust funds in 1997. Since 1997, the railroads have paid approximately $1 billion in diesel taxes to general revenue; this money should be retroactively rebated at its present value to the Rail Trust Fund and set aside for rail infrastructure development.

Other revenue sources being considered for the Rail Trust Fund include taxes on equipment sales, and passenger ticket taxes on commuter and Amtrak trains. Any new taxes levied on the freight railroad industry and passengers must not be viewed as a panacea, and be implemented with restraint. Raising taxes on equipment will increase startup costs for new services as well as decrease an already diminished rate of return for capital investments. An equipment tax will be pointless if railroads simply reduce their capital investments further because they are now paying a tax on new equipment. A net gain for capital investments infrastructure must accompany any tax levied on new equipment purchases.

With respect to passenger tickets, again, NARP believes these taxes must not be seen as a panacea, and be implemented cautiously (perhaps not at all, or only after the results of meaningful capital projects have become apparent in service improvements). Unfortunately, the vast reservoir of patronage that made the railroad ticket tax so successful (at raising general revenues!) between 1941 and 1962, is much smaller, and cannot generate nearly as much revenue as before. A passenger ticket

tax must not try to make up this difference by imposing a much higher tax rate; taxing passengers too much would stifle ridership to the point that nobody rides the train. Amtrak already tries to set fares to maximize revenues, and many fares already are very expensive. Also, Amtrak, as noted above, already pays the 4.3 cent fuel tax.

Polls over the years have consistently shown public support for faster, more frequent, and reliable passenger trains, including two national polls this summer. A poll conducted by CNN/Gallup/USA Today near the height of Amtrak's June cash crisis (June 21–23) found that 70 percent of the public support continued Federal funding for Amtrak. Similarly, The Washington Post found that 71 percent of Americans support continued or increased Federal funding for Amtrak (August 5 article reporting on July 26–30 poll).

If we provide quality service, the public will ride the trains. If the Federal Government provides States a meaningful match, the States will drive the needed investments. At the same time, the public also will realize a tremendous benefit from an improved freight rail network. Again, the key to realizing these benefits will be a long term Federal partnership with States, and an adequately supported Rail Trust Fund that would bring balance into national transportation policy, and ultimately benefit the users of every mode of transportation.

The web site of the National Association of Railroad Passengers is <www.narprail.org>.

STATEMENT OF STATE SENATOR BETTY KARNETTE, CALIFORNIA STATE CAPITOL, SACRAMENTO, CA

Thank you for having this important hearing to discuss the security and infrastructure needs of trade-based transportation throughout this great country of ours.

Clearly, America's long-term economic growth depends on our ability to move goods safely and efficiently. Throughout the Nation, we see how freight movement brings our trade economy to life. We can be proud of how we work as a nation to stay competitive in the global economy.

However, there are serious obstacles to our nation's freight security and mobility that could significantly reduce the safe and efficient movement of goods in the immediate future. Unless we address these problems in an innovative, systematic fashion—without delay—we risk America's ability to provide the type of transportation infrastructure on which the goods movement industry has come to rely.

Before 9/11/01, our freight mobility issues were already challenging enough. But today, we must also ensure that our nation's freight movement system is as secure as it is efficient. Clearly, our present challenge is to insure the security, efficiency and sustainability of the nation's freight movement system.

It is awe-inspiring to see how the various regions of this nation collaborate in manufacturing, selling and moving goods to each other and to our trading partners throughout the world. For example, nearly $650 billion in domestic and international trade flows between California and other regions of the United States.

What would happen if the goods movement between the east coast, west coast and points in between were to collapse? Clearly, our economy—and those who rely on it—would be in serious trouble, and that day may not be far away. Rail lines and rail yards in California are expected to reach maximum capacity within five to 7 years. Moving a freight container from one side of Chicago to the other can often take up to 4 days.

There are countless examples of problems just like these that demonstrate the importance of developing a systematic strategy to meet the challenges that confront us. If we fail to act, our competitors in the global economy will be the only beneficiaries.

I would like to focus my testimony on how we can ensure that our nation's freight transportation network can keep pace with the demands of economic growth.

First, we need a comprehensive strategy for increasing capacity and improving the efficiency of goods movement in the United States. The strategy must be complete and it must include private sector participation.

As I have indicated in my attached report, National Freight Security and Infrastructure Bank, we can simultaneously meet the needs of both government and industry by creating an organization that focuses on public/private finance and project selection. A public/private partnership is the only sensible approach we can take. We must make sure that the two major stakeholders of the nation's freight system—government and industry—have a forum to collaborate and to solve national goods movement problems.

Second, as Congress rightfully confronts the issue of freight security, it is essential that any such effort include an innovative and comprehensive financing strategy to address it. We do not have sufficient financial support from existing Federal programs to guarantee the freight security and mobility in the way we would like. Therefore, I have developed an innovative finance proposal for freight projects.

My proposal for a National Freight Security and Infrastructure Bank demonstrates how to develop an innovative funding base and how to deliver freight transportation projects with public/private collaboration, while conforming to transportation programming requirements at the Federal, State and local levels.

While there may be some concern that user fees may not be the best way to fund freight security and mobility, we simply cannot lose sight of the option. Security and mobility are key elements of America's ability to remain competitive in the global economy.

These are the same considerations that led President Dwight David Eisenhower to create the Interstate Highway System. Creation of the Interstate Highway System was primarily driven by security concerns during the cold war years of the 1950's and 1960's (i.e., the need to quickly, safely and efficiently deploy troops and material).

Today we face similar security concerns that must be addressed as we aggressively pursue goods movement infrastructure development. Many of our present challenges may seem insurmountable. But our nation's history is rich with examples of how Americans can rise above the challenges of the day.

The bottom line is that a comprehensive approach will simultaneously enhance America's economic development and mitigate environmental and safety issues—while at the same time addressing national security.

National Freight Security and Infrastructure Bank

The National Freight Security and Infrastructure Bank (NFSIB), a stand-alone Federal agency, would be funded by a new uniform NFSIB security and infrastructure fee, administered by U.S. Customs, and based in part upon a percentage of the existing duties on all imported cargo through border crossings and through the nation's seaports. The NFSIB would establish security and infrastructure fees for certain commodities, which at present have no existing U.S. Customs duty, but which have security or infrastructure impacts. The amount of the NFSIB security and infrastructure fee would be adjusted annually based upon the change in the Consumer Price Index (CPI).

U.S. Customs would be responsible for collecting the NFSIB security and infrastructure fee. US Customs would receive compensation from NFSIB for providing this administrative service. Fees would flow to the National Freight Security and Infrastructure Trust Fund, which would be administered by the NFSIB. The NFSIB's staff and administrative costs would be funded by fees paid by project sponsors (from non-NFSIB import cargo fee resources). The NFSIB's Board of Directors would consist of 15 representatives from the public and private sectors, including the U.S. Department of Transportation, U.S. Customs, ports, steamship lines, shippers, trucking and railroad industries.

85 percent of the Trust Fund would be available as cash, or pledgable revenue to support project financings of eligible freight security and infrastructure projects. Project sponsors would be responsible for developing financing plans for individual projects. Project sponsors could choose direct funding, and/or use of leveraging strategies, including issuing debt, or a combination of funding strategies, in which the project sponsor would rely on cash or pledgable revenue provided by the NFSIB. 10 percent of the Trust Fund would be remanded to the U.S. Department of Transportation for grants for discretionary freight security and infrastructure projects, and 5 percent would be available to the U.S. Customs Service for administering the collection of fees.

Project sponsors/applicants may include any of the following: States; cities; regional and local public agencies; port authorities; joint powers authorities; and joint applicants involving public agencies and private transportation firms or associations.

All eligible projects must address security and transportation needs of imported cargo through seaports located in specified Global Gateway Regions of the United States, or through selected border crossings, or through selected inland cargo interchange points, or through the area of jurisdiction of the local Metropolitan Planning Organization. Projects nominated for funding must be included in the Regional Transportation Plan adopted by the Metropolitan Planning Organization. Regardless of their distance from the seaport, border crossing, or interchange point, all nominated projects must address one or more of the following goals associated with the movement of imported cargo: 1) increase national or homeland security, 2) expe-

dite shipments of imported cargo by increasing capacity, improving communications and information sharing, reducing delay or increasing speed or efficiency of shipment, and 3) relieve traffic congestion, reduce air and noise pollution or mitigate other environmental impacts.

The Board of Directors of the NFSIB will determine which projects will receive funding. Funds will flow directly from the NFSIB to project sponsors. Project sponsors must provide 25 percent matching funds from any source. The U.S. Department of Transportation shall approve projects recommended for funding by the NFSIB, and shall have veto power over any project funding recommended by the NFSIB.

Global Gateway Regions shall include:

1) Southern California, including ports of Los Angeles, Long Beach, Hueneme and San Diego;

2) Northern California, including the Port of Oakland, Port of Stockton; 3) Pacific Northwest, including the Ports of Portland, Seattle and Tacoma;

4) Gulf Coast, including the Ports of Galveston, Houston, Corpus Christi, New Orleans, Mobile, Tampa;

5) Southeast, including Jacksonville, Miami, Everglades, Palm Beach, Charleston, Charlotte, and Savannah;

6) Northeast and Mid-Atlantic, including the Ports of New York/New Jersey, Philadelphia, Boston, Wilmington, Baltimore and Norfolk;

Border Crossings shall include:

1) Laredo, TX
2) El Paso, TX
3) Bellingham, WA
4) Portal/Northgate, ND
5) International Falls, ND
6) Sault Ste Marie, MI
7) Detroit/Port Huron, MI
8) Niagara Falls, NY
9) Plattsburg, NY
10) Otay Mesa
11) Calexico

Inland interchange points shall include:

1) Chicago, IL
2) Memphis, TN
3) Kansas City, MO
4) Washington, DC
5) Richmond, VA
6) Charleston, WV
7) Ft Worth, TX
8) Chattanooga, TN
9) Denver, CO
10) Little Rock, AR
11) Minneapolis/St. Paul, MN
12) St. Louis, MO
13) Albany, NY
14) Syracuse, NY
15) Cincinnati, OH
16) Columbus, OH
17) Pittsburgh, PA
18) Hattiesburg, MS
19) Atlanta, GA
20) Lexington, KY
21) Birmingham, AL
22) Nashville, TN
23) Cairo, IL
24) Louisville, KY
25) Indianapolis, IN
26) Charlotte, NC
27) Raleigh/Durham, NC

Examples of projects that would be eligible for funding include:

1) California Global Gateways

Accounting for 40 percent of all U.S. waterborne commerce, California represents the largest trading complex in the United States. Freight transport capacity, however, has not kept up with demand. Although the Alameda Corridor opened in April of 2002, serious deficiencies in railroad track and yard capacity and freeway capacity still exist in the L.A. area. California is facing explosive growth in international

trade through its ports and border crossings over the next 20–25 years. Grade separations and other mitigations are needed to relieve freight-related congestion in local communities. Examples of specific projects that could apply for NFSIB funding include:

Alameda Corridor-East (extension of the Alameda Corridor through the San Gabriel Valley, Orange County, San Bernardino County, and Riverside County);—Gerald Desmond Bridge replacement in the Port of Long Beach;—Oakland Joint Intermodal terminal at the Port of Oakland.

2) Florida's Gateway Project: The Americas Corridor

Florida is the fourth largest container handling State in the Nation, with the State's South Florida seaports handling an important share of the international goods flowing through the State to and from global markets. The goal of the Americas Corridor is to optimize the movement of international cargo and domestic freight among seaports, rail lines and State highways in South Florida. In particular, the 60 linear miles of the intermodal transportation system linking South Florida's three seaports is of critical concern. The containers moving across the docks of three South Florida seaports, each of which is also a premier cruise port and located adjacent to a busy downtown center, must traverse the choked streets of urban neighborhoods to access the Interstate highway system, impeding mobility, productivity and compromising the nation's security. Double tracking of the rail system between Jacksonville and Miami is another specific project that will be required in the future.

3) Chicago Cross Town Highway and Rail Improvements

In Chicago six Class I railroads converge at some 18 major intermodal terminals ringing the city. 1,500 trains per day approach these terminals and 3,500 cross-town container moves occur daily. The stress on the region's roadways is enormous, and the delay to cargo delivery is increasingly inefficient. A series of improvements to this fragmented infrastructure would add capacity and velocity to the rail and trucking systems.

4) New York/New Jersey Port Access Projects

The Port of NY/NJ is the largest port complex on the east coast, and the second largest in the Nation. Significant environmental concerns hamper overall freight investment. New highway building is constrained by land availability and environmental concerns. 15,000 trucks move in and out of the port area each day, but each truck trip faces an average of 30–50 minutes of delay due to increasing congestion in the area. The port has devised a series of port access improvements and intermodal connectors needed in the region.

STATEMENT OF PROFESSOR DAVID J. FORKENBROCK, DIRECTOR, PUBLIC POLICY CENTER, UNIVERSITY OF IOWA

A New Approach to Assessing Road User Charges

This testimony describes a major study in progress to develop a new approach for charging vehicles that travel on public roadways. The new approach applies intelligent transportation system (ITS) technology to the problem of assessing road user charges, enabling these charges to be fairer, more stable, and more flexible. Though very simple in concept, the new approach has required that a number of institutional and technological issues be resolved. It is to resolve both types of issues that we are undertaking this research.

Phase I of this research was concluded in September 2002, and a final report is available from Professor Forkenbrock. The first phase of this research was funded through a special consortium comprised of the Federal Highway Administration and 15 State departments of transportation: California, Connecticut, Iowa, Kansas, Michigan, Minnesota, Missouri, North Carolina, Ohio, Oregon, South Carolina, Texas, Utah, Washington, and Wisconsin. If funded in the transportation reauthorization bill, Phase II will field-test the concepts developed, so that by the time implementation is considered, the new approach will be ready to implement by State legislatures and Congress. It is vital that it be fully tested because nationally the amount of revenue generated by road user charges is substantial-the motor fuel tax alone generates upwards of $50 billion annually.

PROBLEMS WITH CURRENT METHODS FOR CHARGING ROAD USERS

At both the State and Federal level in the United States, the primary method for charging road users is the motor fuel tax. In many ways this tax has served quite

well. Road users are charged roughly on the basis of the amount of travel on the public road system. As such, motor fuel taxes have the desirable attribute of being a "pay-as-you-go" form of user charge. There are, however, several major shortcomings with motor fuel taxes including:

- first and foremost, an inability to generate the necessary revenue to provide quality transportation services in future years as hydrogen fuel cell vehicles and those with other new propulsion systems become more commonplace;
- high evasion, perhaps up to 10 percent for diesel fuel under some circumstances;
- increased fuel efficiency meaning lower receipts per mile traveled;
- no relationship to the type or cost of the facility being used or the level of service provided; and
- a weak relationship to the relative costs of particular trips such that some vehicle operators pay user charges that exceed the costs they impose, while others pay substantially less than their costs.

From the standpoint of public policy, motor fuel taxes are not entirely satisfactory. Vehicle operators are not given price signals to make them aware of the costs a particular trip may imposes on society. With motor fuel taxes, it is not possible for government agencies to provide incentives to vehicle operators to change the nature of their road use, such as traveling on higher-standard roads or during off-peak hours.

The move away from State and Federal motor fuel taxes must be accomplished with great care. Combining fuel tax receipts at both levels of government, this tax accounts for almost two-thirds of all road user charges. In short, a very large amount of road financing capability is at stake.

STUDY OBJECTIVES

The purpose of Phase I of this research has been to design a system for charging road users that embodies as many attributes of an ideal user charge system as possible. Among the key attributes of an ideal system are that it enables:

- A low cost of collection for both agency and user.
- A stable revenue stream.
- An ability to assess higher user charges for users who impose higher costs (e.g., contributions to congestion delays by autos and road damage by heavy vehicles).
- A low evasion rate.
- Incentives for users to travel on appropriate roads and to spread their trips across time periods.
- Any form of vehicle propulsion to be accommodated.

The approach to charging road users must not be burdensome, and it must be tamperproof, highly reliable, and a useful tool for achieving a variety of policy objectives. Of paramount importance, it certainly must not diminish the privacy of road users.

Fortunately, newly emerging ITS technology makes it possible to design an approach to charging road users that avoids the problems and shortcomings of current mechanisms and that embodies the desirable attributes listed above.

To progress closer to an ideal system of road user charges, our research is leading to a new approach that is practical and cost-effective. The new approach will enable a real-time assessment of road user charges that is based on mileage accrual and, in the case of heavy vehicles, also on actual vehicle operating weights and configuration, as well as the type of road being traveled.

SKETCH OF THE NEW APPROACH

Key to the new approach is a simple on-board computer. The computer stores a record of actual road use charges. Periodically, this record is uploaded and transmitted to a data processing center; we refer to it as the collection center. The center bills a vehicle owner and reimburses the States, counties, and cities operating the roads on which the vehicle has traveled. The on-board system is simple, secure, and capable of protecting the user's privacy. Importantly, the on-board system enables a variety of user charge conventions. In its simplest form, this approach can be used to assess a vehicle-miles-traveled (VMT) tax. With a VMT tax, the computer would calculate road mileage actually traversed; it compares this mileage with that obtained through an odometer feed. It then applies appropriate user charge rates to the mileage traveled within each jurisdiction (typically each State). Only data on user charges due are stored in the on-board computer (i.e., where travel has occurred is not stored). Periodically, the vehicle owner uploads these stored data to a collection center. The collection center operates much like a credit card billing center.

Charging Autos

Inputs to the computer can be quite simple for autos, involving only a global positioning system (GPS) receiver, a geographic information systems (GIS) data file, and the vehicle's odometer (for back-up data on distance traveled). The GIS file contains data polygons that define boundaries of the respective States. A receiver on-board the auto uses GPS signals to determine the vehicle's position. The computer reconciles this position with the stored data polygons to determine the State in which travel has occurred; the miles traveled within that data polygon are used to compute user charges, which in turn are stored. When a vehicle crosses into another State, it enters a different data polygon, and travel within that polygon is used to compute user charges. Of course, sub-State polygons, such as those defining a metropolitan area, also are feasible. The GIS file that defines polygons is stored in the on-board computer and is readily updateable. Periodically, the collection center transmits updates of the GIS file to the vehicle using a smart card as a "messenger." A smart card is a small credit card-sized plastic device that contains an internal embedded computer chip in the form of a microprocessor and/or a memory module. This technology was developed in France more than 20 years ago. Smart cards are very durable and should serve a typical user for the life of the vehicle. If the smart card is lost or destroyed, it can easily be replaced at a small cost to the user (a typical smart card costs less than $5).

Communication via a smart card is done using a reader that closely resembles the credit card readers found in nearly all businesses.

Normally, the smart card occupies a slot in the vehicle's dash panel. The on-board computer continuously updates the smart card regarding total user charges owed to each State or other jurisdiction that is defined by a polygon. Data transferred to the smart card, then, are in units of dollars, the on-board computer having (1) measured the distance traveled within each polygon, (2) applied the appropriate per-mile user charge as established by the applicable jurisdiction, and (3) calculated the user charges owed to each jurisdiction. Thus, the vehicle operator can remove the smart card at any time and insert into a reader to transmit the charges due to the collection center.

Why would a vehicle owner want to upload billing data very often? A simple display on the instrument panel during vehicle startup displays the current user charges stored in the on-board computer. Each jurisdiction can choose to levy an interest charge for road use that occurred more than, say, 30 or 45 days in the past. The instrument panel display can show both current user charges and interest accrued. As the interest charges mount, the display will serve to encourage the person to upload the billing data. Failing to upload data at all may result in a requirement to pay all user charges in arrears before receiving the next year's vehicle registration.

During the data uploading process, the smart card authenticates the user and then anonymously uploads the road use information. When the collection center identifies the user, it checks for fraudulent behavior or malfunctions. If there is a problem, the smart card is notified to prompt the user to go to a service center, and the system flags that particular vehicle. During this communication, the collection center updates the vehicle's rate schedule through the smart card, if the stored schedule is not current. The center also provides a one-time encryption key to the smart card to facilitate anonymously uploading how much of the user charge arose from travel in each jurisdiction. Once the collection center receives the information on how much of the mileage occurred in which jurisdictions, the center correctly apportions the funds to the appropriate jurisdictions in which travel has occurred.

We stress that the apportionment data would be anonymous. It is not necessary to know which vehicle generated a particular sum of user charges for each jurisdiction; what is necessary is the amount to be apportioned. In every case, the total amount for all jurisdictions taken together equals the single value uploaded in the initial contact made by the vehicle via the smart card. Thus, all of the necessary data are transmitted, but the only figure that can be tied to a particular vehicle is a single dollar amount for total user charges and interest, if applicable, due. This approach maximizes user privacy.

User acceptance of the new approach to assessing user charges could be increased if other benefits result. For example, navigation displays, now a costly option on luxury autos, could become standard equipment or a low-cost option. Nearly all of the components needed for such displays would be on-board the auto; adding them in a mass-production manner would be simple. Note, too, that looking a few years into the future, regardless of how user charges are assessed, traveler information displays are likely to become commonplace (their costs already are beginning to fall). In that case, adding the capacity to store road use information would be easy and inexpensive.

Another user benefit of the GPS/GIS system would be emergency location notification. The Advanced Collision Notification System, which is beginning to receive national attention, uses cellular transmissions to relay a vehicle's exact location to the appropriate service provider in the event of a crash, health problem, or mechanical breakdown. The protection this sort of system offers motorists is likely to be valuable to many people, but it would be especially beneficial to elderly drivers and those who travel in remote areas or unsafe parts of cities. It should be stressed, however, that it is not the GPS system that transmits any form of location data. GPS satellites only send radio waves that the vehicle's GPS receiver uses to calculate its location. GPS satellites are unable to receive any form of information from a vehicle.

Charging Heavy Vehicles

In the case of large trucks and other heavy vehicles, the on-board computer system could be very simple, enabling only a per-mile user charge to be levied, or it may be slightly more complex. Like autos, heavy vehicles will have a GPS receiver and stored GIS information on data polygons. Because privacy is much less of an issue with commercial vehicles, the polygon data could be supplemented with several levels of road classes. In this way, user charges for road use by heavy vehicles can be varied according to the standard of road traveled. For example, a State may choose to levy a lower per-mile charge for travel by heavy vehicles on interstate highways and other facilities that are capable of withstanding high axle loads without being damaged. The road user charges uploaded to the collection center can easily be made to reflect several different per-mile rates that vary with the standard of road used. Likewise, combination trucks with additional axles could be assessed lower per-mile user charges because they damage roads less. Optionally, an on-board weight indicator could be included, which would be activated each time the cargo doors are closed (in the case of a freight semi-trailer truck). The weight indicator, which is a simple strain gauge attached to the trailer's suspension, transmits information to the on-board computer, indicating the current weight. A code informs the computer about the configuration of the trailer, especially the number of axles. The computer then takes into account vehicle weight and configuration, along with type of road being traveled, in calculating the road use charges that are due.

It is noteworthy that the new approach eliminates the pitfalls of such methods as weight-distance taxation: the uniform per-mile rate (regardless of current weight) of that approach is replaced with a much more flexible approach, and evasion will cease to be a problem. Of course, individual States can determine the extent to which they levy user charges based on the type of road being traveled or on vehicle weight and configuration.

With the new approach, motor carriers will benefit by the elimination of tollbooths, and interstate permitting can be automated. Also, opportunities that do not exist today become available; for example, by adding axles and traveling on higher-standard roads, operators could minimize their user charges.

Related Advantages

At least two related advantages would accrue to State departments of transportation in addition to the inherent benefits of the new approach. One advantage is that the expensive weigh-in-motion (WIM) scales used by many States can be eliminated. Another advantage is that toll facilities on roads and bridges no longer will be necessary. With segment-specific user charges, adjustments can be made for what are now toll roads and bridges. Privately owned highways, similar to SR 91 in California, will become highly feasible.

PROGRESS TO DATE-PHASE I

Phase I of the effort to design and test the new approach to assessing road user charges was recently completed. In Phase I, we accomplished the following:

- Developed the basic concept of using intelligent vehicle technology to assess road user charges.
- Refined the concept to absolutely maximize road user privacy.
- Incorporated features to ensure system security, robustness, and user convenience.
- Ensured that for the States, road use revenue will be stable, evasion will be extremely difficult, and fairness among both road users and taxing jurisdictions will be maximized.

Research Process Followed

Dr. David Forkenbrock, principal investigator of this research, formed a research team comprised of several groups, each of which has had specific responsibilities. The groups studied:

- Legal aspects of privacy as it relates to road use.
- The most promising computer and electrical engineering approaches to collecting, storing, and transmitting road use data.
- Economic and policy needs, desirable attributes, and practical considerations in assessing road user charges.
- Technological capabilities existent today and likely to become available in the coming few years related to GPS, GIS files, on-board computers, data transmission, and other key components.

Work completed by the respective groups has been published in the form of a report that is accessible to a layperson. The research leading to publication of this report was reviewed in a series of meetings with representatives of the 15 participating States and the Federal Highway Administration. Throughout the 2-year Phase I effort, one-to 2-day meetings have been held every 6 months. The States and FHWA have been kept fully apprised of research progress, emerging issues, and intended research directions. Attendance in these meetings by the States and FHWA has been excellent, nearly 100 percent.

Where the Research Effort Currently Stands

Phase I has led to the conclusion by the research team and the funding agencies that the new approach as described above is conceptually sound and operationally practical. It is highly flexible, so that each State can embody a variety of public policies regarding road user charges. The new approach will enable fair, stable user charges to be levied, even when hydrogen fuel cell vehicles and other vehicles that burn less or even no fossil fuels become commonplace, as they surely will. Many other limitations of current motor fuel taxes can be eliminated with the new approach, and essentially all of the attributes of an ideal user charge system listed at the beginning of this discussion paper can be incorporated.

Even though the concept and features of the new approach are technologically and practically feasible, a great deal of testing and refinement is needed before it is ready for national implementation. We need to study how best to integrate the on-board equipment with emerging vehicle technologies, the best way to operate the collection center, and how the States would prefer to structure their road user charges, given the advances possible with the new approach. Choices need to be made regarding the sorts of data storage and uploading features to adopt. The bottom line is that before a gradual replacement of the motor fuel tax can be implemented, all parties must be very certain that the new approach works very well and does what policymakers want it to. Extensive testing is the only way to be sure that the on-board equipment is reliable under widely varied weather and operating conditions, tamperproof, and convenient for diverse groups of drivers whose needs are quite different.

THE NEXT STEP-PHASE II

Phase II is needed to fully test and demonstrate the basic concepts just discussed, to refine the working features of the new approach to assessing road user charges, and to develop working specifications for the applicable components.

Context for the Research

This is an opportune time to develop the new approach to assessing road user charges. Auto manufacturers are making rapid advances in the electrical systems of their products. Soon, many of the systems needed to deploy the new approach will become standard equipment on most if not all autos. It is especially significant that several auto manufacturers intend to incorporate on-board computers to carry out various functions that now rely on mechanical switches, gauges, and linkages. These on-board computers will afford much greater user flexibility, and they will include such features as GPS receivers to facilitate emergency location and navigation, as well as electronic odometers. Such odometers are an important back-up system in the event that the GPS receiver should fail or be denied signals. In the same vein, major trucking companies are making widespread use of GPS to pinpoint the location of freight shipments.

This is a propitious time to begin collaborating with motor vehicle manufacturers as they dramatically change their on-board electrical systems and include advanced new features. Specifically, we propose to work closely with these manufacturers to find the best means for incorporating the components needed to support the new approach. Early cost estimates are highly favorable in that the additional expense

of adding the data storage and uploading capabilities will not be at all large, less than $100. Features like electronic odometers that cannot be tampered with are forthcoming, as vehicle manufacturers protect the limits of their mileage-based warrantees.

Phase II Work Plan

Before State legislatures can pass the necessary enabling legislation, a comprehensive demonstration program must be carried out. As mentioned earlier, Federal and State motor fuel taxes generate over $50 billion annually. One must be very sure that the replacement approach is completely sound before implementing it. Following are key components of the Phase II work plan:

- Systematically test the security and reliability of on-board computers and data uploading methods.
- Evaluate the acceptability of the approach by diverse user groups. These user groups include both operators of autos and various types of trucks.
- Carry out a well-designed operational test program. Five geographic areas across the United States will be selected as test sites, and several hundred autos and trucks will be outfitted with the required on-board equipment. Prototype uploading facilities will be established, and a prototype collection center will be developed cooperatively with a selected private firm.
- Work with several national interstate trucking firms to test the feasibility of assessing a mileage-based user charge system across numerous States. A key objective will be to make the new approach integrate well with trucking firm needs. Certainly, the greatest cost of Phase II will be outfitting participating autos and trucks with the necessary equipment to carry out a meaningful test of system robustness, security, and user convenience. Also significant will be the expenses related to establishing a prototype collection center. The center probably can be established cooperatively with a credit card processing company because the necessary capabilities are very similar.

Funding Requested in the Transportation Reauthorization Bill

As we have discussed, Phase II of this multi-year research program is critically important. It will enable the technology and implementation strategies to be fully refined before State legislatures debate a major change in transportation financing. Technological advances in cleaner, less fossil-fuel consuming vehicle propulsion systems mean change is inevitable; the issue is how best to charge vehicles with a range of propulsion systems for travel on public roads and highways.

Our research team estimates that funding Phase II of this university-based research program at the level of $3 million per year for the duration of the forthcoming transportation reauthorization bill will enable a full operational test of this promising approach. We stress that most of these funds will be used to outfit private vehicles for the operational test. The remainder will be used to design the test, work with equipment manufacturers on detailed specifications for the on-board gear, recruit participants, and analyze the results.

The specific request is for an authorization of $3 million per year to the Iowa Department of Transportation to commission a demonstration of the intelligent transportation system (ITS) approach to assessing road user charges based on on-board computerized systems. The Iowa DOT will in turn commission the University of Iowa Public Policy Center to carry out the demonstration.

The Research Team

Leading Phase I and the proposed Phase II is the Public Policy Center at the University of Iowa. The Center is an interdisciplinary research unit in the Office of the Vice President for Research. Director of the Center and Principal Investigator for this research is Dr. David Forkenbrock, who originally conceived the new approach. Dr. Forkenbrock has an international reputation as a scholar in the area of transportation policy and finance. He is assisted by a team of engineers, policy analysts, and social scientists from various universities and firms, who collectively are uniquely qualified to carry out this national study. New members with technical evaluation skills will be added to the research, and more active communications with vehicle designers within the auto and truck manufacturing industry will be established.

We foresee a continuing role for the 15 State departments of transportation that have worked closely with the research team during Phase I of this project. The representatives of these DOTs are knowledgeable about the new approach being developed, and they have offered many useful suggestions as our work has progressed. Together with the equally valuable representatives of FHWA, we propose to continue our association with them.

Importance of Phase II Research

Evidence of the importance of this issue may be found in the recent efforts by several European nations to implement some form of distance-based user charges. For example, the Netherlands' parliament has passed legislation calling for this type of user charges to be implemented within the next several years. The United Kingdom and Germany are evaluating similar proposals. The study team has been actively collaborating with senior staff in these countries.

The United States' energy security and environmental quality both will benefit by the exciting new vehicle propulsion technologies soon to be made operational. The need is to ensure that these vehicles can be charged for road use in a fair, cost-effective, and convenient way that protects the privacy of road users. At the same time, the inherent problems with the motor fuel tax can be eliminated.

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STATEMENT OF RIC WILLIAMSON, MEMBER, TEXAS TRANSPORTATION COMMISSION

INTRODUCTION

My name is Ric Williamson, a member of the Texas Transportation Commission, and I am pleased to provide this testimony on behalf of the commission and the Texas Department of Transportation (TxDOT) regarding transportation financing innovations in Texas. This testimony will provide information on Texas' current use of available State and Federal transportation financing mechanisms and our plans to implement new tools. I will also suggest changes to the existing Federal transportation financing tools that will help Texas take better advantage of them in our continuing effort to meet our State's tremendous mobility and access needs as effectively and efficiently as possible.

TEXAS' EXPERIENCE WITH EXISTING FEDERAL FINANCE TOOLS

The Federal Government has traditionally financed highways through 80 percent reimbursement grants but the last three major pieces of Federal transportation legislation—ISTEA, the NHS Act of 1995, and TEA–21—have produced alternative forms of "non-grant" assistance. Over that same timeframe (since the early 1990's), Texas has slowly accrued complementary authority on the State level to enable us to begin to use these new Federal financing tools for transportation. Positioning TxDOT to utilize innovative financing where it is determined to be appropriate serves the users of the State's transportation system by accelerating construction of select projects of significance, delivering customer benefits ahead of schedule, and augmenting stretched revenues. While this section describes our experience to date, it also represents only the beginnings of a new era in transportation financing for Texas.

State Infrastructure Banks

Background. In November 1995, the President of the United States signed Public Law 104–59, known as the 1995 National Highway System Designation Act (NHS Act). Section 350 of that law allowed the United States Secretary of Transportation to designate a maximum of ten States as pilot projects for the State Infrastructure Bank program. Texas was selected as one of the initial pilot States for an NHS Act SIB. About 30 States eventually elected to participate.

A State Infrastructure Bank, or a SIB, operates chiefly as a revolving loan fund and may provide a wide range of financial assistance in addition to loans. The purpose of the pilot program is to attract new funding into transportation, to encourage innovative approaches to transportation problems, and to help build needed transportation infrastructure. The NHS Act provides that each designated State may transfer up to 10 percent of certain Federal dollars, match those funds with State funds, and deposit them into a State Infrastructure Bank. The greatest benefit of this program may well be the creation of a self-sustaining, growing, revolving loan fund.

In 1997, the 75th Texas Legislature passed Senate Bill 370, which created the State Infrastructure Bank to be administered by the Texas Transportation Commission, the governing body of the Texas Department of Transportation. In September 1997, the Texas Transportation Commission approved the administrative rules that

govern the State Infrastructure Bank. The SIB allows cities and counties to access capital at lower-than-market rates. Since its creation, interest in the SIB program has been strong. TxDOT has approved 41 loans totaling more than $252 million to cities, counties, and toll authorities around the State. The loans are helping fund more than $1 billion in transportation projects in Texas.

TEA–21 Changes. Section 1511 of the Transportation Equity Act for the 21st Century (TEA–21) created a new State Infrastructure Bank (SIB) Pilot Program allowing the establishment of TEA–21 SIBs in only four States: California, Florida, Missouri, and Rhode Island. California, Florida, and Missouri also had NHS Act SIBs. Texas was not included. Pre-existing SIBs created pursuant to Section 350 of the NHS Designation Act of 1995 (NHS Act SIBs) continue to exist, but Federal funds authorized for fiscal year 1998 or later may not be used to capitalize them.

Through language in the fiscal year 2002 Department of Defense Appropriations Act, Texas Senator Kay Bailey Hutchison and Texas Congressmen Tom DeLay and Chet Edwards were instrumental in adding Texas to the list of TEA–21 SIB Pilot Program States. With this change, Texas may now use up to 10 percent of its NHS, STP, IM, Bridge, Seat Belt Incentive Grant, and Minimum Guarantee funds to capitalize its SIB. Without Federal funds, future loan applications—and any large single loan—would likely have little chance of being considered. The SIB has been our single most important financial tool in accelerating the delivery of projects. The ability to capitalize the SIB with future Federal funds will keep it an effective program for years to come.

Texas supports the continuation of the TEA–21 SIB authority Texas now enjoys. In addition, we recommend that the reauthorization legislation shorten the time limits on the ability to draw down the Federal funds to capitalize our SIB. Finally, we encourage you to clarify that repayments to the SIB are cleansed of Federal requirements to ensure that future lendees (mainly cities and counties in Texas) are able to access the funds without Federal restrictions. Cities and counties, who are currently not subject to Federal requirements on their own projects, may not have access to SIB funds if they must follow Federal rules to use those funds.

The Transportation Infrastructure Finance and Innovation Act of 1998

According to FHWA, the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA, sections 1501–1504 of TEA–21) is intended to provide Federal credit assistance to major transportation investments of critical national importance, such as intermodal facilities, border crossing infrastructure, expansion of multi-State highway trade corridors, and other investments with regional and national benefits. The TIFIA credit program is designed to fill market gaps and leverage substantial private and other non-Federal co-investment by providing supplemental and subordinate capital. Through three types of financial assistance products, TIFIA offers credit assistance of up to 33 percent of total project costs. The three types of products, designed to address projects' varying requirements throughout their life cycles, include:

- Secured loans, direct Federal loans to project sponsors offering flexible repayment terms and providing combined construction and permanent financing of capital costs;
- Loan guarantees, providing full-faith-and-credit guarantees by the Federal Government to institutional investors such as pension funds which make loans for projects; and
- Standby lines of credit as secondary sources of funding in the form of contingent Federal loans that may be drawn upon to supplement project revenues, if needed, during the first 10 years of project operations.

The kinds of projects specifically listed as eligible for TIFIA support include international bridges and tunnels, inter-city passenger bus and rail facilities and vehicles (including Amtrak and magnetic levitation systems), and publicly owned intermodal freight transfer facilities (except seaports or airports) on or adjacent to the National Highway System. However, any type of highway, intermodal, or transit project eligible for Federal assistance through surface transportation programs under Title 23 or chapter 53 of Title 49 U.S.C. is also eligible for TIFIA support, assuming it meets program criteria. Those criteria include: (a) project cost of at least $100 million or 50 percent of the State's annual apportionment of Federal-aid funds, whichever is less, except that for intelligent transportation system projects, the minimum cost is $30M; (b) project support in whole or in part from user charges or other non-Federal dedicated funding sources; and (c) inclusion in the State's transportation plan and the statewide Transportation Improvement Program (STIP).

Qualified projects meeting those criteria are evaluated by USDOT and selected based on the extent to which they generate economic benefits, leverage private capital, promote innovative technologies, and meet other program objectives. Each

project must receive an investment grade rating on its senior debt obligations before its Federal credit assistance may be fully funded.

History of the Central Texas Turnpike Project TIFIA Loan

The $916.76 million TIFIA loan for the Central Texas Turnpike Project is the largest such loan in the history of the program. The TIFIA loan funds will help fund the $3.6 billion first phase of the Central Texas Turnpike Project, which is a toll highway facility through central Texas.

The commission will use the loan proceeds to partly finance design and construction of the first phase of the Central Texas Turnpike Project, which is composed of three distinct elements: Loop 1, SH 45 North, and the northern segment of SH 130. Loop 1, a 3.5-mile element, will serve as a major north-south route in the Austin vicinity. SH 45 North, about 13.2 miles in length, will serve as a connector between the cities of Austin, Round Rock, and Pflugerville. SH 130, a 49-mile element, will be an eastern bypass for Austin, Texas, and is parallel to and east of I–35, one of the more congested urban parts of the interstate.

The Texas Turnpike Authority Division of TxDOT is managing the project. TxDOT has retained a general consultant engineer and two engineering firms to assist with management of the construction project. The Loop 1 extension and SH 45 will be constructed using the traditional design-bid-build process, and SH 130 is under an exclusive development agreement with Lone Star Infrastructure. The first phase of the turnpike project will be open in segments and the final phase will open to traffic in December 2007.

The entire 65-mile project is expected to be complete and open to traffic by December 2007.

- SH 130: From IH 35 south to US 71—September 2007
- SH 130: From SH 71 south to US 183—December 2007
- SH 130: From US 183 south to IH 10: to be determined based on future project financing
- SH 45: From Ridgeline East to three-quarters of a mile west of Loop 1 interchange—December 2007
- SH 45: From three-quarters of a mile west of Loop 1 interchange to SH 130—September 2007
- Loop 1: From Parmer Lane to one quarter mile south of SH 45 interchange: September 2007

Central Texas needs relief from traffic congestion as soon as possible and tolls are the fastest way to accomplish it. By selling bonds and using tolls to pay off the bonds, these roads will be completed and open to traffic years ahead of schedule compared to using traditional transportation funds. In addition, toll roads help stretch limited transportation dollars. In this case, the State is getting a $2.9 billion project for only an initial $700 million equity injection.

The four elements of the funding package include local contributions, State highway dollars, a Federal loan and the sale of bonds, which will be paid for through the collection of tolls. In addition to the TIFIA loan, the commission has issued $1.2 billion in revenue bonds and $900 million in bond anticipation notes. The remainder of the project will be financed through contributions from TxDOT and contributions of right-of-way by the surrounding jurisdictions.

The TIFIA loan is an example of a Federal program helping us bring these needed highway projects on-line. We could not have put this financial package together without the TIFIA loan. To maximize the use of the loan—and save taxpayers approximately $75 million—we are using the TIFIA loan as a possible backstop to sell Bond Anticipation Notes (BANs) to finance construction and take advantage of current low short-term interest rates. The interest rate we get on the BANs is lower than the TIFIA loan. The full TIFIA loan may be used later, but only if interest rates make it a good deal for taxpayers.

The 65 miles of new toll roads in central Texas will cost $2.9 billion. This covers right of way acquisition, utility adjustments, design, and construction for SH 45 North, Loop 1 and the first 49 (most needed) miles of SH 130. With the addition of required reserve funds, interest, insurance and issuance costs, the total estimated costs are $3.6 billion.

Conservatively, it is estimated it would take at least 20 years to build these roads using traditional funding sources. By selling bonds, these roadways will be completed and open to traffic in 5 years.

Advance Construction/Partial Conversion of Advance Construction Advance construction (AC) and partial conversion of advance construction (PCAC) are cash-flow management tools that allow States to begin projects with their own funds and later convert these projects to Federal assistance.

AC allows a State to construct Federal-aid projects in advance of the apportionment and/or obligation limitation. Under normal circumstances, States can "convert" advance-constructed projects to Federal-aid at any time sufficient Federal-aid apportionments and obligation authority are available. States may convert and obligate the entire eligible amount, based on funding availability or, using PCAC may obligate funds in stages.

PCAC allows States to obligate only the Federal funds necessary for the amount of expenditures anticipated in a year. This process thereby eliminates a major single year "draw down" of Federal funds in one fiscal year. PCAC may be used in conjunction with GARVEE bonds when Federal funds are obligated for debt service payments over a period of time.

Using this technique affords the availability of Federal-aid funds to support a greater number of projects. The partial conversion technique can enable completion of a project earlier than under the conventional approach, avoiding construction cost inflation, and bringing the benefits of a completed facility to the public at an earlier date. To date, TxDOT has utilized the PCAC financing tool on approximately 170 projects.

Tapered Match

Tapered match enables the project sponsor to vary the non-Federal share of a Federal-aid project during development and construction so long as the total Federal contribution toward the project does not exceed the Federal-aid limit.

Under the tapered match approach, the non-Federal matching ratio is imposed on projects rather than individual payments. Therefore, Federal reimbursements of State expenditures can be as high as 100 percent in the early phases of a project provided that, by the time the project is complete, the overall Federal contribution does not exceed the Federal-aid limit established when the project was authorized. To ensure effective management of Federal funds, FHWA limits the use of tapered match to situations that result in expediting project completion, reducing project costs, or leveraging additional non-Federal funds. TxDOT has used tapered match to expedite project completion on approximately 880 projects.

Tapered match may be most useful in cases where the project sponsor of a Federal-aid project lacks sufficient funds to match Federal grants at the start of the project, but expects to accumulate the match in time for project completion. Tapering may also be beneficial when a project sponsor needs to overcome a near-term gap in State matching funds, thereby avoiding delays in getting the project underway. Tapering also allows a sponsor to advance a project before fully securing capital market financing.

This technique may be used to facilitate a project when a new local transportation tax has been enacted, but revenue collections have yet to accumulate sufficient matching funds. Using tapered match, the project can move forward immediately with 100 percent Federal funds, allowing time for the tax revenues to accumulate. The locally generated revenues would be used to fund the final 20 percent share of project costs.

Toll Credits

States may apply toll revenues used for capital expenditures to build or improve public highway facilities as a credit toward the non-Federal share of certain transportation projects. Toll credits are earned when a State, a toll authority, or a private entity funds a capital highway investment with toll revenues from existing facilities. The amount of toll revenues spent on non-Federal highway capital improvement projects earns the State an equivalent dollar amount of credits to apply to the non-Federal share of a Federal-aid project. To utilize this tool, the State must certify that its toll facilities are properly maintained and must pass an annual maintenance of effort test to earn credits. By using toll credits to substitute for the required non-Federal share on a Federal-aid project, Federal funding can effectively be increased to 100 percent.

Toll credits provide States with more flexibility in financing projects. For example, by using toll credits, 1) Federal-aid projects can be advanced when matching funds are not available, 2) State and local funds normally required for matching may then be directed to other transportation projects, or 3) project administration may be simplified when a single funding source is used. States wishing to take advantage of the toll credit provision must apply toll revenues to capital improvements and meet the maintenance of effort test that may result in an increased investment in transportation infrastructure. At this time, TxDOT has utilized toll credits on 34 construction projects. Toll credits have also been used on certain transit projects.

Flexible Match

Flexible match allows a wide variety of public and private contributions to be counted toward the non-Federal match of Federal-aid projects. The NHS Act and TEA–21 introduced new flexibility to the matching requirements for the Federal-aid program by allowing certain public donations of cash, land, materials, and services to satisfy the non-Federal matching requirement. These matching options include:

- The value of private and certain State and local contributions, including publicly owned property;
- Funds from other Federal agencies may count toward the non-Federal share of recreational trails and transportation enhancement projects;
- Funds from the Federal Lands Highway Program may be applied as non-Federal match for projects within or providing access to Federal or Indian lands; and
- Funds from Federal land management agencies may be used as the match for most Federal-aid highway projects.

Also States may seek program-wide approval for Surface Transportation Program (STP) projects. The matching requirement would then apply to the program instead of individual projects.

Flexible match provisions increase a State's ability to fund its transportation programs by:

- Accelerating certain projects that receive donated resources;
- Allowing States to reallocate funds that otherwise would have been used to meet Federal-aid matching requirements; and
- Promoting public-private partnerships by providing incentives to seek private donations.

To date, TxDOT has been unable to use this financing mechanism. The main reasons are that it is limited to certain programs within the Federal-aid highway program and that the program implementation requirements are cumbersome. While we are not currently using this financing option, we believe that the flexible match concept should be continued and indeed expanded in the TEA–21 reauthorization. We recommend that Congress expand the flexible match provision for use, at the State's discretion, in all of the existing Federal-aid highway programs.

Section 129 Loans

Section 129 loans allow States to use regular Federal-aid highway apportionments to fund loans to projects with dedicated revenue streams.

A State may directly lend apportioned Federal-aid highway funds to toll and non-toll projects. A recipient of a Section 129 loan can be a public or private entity and is selected according to each State's specific laws and process. A dedicated repayment source must be identified and a repayment pledge secured.

The Federal-aid loan may be for any amount, up to the maximum Federal share of 80 percent of the total eligible project costs. A loan can be made for any phase of a project, including engineering and right-of-way acquisition, but cannot include costs prior to loan authorization. A State can obtain immediate reimbursement for the loaned funds up to the Federal share of the project cost.

Loans must be repaid to the State, beginning 5 years after construction is completed and the project is open to traffic. Repayment must be completed within 30 years from the date Federal funds were authorized for the loan. States have the flexibility to negotiate interest rates and other terms of Section 129 loans. The State is required to spend the repayment funds for a project eligible under Title 23.

States can use Section 129 loans to assist public-private partnerships, by enhancing startup financing for toll roads and other privately sponsored projects. Because loan repayments can be delayed until 5 years after project completion, this mechanism provides flexibility during the ramp-up period of a new toll facility.

Loans can also play an important role in improving the financial feasibility of a project by reducing the amount of debt that must be issued in the capital markets. In addition, if the Section 129 loan repayment is subordinate to debt service payments on revenue bonds, the senior bonds may be able to secure higher ratings and better investor acceptance.

If a project meets the test for eligibility, a loan can be made at any time. Federal-aid funds for loans may be authorized in increments through advance construction procedures, and are obligated in conjunction with each incremental authorization. The State is considered to have incurred a cost at the time the loan, or any portion of it, is made. Federal funds will be made available to the State at the time the loan is made.

The President George Bush Turnpike Project in Texas exemplifies how a Section 129 loan can play an essential role in the total financing package. This project links four freeways and the Dallas North Tollway to form the northern half of a circumferential route around the city of Dallas. Primary funding for this $940 million

project included a low interest, long-term Section 129 loan and revenue bonds. This $135 million loan was critical in ensuring the affordability of the project's senior bonds. Completion of this important beltway extension will be accomplished at least a decade sooner than would have been possible under traditional pay-as-you-go-financing.

Summary of Texas Project Financing Mechanisms

Texas has only recently begun to use the variety of Federal project financing mechanisms made available in ISTEA, the NHS Designation Act, and TEA–21. However, we have found their use to be beneficial and will continue their use in the future. Generally, as we've applied these financing options to our projects, we've found that they are most beneficial for projects that will take longer than 2 years to pay out, thereby allowing us to stretch our available funding and maintain a steady letting schedule from year to year. We typically consider using one of these financing options on projects over $5 million and sometimes on smaller projects at the end of the fiscal year.

We encourage Congress to continue, expand, and enhance these Federal transportation financing mechanisms for use at the State's discretion. As we set a new course for a 21st century transportation system for Texas, we will continue to consider the use of all financing tools available to us to meet the transportation mobility needs of the State.

NEW TEXAS FINANCING TOOLS

In the statewide election on November 6, 2001, 68 percent of Texans voted in favor of the constitutional amendment known as Proposition 15. The passage of Proposition 15 provided TxDOT with three new tools to establish innovative financing for Texas State highways. With these tools TxDOT can begin to improve mobility and safety for all Texans by building more highways faster, thus keeping up with the population growth in the State and preparing for the opening of the border in June.

The three financing tools provided to TxDOT with the passage of Proposition 15 are the creation of the Texas Mobility Fund, the authority for the Texas Transportation Commission to approve the creation of Regional Mobility Authorities by counties, and the authorization for TxDOT to use State highway fund moneys for equity in toll roads.

Texas Mobility Fund

By voting to create the Texas Mobility Fund, Texas voters approved a funding mechanism to supplement the traditional pay-as-you-go method of financing highway construction in the State of Texas. Money in the Texas Mobility Fund must be appropriated by the State legislature and cannot include revenue from the gas tax, vehicle registrations or other dedicated funds. The legislature can provide revenue support to the Mobility Fund without raising taxes by committing general revenue to the fund.

Currently there is no money in the Texas Mobility Fund. Once money has been appropriated to the Texas Mobility Fund, however, it can be used to finance road construction on the State-maintained highway system, publicly owned toll roads, and other public transportation projects. It is estimated that for every $100 million placed in the fund, $1 billion in bonding for road projects will be created. The issuance of debt to pay for public works projects is well established at the local level. The Texas Mobility Fund now allows this method of funding to be used for State highway projects, on and off the State system, and allows a combination of both revenue and general obligation bonds.

In working to meet the States' transportation needs, the Texas Mobility Fund will help the department accomplish two things:

- Preserve the funds currently used for highway construction under the pay-as-you-go system; and
- Allow any new funding sources made available to highways to be used for payment of debt service on bonds issued to finance projects.

Toll Equity

Toll Equity, the second financing option made possible by the passage of Proposition 15, will make potential toll projects more viable, speeding up congestion relief, while stretching limited State transportation funds. Toll Equity allows, for the first time, State highway funds to be used on toll roads without requiring repayment of the funds. Before the passage of Proposition 15, TxDOT could loan highway funds for toll projects but they had to be repaid. The loan increased the initial borrowing costs for toll road projects, impacting the overall viability of the project. Having to

repay the department from tolls generated from the project often resulted in higher tolls and larger up front contributions from TxDOT.

Toll equity has made future toll projects more attractive to investors because it allows the projects to accelerate debt retirement and hasten production of toll revenues. If a community decides to go with a toll equity approach on a project in an existing toll authority, the commission must approve the project to be constructed by that toll authority. If the community and/or the project are outside an existing authority, the commission will consider creating a regional mobility authority, the third tool created by the passage of Proposition 15.

Regional Mobility Authority

A regional mobility authority (RMA) would be created for the purpose of constructing, maintaining, and operating a turnpike project in a region of the State. A RMA will allow local officials to exercise more responsibility, thus encouraging local innovation and better responses to the particular needs and desires of the local community. In order for a RMA to be created, one or more counties must petition the commission for authorization to create a RMA. The petition must contain certain information, such as a resolution from the commissioners court of each county and a description of how a RMA would improve mobility in that particular region. If TxDOT finds that the petition meets all the requirements it will notify the county(ies) and conduct one or more public hearings that conform to the criteria set forth in the rules adopted by the commission.

If and when the commission gives approval, the county that petitioned the authorization of the RMA will create a RMA by resolution of each county to be a part of the RMA. Each county resolution must appoint directors consistent with the rules adopted by the commission. A board of directors, appointed by the county commissioner's courts where the proposed turnpike project is, representing political subdivisions, would govern each RMA. The Governor will appoint the presiding officer.

Each TxDOT district will identify currently programmed projects that, from an engineering standpoint, could be developed as tolled facilities. These projects will be limited to new location or major capacity expansions. For each project selected with local support, any funds released from the State transportation plan through the issuance of revenue bonds for toll projects will be replaced by an equal amount of project funding in the same district and with the same programming authority as the original funds held.

In most cases, projects selected to be developed as toll projects will be accelerated due to the issuance of toll bonds as opposed to waiting for programmed dollars. In addition, major projects will be developed as one project instead of being segmented, for the same reason. Surplus revenues from an RMA toll project can be used for other transportation purposes within the authority, if needed.

The Trans Texas Corridor

Currently the department is focusing on how to use the Texas Mobility Fund, the toll equity concept, the authority of counties to create RMAs, and the exclusive development agreement concept to implement Governor Rick Perry's Trans Texas Corridor proposal.

The Trans Texas Corridor will be a multi-use, statewide transportation corridor that will move people and goods safely and efficiently. The Trans Texas Corridor will include toll roads, high-speed passenger and freight rail, regional freight and commuter rail, and underground transportation for water, petroleum, gas and telecommunications. The Corridor, as envisioned, is a 50-year plan for addressing the long-range transportation needs of Texas.

Governor Perry established the Trans Texas Corridor concept as the vision of the future of transportation in Texas. He has directed TxDOT to develop and refine the concept and come up with an implementation process. TxDOT has established a preliminary map showing where the Trans Texas Corridor should be developed. These corridors were selected based on the existing and forecasted infrastructure needs of the State. The current location of the State trunk system and congressional high priority corridors were also taken into account when developing the Corridors. In terms of a starting point, the Governor has asked the Commission to focus on developing routes that are already part of the States long-range plan. For example, SH 130 is a new location highway that eventually will run from Seguin to Georgetown and parallel to I–35. SH 130 is already a part of TxDOT's plans, therefore it is logical that SH 130 be a starting point for development of the Corridor. Ultimately, it will be the commission that will make the final decision about which projects are built and when.

Building the Trans Texas Corridor will provide Texans with more and better transportation options. The Corridor will improve mobility and safety by reducing

traffic congestion on current highways. The reduced congestion will have environmental benefits such as a reduction in the volume of air pollution in our urban areas. It will provide a fast, safe and reliable rail system, allowing Texans and their business to move, if they so choose, by rail instead of road, further reducing congestion and air pollution. The Corridor will move hazardous materials away from urban centers, and off heavily traveled highways, providing safer transport of such materials. The State will also benefit from economic development opportunities as a result of a faster, safer, and more comprehensive transportation system.

TxDOT delivered The Trans Texas Corridor Plan to the Governor this summer. The plan outlines the basic design of the system and identified four routes as priority corridor segments. Under the action plan approved by the commission, TxDOT has designated its Texas Turnpike Authority Division as the central office to oversee the development of the corridor. Although it is a process that could take up to 50 years, the corridor report's action plan sets forth a series of first steps to be undertaken over the next year. Estimated total cost of the corridor ranges from $145.2 billion to $183.5 billion. The report discusses a variety of funding possibilities, although planners generally envision a public-private effort paid for with tolls, bonds, and other financing tools.

The goal, at TxDOT, is to begin construction on the most appropriate segment as soon as practical. TxDOT envisions the build-out of the Trans Texas Corridor to take approximately 50 years. However, based upon our 85 years of experience in the business, TxDOT projects that most of the Corridor could be under construction or finished within 25 years and perhaps less. To a great degree, the time required to build the Corridor is dependent upon the interested parties and their proposals.

As mentioned previously, the Trans Texas Corridor will utilize three types of financing tools (the Texas Mobility Fund, RMAs, and toll equity) combined with a project delivery mechanism known as exclusive development agreements. The Texas Mobility Fund will be used, if properly capitalized, to help build the segments of the Corridor that are less toll viable. If the Corridor is attractive enough, the legislature may commit a portion of general revenue funds toward the construction. These funds would be released to the commission to pay debt service on bonds issued to finance the Corridor.

With regard to RMAs, certain high growth areas of the State are uniquely situated to help themselves and the State through the creation of a RMA. If we use the example of SH 130 and Travis, Williamson, and Hays Counties, you can see the benefit of RMAs to the Trans Texas Corridor. A RMA in Travis, Williamson, and Hays Counties would generate revenue to pay for local transportation goals much sooner while allowing the State to spread scarce State revenue over other important projects in the area—projects such as the segment of the Corridor east of I–35. In addition, a successful RMA could ultimately invest in light rail linked to a regional commuter rail that is part of the Trans Texas Corridor. The rules governing a RMA are flexible in nature and are intended to foster partnerships between local governments and the State in the development of transportation facilities that provide an efficient delivery of the end product.

Toll Equity, as mentioned before, is the phrase used to depict the amount of State Highway Funds that may be used to construct a toll road without the requirement that the funds be repaid. The law limits TxDOT's annual toll equity contributions to a percentage of the Federal funds it receives each year. TxDOT will use toll equity funds on those proposals that generate the maximum total funding on the most appropriate segments and routes identified during the planning stages. With toll equity, any segment of the Corridor could be made toll viable. However, TxDOT will create and construct the Corridor based on a plan that identifies the most financially viable segments and routes and constructs them first, providing cash-flow to pay for the next logical segments and so on.

An Exclusive Development Agreement is a contract and construction method that allows any organization to propose a transportation project, including design, construction, maintenance, and operation and/or financing to TxDOT. If TxDOT determines the concept is viable and it supports the long-range Transportation plan of the State, the concept is approved and put to the public for competing proposals. TxDOT will review all proposals and select the best one for negotiation and final contract. TxDOT must also determine a project is compatible with existing and planned transportation facilities before a concept may be approved.

For the Corridor, it is anticipated that interested parties will make proposals for the Corridor, resulting in permission to operate part, or the entire Corridor. For those parties that used this method to win a contract from TxDOT, the right for the Commission to assume control of any part of the Corridor will be negotiated into the contract. This will protect the public's investment into the future.

By State statute, TxDOT can use the Exclusive Development Agreement method for four projects only. Therefore, unless State law is changed, this will be a minor tool in the creation of the Corridor—unless, of course, one party proposed to build the entire Corridor or a major part of the Corridor and the Commission believed it to be in the best interest of the public.

All of the tools mentioned here (the Texas Mobility Fund, RMAs, toll equity, and Exclusive Development Agreements) can be used on any TxDOT project, not just the Corridor. No matter where these tools are used they will benefit the public. They will help us build more highways faster and continue to expand our infrastructure to keep up with growing population and increasing traffic.

HELPING STATES TAKE ADVANTAGE OF FINANCING TOOLS

Texans need to have a full array of financial and project development choices available to us, so that we can move forward to meet our transportation needs. Innovation and flexibility have become essential to enabling State and local governments to solve today's transportation challenges. The recently approved tolling authority for the I–10 (Katy Freeway) corridor is an example of the types of flexible financing and project development processes we now need for transportation projects. Reauthorization of Federal surface transportation programs and funding in 2003 will present many opportunities for releasing the creative powers of Texas and other States.

Tolling of Interstate Routes

In March 2002, the FHWA approved a toll road proposal that calls for the construction of four toll lanes in the median of the I–10 Katy Freeway in the Houston region. The toll lanes will generate up to $500 million in revenue toward the reconstruction of I–10, thus completing funding for the project and potentially cutting construction time in half.

Despite the ultimate approval of the Katy Freeway tolling mechanism under Section 1216(a) of TEA–21, our experience with the process reveals some areas for improvement that, if implemented, would encourage more States to use this important financing option. In particular, the Harris County Toll Road Authority (HCTRA), one of our major partners in the Katy Freeway expansion project, had some initial concerns about certain requirements in the Section 1216(a) program that would have required a review and reapplication for the tolling authority every 3 years. This type of requirement often threatens the viability of the underlying bonding mechanism that the applicant is using to support the overall project. For the Katy Freeway project, HCTRA (the bonding authority in the project) was ultimately given a waiver of the reapplication process and HCTRA, TxDOT, and the Houston Metropolitan Transit Authority moved forward with our application under Section 1216(a).

TEA–21 also provided a pilot program under Section 1216(b) that allows States to toll portions of the interstate system. Thus far, no State has successfully applied for this authority. TxDOT initially applied for tolling authority under Section 1216(b) for the Katy Freeway project. However, we were unsuccessful in this application mainly because the program requires an analysis to demonstrate that the facility could not be maintained or improved from the State's apportionments and allocations. This analysis is not time restrictive, i.e., projects can be funded over long periods of time, and therefore it is very difficult to demonstrate the funding shortfalls required to obtain Section 1216(b) authority. For the Katy Freeway project application (and frankly for any other application we may attempt), TxDOT of course could choose to use any of its $2.2 billion in annual Federal apportionments for the project instead of funding another project, so we couldn't pass the "funding shortfall" test. What we need is the ability to use this tolling authority to supplement our existing funding, not replace it. This situation is a major reason, we think, why this pilot program has never had a project approved for implementation. As currently written, this program appears too restrictive to go forth with a meaningful project.

While the States have not successfully pursued the interstate tolling authority provided in Section 1216(b) for a variety of reasons (including political opposition from those who would ultimately pay the tolls), we in Texas would like to see it continue as an option for States. At the time Texas first considered using this provision, we did not have the various State-supported financing mechanisms and authority that we have recently acquired to help us take a new look at ways to finance our transportation needs. Also, we now have the Trans Texas Corridor plan that could benefit from the potential use of the Section 1216(b) authority. As a result, we recommend that the Congress continue, expand, and improve the flexible application of the Section 1216(a) and Section 1216(b) provisions in the reauthorization of TEA–21.

Buying Back Portions of the Interstate to Allow Tolling. With the except of the Section 1216 provisions mentioned above, Federal law generally prohibits imposing tolls on Interstate highways for which Federal funds have been used. In several situations, however, Congress has enacted specific legislation to allow States to reimburse the Federal Government for Federal funds applied to a highway segment, thereby relieving a highway segment of the prohibition against tolls. The FHWA has provided TxDOT staff with six examples of legislation authorizing such repayment of Federal funds for highways in Connecticut, Delaware, Maryland, Michigan, New Hampshire, and New Jersey. Texas would like to pursue this option in the development of the Trans Texas Corridor and other needed improvements. Your efforts to make this option as easily accessible as possible will greatly assist our future endeavors as we seek new ways to fund our tremendous transportation needs in Texas.

Despite the availability of this option to buy back portions of the Interstate, we believe that the Congress needs to take a new look at the issue of residual Federal investment. For the most part, the Federal investment in the interstates has essentially been depreciated, leaving only increasing costs to maintain the aging system—costs that often are taken up by the States. We believe that States should be given the option to toll their interstates without the requirement of reimbursement of long-ago Federal funding so that we can improve and maintain the interstates to meet the mobility and access needs of our citizens and business communities.

Since the beginning of the Interstate era in 1956, Texas has contributed more in Federal motor fuels tax payments than the State has received in Federal highway program funds, including its share of the Interstate Construction and Interstate Maintenance program funds. When these interstate program funds were originally distributed to Texas, we did not get a 100 percent return on our contributions. Now, if we were to repay a portion of the Federal funding it would be redistributed to all States. Since Texas continues to get less than a dollar for dollar return, Texas would suffer twice in the distribution of those funds. Therefore, we recommend that donor States (those that received less than 100 percent of their share of contributions to the Highway Trust Fund compared to their share of distributions through the Federal-aid highway programs) be allowed to toll portions of the interstate system without Federal reimbursement. This approach would partially compensate the donor States for their contributions to the national system and allow them extra flexibility in handling the mobility needs in their States.

Allow Toll Credits to be Derived from federally Funded Projects

Currently if a project utilizes any Federal funding then all costs of the project are ineligible to be counted as toll credits by the State. In today's environment where fewer and fewer projects are 100 percent toll-viable and require a mix of funding sources it is becoming more unlikely that a toll project will be built without some form of Federal assistance.

We believe the non-Federal expenditures on these projects should be eligible as toll credits on a pro-rata basis. We consider toll credits to be a valuable tool in Texas and have distributed these primarily to small transit providers who might otherwise have to turn down Federal assistance due to a lack of matching funds.

Privatizing Rest Areas

In a review of the Texas rest area system in the late 1980's, an internal TxDOT task force concluded that an innovative method of improving rest area quality without increasing costs appeared to be the concept of contracting with private developers to create joint development facilities. In other words, a commercialized rest area.

Commercialization could transform selected rest areas into "travel service centers," which would offer the traveling public facilities and services beyond those available at our existing sites. In addition to restrooms and picnic tables, commercialized rest areas could provide the public with food and fuel facilities and expanded travel information. These facilities could also provide expanded truck parking, a need that was only recently reaffirmed by a July 2002 FHWA Report on Truck Parking Facilities. One of the recommendations for State action in the FHWA report was to encourage the formation of public-private partnerships to address the nation's truck parking needs. At the same time, commercializing a rest area could reduce or eliminate the cost to the TxDOT of constructing and maintaining the facilities.

In 1990, the Center for Transportation Research (CTR) at the University of Texas began a study to determine the feasibility of rest area commercialization in Texas. This study found that commercialization would be feasible and could turn many rest areas sites into revenue generators. However, as the study points out, Title 23 USC,

Section 111 prohibits the commercialization of rest areas with direct access to an interstate highway. It should be noted that this concept is supported by AASHTO. A 1989 AASHTO Task Force that studied commercialization recommended that the Federal restriction be lifted. Language lifting the ban on rest area commercialization on the interstate system was included in an initial draft of ISTEA; however, interests opposed to the concept defeated the provision. Tourist industry interests, truck-stop interests (National Association of Truck Stop Owners), and other private sector interests view rest area commercialization as unwanted competition, even though they can participate in such development.

As we explore ways to maximize available funds to meet our transportation needs, Congress should allow States to use this concept on interstate routes.

Continue and Improve Access to Railroad Rehabilitation and Improvement Financing Act Funds

The Railroad Rehabilitation and Improvement Financing program (authorized in TEA–21) offers $3.5 billion in loans and guarantees to public or private sponsors of intermodal and rail projects, with $1 billion reserved for projects benefiting freight railroads other than Class I carriers. Projects can include acquisition, development, improvement, or rehabilitation of intermodal or rail equipment or facilities. The program is intended to make funding available through loans and loan guarantees for railroad capital improvements. No direct Federal funding is authorized in TEA–21; however, the Secretary is authorized to accept a commitment from a non-Federal source to fund the required credit risk premium.

Texas to date has had little opportunity to use the financing tools made available by the RRIF. In 2001 Amtrak approached the States of Mississippi, Louisiana, and Texas for assistance with the credit risk premium for a RRIF loan. The loan would have allowed one of the freight railroads in the region to upgrade its tracks to allow an extension of Amtrak's Crescent line to run between Meridian, Mississippi and Dallas/Fort Worth. The Texas Constitution prohibits the use of dedicated State Highway Fund dollars for non-highway purposes; therefore TxDOT was unable to participate in the opportunity to bring additional passenger rail service to our State. However, supporters of the rail proposal approached the Texas Legislature and garnered an appropriation of $1.7 million in other State funds for Texas' share of the credit risk premium. Unfortunately, Amtrak later announced that it was postponing its plans for the extension, known as the Crescent Star.

Despite TxDOT's and Texas' limited involvement to date in railroad financing, as we begin development of the Trans Texas Corridor (which includes a freight rail, a commuter rail, and a high speed passenger rail component), the continued availability of financing from the RRIF will prove important. We encourage Congress to continue the program and to provide additional funds in the TEA–21 reauthorization.

Changes to the TIFIA Program

The Transportation Infrastructure Financing and Investment Act (TIFIA) program has been possibly the single most important benefit for public-private partnerships in transportation and has provided opportunities both to fill the gaps in finance plans and to make finance plans more efficient and cost effective. While the program may end the current authorization period undersubscribed, this is not a reflection on the program's value or its potential utility. Rather, it reflects the very long lead times required for project sponsors to design finance plans and adapt, often only with new State legislation, to new financing methods.

The clear benefit from TIFIA is flexibility in structuring repayment and deferral of interest. This feature enhances cash-flow from the projects during the initial construction period to pay for senior debt and fill rate stabilization and debt services reserve funds. Another benefit comes from the ability to leverage revenues from a "startup" toll road project. For a tax-exempt borrower such as TxDOT, the subordinate TIFIA loan produces savings in both interest rate costs and costs of bond issuance.

Our experience suggests several potential drawbacks from TIFIA. Resolving some of these concerns may require changes to the TIFIA law; others might be corrected within the existing statutory and regulatory framework.

Encourage Equity Investments in Projects Supported with TIFIA Credit. Congress should reauthorize the TIFIA program and refine it to encourage more private investment in projects supported with TIFIA credit. More thought should be given to the blending of private investment and TIFIA credit. Several of the current applicants for TIFIA credit, including TxDOT, are requiring private contractors to contribute subordinated debt or equity investments to the financing plan. Indeed, rat-

ing agencies and bond insurers have come to expect contractors to take part of their fee in the form of a project investment. Congress should encourage this expectation.

The good news is that the contracting community is increasingly able to make these investments. The bad news is that, if the owner is using TIFIA credit, TEA–21 currently offers the owner a Hobson's choice: either the contractor's credit must be investment grade according to rating agency criteria (a result more favorable to the contractor than the owner wants or needs to allow) or the contractor's investment must be subordinate to TIFIA in right of payment (a risk the contractors cannot accept when TIFIA credit is large). This challenge can be cured by refining TIFIA to rank a developer's claim senior to TIFIA's without requiring that the developer's credit be investment grade and to allow the developer to receive payment of equity returns and subdebt payoff as long as the entity receiving TIFIA funds meets all its debt service obligations and coverage ratios. To allay concerns about diluting TIFIA credit quality, TIFIA could limit subdebt or private equity payoff to a specified percentage of project costs.

Minimize Impact of TIFIA Loan "Springing Up." Legal advisors to FHWA have been reluctant to interpret the TIFIA statute to limit the event under which the TIFIA loan would "spring" to parity to a bankruptcy filing or similar proceeding that results in an abandonment, liquidation, or dissolution of the project. We are concerned that insolvency is defined broadly, resulting in the TIFIA loan "springing" to parity with senior bond indebtedness. This could adversely affect the ability to attract credit enhancement (e.g., insurance) for the bonds and result in higher interest cost. Credit enhancers consider the "worst case scenario" when evaluating their desire to guarantee bonds and the risk of doing so. The benefit of subordinating the TIFIA loan could be eroded if the credit enhancers evaluate their risk by assuming they will be sharing in revenues and other assets on parity with FHWA.

Following receipt of TxDOT's TIFIA commitment letter, FHWA announced it would apply the "Mega Project" finance plan and reporting requirements to all TIFIA projects. As interpreted by FHWA, these requirements are more burdensome than the capital markets or SEC disclosure rules require. Furthermore, it's unclear how FHWA will use this information.

More Liberal Terms in TIFIA Loan Agreements. To leverage new project revenue streams, reduce transactional costs, and attract private debt capital, FHWA must consider more liberal terms in the financial covenants in the TIFIA loan agreement. For example, we believe that there should be no debt service reserve requirement for the TIFIA loan. Also, FHWA must be willing to subordinate its debt to that issued to design/build contractors as payment for their work.

The Central Texas Turnpike Project is a multi-phased capital program with multiple funding sources. TIFIA loan draw requirements/priorities as well as provisions relating to repayment and final maturity of the TIFIA loan must give consideration to the complexity of the projects.

As mentioned earlier, Governor Perry is exploring large-scale corridor development in Texas. We certainly expect TIFIA to be an important financing tool in this effort. Critical to this would be the ability to subordinate TIFIA to equity returns as well as senior debt service payments.

Change Internal Revenue Code Private Activity Rules. Congress should modernize the Internal Revenue Code rules on private activity and management contracts as they apply to surface transportation. Project sponsors are now actually forced to turn down true private equity for important public projects if they expect to issue tax-exempt debt. This is not the result Congress intended when it adopted these restrictions in 1986. Inexplicably, these same restrictions do not apply to other public works such as airports and solid waste facilities. During the 106th Congress, Senator Smith authored a bill to cure these exact problems. Both houses of Congress ultimately passed this important curative legislation as part of a larger tax bill that year, but President Clinton vetoed the larger bill.

TxDOT is embarking on an ambitious program that has the potential for attracting significant private equity. Curing this anomaly in the tax code would allow sorely needed private equity and innovation to be incorporated into surface transportation development without sacrificing access to the lower interest rates in the tax exempt financing markets.

Modernize Internal Revenue Code Advance Refunding Rules. Congress should modernize the IRS rules applicable to surface transportation to permit two advance refundings. Most conventional transportation projects are funded on a pay as you go model or with bonds backed by tax revenues. As such, sponsoring agencies issue bonds only to advance funds as needed for construction. To finance a public-private partnership dependent in part on the project's own revenues, the bond markets require 100 percent of all capital costs be funded up front, at the time they invest.

This means that the sponsor is issuing bonds many years removed from the economic conditions that will affect the project when it has opened.

If interest rates become more favorable over time, IRS rules prevent the sponsor from refunding the bonds more than once, even though doing so would help reduce tolls, pay off debt quicker, and leverage dollars more efficiently. Other businesses aren't so restricted. These rules are even more puzzling because there is no loss to the Treasury from advance refundings.

Encourage Design-Build and DBOM Contracting. Congress should continue to encourage Design-Build and Design-Build-Operate-Maintain (DBOM) contracting for federally funded projects and remove regulatory barriers to State DOT use of procurement processes. Private section financing frequently requires certainty early in the design phase for capital and long-term maintenance and rehabilitation costs. In effectively providing such certainty, these forms of contracts are an essential building block for project financing.

TEA–21 required FHWA to issue a rule governing procurement. While the rule is not final, the problems identified in the published draft have been documented in comments submitted by AASHTO and others. Unless FHWA incorporates the recommended revisions into its final rule, this critical tool will have been undermined unless Congress intervenes.

Allow Selection of Contractor Prior to ROD to Enhance Financial Benefits of Construction Acceleration. Congress should make clear to the USDOT modal administrations that it did not intend NEPA to prevent procurement activity from being completed prior to issuance of records of decision (ROD). One of the key values of effective project financing is construction acceleration. We recognize the major contribution to environmental planning that NEPA has brought to major Federal actions. No one suggests that construction should commence before a ROD. But FHWA is reading NEPA to prevent the issuance of an RFP, the selection of a contractor, and the award of a contract pending a final ROD. None of these actions affects the selection of a project alternative or even the decision not to build. For a State DOT to use its own funds to accelerate contractor selection so that it is prepared to move quickly if a "build" alternative is selected is acting in parallel rather than in sequence. This does not prejudice the NEPA process.

Modify Existing Transportation Programs to Enhance Funding Flexibility

ISTEA and TEA–21 provided improved flexibility for States in addressing their varied transportation needs by allowing greater levels of transferability among the existing highways and transit funding categories. For example, States can transfer up to 50 percent of their National Highway System apportionments to the Interstate Maintenance, Surface Transportation Program, Congestion Mitigation and Air Quality Improvement Program, and Bridge Replacement and Rehabilitation Program. In addition, up to 100 percent of NHS apportionments may be transferred to STP if approved by the Secretary of Transportation. Similar transferability provisions are available for the other Federal-aid highway programs listed above. In addition, States have the option to use their Federal transit formula program funds for a highway project and vice versa. This type of transferability should be expanded, at State discretion, among the entire array of transportation programs.

ISTEA and TEA–21 also enhanced flexibility by expanding the list of eligible activities that can be funded with highway program funds. For example, STP funds can be used for highways, bridges, transit capital projects, and intracity and intercity bus terminals and facilities. However, this is an area where additional flexibility will help States in finding funding solutions to meet their varied transportation needs. When you consider a concept as complex as the Trans Texas Corridor, it becomes obvious that having the flexibility to address multimodal funding issues is essential. We encourage Congress to consider expanding the eligibility of existing highway, transit, and rail programs to allow, at the State's discretion, the use of any of these funds for a broader range of transportation activities. At the same time, it will be essential for Congress to either consolidate or simplify the program procedures of the various modal programs or allow States to use the simplest procedures among them so that the flexibility of expanded eligibility is not negated by regulatory differences among the modal programs. This flexibility will better enable us in Texas to pool our available resources to tackle multimodal transportation projects. This is the future of transportation in Texas; Federal funding programs should facilitate our efforts, not provide roadblocks to efficient and effective use of Federal transportation dollars.

CONCLUSION

As you can see, Texas has indeed entered a new era in planning, building, and financing needed transportation systems. We can no longer afford to rely solely on

the traditional pay-as-you-go method of finance for needed transportation systems. We are committed to taking advantage of every available transportation finance and project development mechanism. We will need your assistance to enable us to fully and flexibly use the complete range of tools to meet our growing transportation demands. We look forward to working with you to make our launch into the new century of transportation financing a continuing success for Texas and the Nation.

If you have any questions about the information provided here, please contact Tonia Ramirez in TxDOT's Federal Legislative Affairs Section at 512–463–9957.

TEA–21 REAUTHORIZATION

MONDAY, SEPTEMBER 30, 2002

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION, INFRASTRUCTURE AND NUCLEAR SAFETY,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:12 a.m. in room 406, Senate Dirksen Building, Hon. Harry Reid [chairman of the subcommittee] presiding.

CONDITIONS AND PERFORMANCE OF THE FEDERAL-AID HIGHWAY SYSTEM

Present: Senators Reid, Voinovich, and Jeffords [ex officio].

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. This committee will come to order.

I apologize to everyone for being late. I guess I should have gotten up earlier. I slept in until six this morning.

Welcome to today's hearing on the state of America's highway infrastructure. This is the last of a series of 14 scheduled hearings and roundtables that the committee and this subcommittee have held this year as we prepare to write the next transportation bill. We have addressed many important policy issues, including traffic congestion, planning, safety, operations, air quality, freight and project delivery. These hearings have made one thing very clear, that transportation is central to our growth, global competitiveness and quality of life.

In 1956, under the leadership of President Eisenhower, the Federal Government made a commitment to create an Interstate highway system. We have since expanded that commitment to include the national highway system in the broader Federal aid highway network. This system has been an enormous success and now includes 46,000 miles of interstate highways and one million miles of Federal aid highways. These roads serve as the lifeblood of our economy, moving people and freight trillions of miles each year. Our Nation's road and bridge infrastructure includes 8.2 million lane-miles of highway and 590,000 bridges valued at about $1.5 trillion.

Our task is to protect this investment and ensure that it continues to meet the needs of our Nation's communities and businesses. Potholed roadways, deficient bridges and congested inter-

states threaten safety, diminish quality of life and impede economic efficiency.

Today, we will review two new reports on the status of American highway systems. I will ask that my full statement be made part of the record.

[The prepared statement of Senator Reid follows:]

Senator REID. We are honored to have as our first witness today the chairman of the Senate Appropriations Committee, Senator Byrd. No one has been a greater champion for increased investment in transportation than Senator Byrd. He was a leader of TEA–21 5 years ago and has been a leader every year as chairman of the Appropriations Committee. We do a transportation appropriations bill every year.

Those of us who support increased investment in America's transportation infrastructure are thankful for Senator Byrd's continued leadership. We all look forward to working with Senator Byrd as we write the next transportation bill. We will count on his wisdom and experience as we work our way through this very difficult process.

Mr. Chairman?

[The prepared statement of Senator Reid follows:]

STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Welcome to today's hearing on the state of America's highway infrastructure. This is the last in a series of 14 scheduled hearings and roundtables that the EPW committee and this subcommittee have held this year as we prepare to write the next transportation bill. We have addressed many important policy issues, including traffic congestion, planning, safety, operations, air quality, freight and project delivery.

These hearings have made one thing clear that transportation is central to our economic growth, global competitiveness, and quality of life. In 1956, under the leadership of President Eisenhower, the Federal Government made a commitment to create an interstate highway system. We have since expanded that commitment to include the National Highway System and the broader Federal-aid highway network. This system has been an enormous success and now includes 46,000 miles of interstate highways and one million miles of Federal-aid highways. These roads serve as the lifeblood of our economy, moving people and freight trillions of miles each year.

Our nation's road and bridge infrastructure includes 8.2 million lane miles of highway and 590,000 bridges, valued at $1.4 trillion dollars. Our task is to protect this investment and ensure that it continues to meet the needs of our nation's communities and businesses. Potholed roadways, deficient bridges and congested interstates threaten safety, diminish quality of life and impede economic efficiency.

Today we will review two new reports on the status of America's highway system. The Federal Highway Administration will present the findings of its 2002 Conditions and Performance report, and the American Association of State Highway and Transportation Officials will unveil its Bottom Line report. These reports offer a mixed message. On the positive side, the increased investments provided by TEA–21 have begun to make a difference. Our infrastructure is in better shape today than it was a few years ago.

Unfortunately, while the condition of our transportation system has improved somewhat, its performance continues to worsen. The increasing congestion our nation's roads are experiencing means dirty air, wasted fuel, lost time and reduced productivity. In addition, we continue to have a significant backlog of repairs that must be made to deficient bridges and inadequate roadways.

Both studies conclude that America is spending too little money to maintain the current conditions and performance of our transportation system, much less improve conditions and performance. The needs have outpaced funding, and unless we change this pattern we will fail to address the backlog of infrastructure needs and will continue to experience deteriorating performance.

I have seen this performance deterioration firsthand at home in Nevada. As the Las Vegas and Reno regions have grown, so has traffic congestion. Worsening con-

gestion is one of the greatest threats to my State's continued economic growth and we will have to do things differently if we are to reverse this trend.

As we will hear, the solutions range from improving the conditions of our roadways, to building new roads, expanding and improving transit service, employing new technology, enhancing the management and operations of our transportation systems, improving planning, creating high-speed rail connections, and managing demand.

We have our work cut out for us as we begin the reauthorization process. It is our responsibility to ensure that the transportation infrastructure of this country meets the needs of America's citizens. I look forward to working closely with Chairman Jeffords and other members of this committee to develop a forward-looking reauthorization bill that adequately addresses the many challenges our transportation system is facing.

We are honored to have as our first witness today the chairman of the Senate Appropriations Committee, Senator Robert Byrd.

No one has been a greater champion for increased investment in transportation than Senator Byrd. He was a leader on TEA–21 5 years ago, and he is a leader every year as the chairman of the Appropriations Committee. Those of us who support increased investment in America's transportation infrastructure are thankful for Senator Byrd's continued leadership. I look forward to working with Senator Byrd as we write the next transportation bill and will count on his wisdom and experience as we work our way through this very difficult process.

Senator JEFFORDS. I will wait on my statement.

Senator REID. Senator Voinovich?

Senator VOINOVICH. Mr. Chairman, since we have the chairman of the Appropriations Committee here with us this morning and the subject of his testimony is the Appalachian Development Highway System, I will reserve my comments for after his presentation this morning.

Senator REID. Gentlemen, thank you very much. Again, I apologize to everyone for being late. I hate to be late.

Senator Byrd?

STATEMENT OF HON. ROBERT C. BYRD, A UNITED STATES SENATOR FROM THE STATE OF WEST VIRGINIA

Senator BYRD. Thank you, Mr. Chairman, and thank you Senators Jeffords and Voinovich.

In just a few months' time, this subcommittee will be responsible for reporting one of the most important pieces of legislation for the 108th Congress. As such, I am grateful to you, Mr. Chairman and members of your subcommittee for allowing me this opportunity to testify at this, the last hearing that you will hold in the Nation's Capital on the reauthorization of the Transportation Equity Act for the 21st Century, or TEA–21.

Later this morning, you will also take testimony from our capable Federal Highway Administrator, Mrs. Mary Peters, on the condition and the performance of our national highway system. The Administration's upcoming Conditions and Performance Report will again remind us that a great deal more needs to be invested in our infrastructure if we are not to fall farther and farther behind in stemming the deterioration of our Nation's highways and bridges, and alleviating congestion on our Nation's roads.

As Chairman of the Senate Appropriations Committee, I have sought to do my part by championing the highest level of Federal highway investment that is possible under our very tight budget constraints. The transportation appropriations bill for our fiscal year 2003 as reported by my committee back in July restores every penny of the $8.6 billion cut in highway funding proposed by Presi-

dent Bush. I am pleased to say that every member of the Appropriations Committee, Republican and Democrat, voted to report that bill.

One of the observations contained in Administrator Peters' testimony that especially caught my eye is her statement that the condition of higher-order roads such as Interstates has improved considerably since 1993, while the condition on many lower-order roads has deteriorated. It appears, Mr. Chairman, that the pattern of road conditions is beginning to mirror the distribution of wealth in our country, whereby the rich are getting richer, while the poor are getting poorer.

That observation leads me into my ostensible topic for my testimony today, namely the need to use this next highway bill to finally fulfill a promise that was made to one of the most impoverished and isolated regions of our country more than 35 years ago, and that is the region of our country from which I come. We need to use this next highway bill to finally complete the 3,025-mile Appalachian Development Highway System or ADHS.

Mr. Chairman, while serving in the other body, I had the great privilege of casting my vote in favor of establishing the Interstate highway system. However, in 1964 it was recognized by the first Appalachian Regional Commission that while the Interstate highway system was slated to provide historic economic benefits to most of our Nation, the system was designed to bypass the Appalachian region due to the extremely high cost associated with building highways through Appalachia's rugged topography. As a result, the construction of the Interstates had the detrimental effect of drawing passengers and freight and the accompanying economic benefits away from the Appalachian region.

In 1965, the Congress adopted the Appalachian Regional Development Act, which promised a network of modern highways to connect the Appalachian region to the rest of the Nation's highway network, and even more importantly the rest of the Nation's economy. Absent the Appalachian Highway System, my region of the country, the southern West Virginia coal fields, would have been left solely with a transportation infrastructure of dangerous, narrow, winding roads which follow the paths of river valleys and stream beds between mountains. These roads are still more often than not dangerous two-lane roads that were built to inadequate design standards.

Mr. Chairman, as you know well, we have virtually completed the construction of the Interstate highway system and have moved on to many other important transportation goals. However, the people of my region are still waiting, still waiting for the Federal Government to live up to its promise made some 37 years ago to complete the Appalachian Development Highway System. The system is still less than 80 percent complete, and I regret to observe that my home State of West Virginia is below the average for the entire Appalachian region, with only 72 percent of its mileage complete and open to traffic.

It is without hesitation that I come before this subcommittee and make this request on behalf of the transportation needs of my State and my region. Throughout my 50 years in Congress, I have taken care to be attentive to such needs in other regions. In the

late 1960's, Mr. Chairman, I served as chairman of the Appropriations Subcommittee on the District of Columbia. I held that exalted position for 7 years, 7 years. I believe it was Jacob who worked 7 years for Rachel.

[Laughter.]

Senator BYRD. And then at the end of the seventh year, his future father-in-law gave him Leah, not Rachel, but Leah, who had weak eyes, said the Bible. So he had to work 7 years more in order to get Rachel. Well, I only had 7 years as chairman of that great subcommittee, and what a rough time it was—seven years, chairman of the District of Columbia Subcommittee. My old Pastor Shirley Donnelly, who was the chief chaplain in the Sixth Army, I believe it was, in World War II, always told me, "Bob, a big man makes a little job big; a big man makes a little job big."

So I tried to make that little job big, and I think I did. I think I was able to do that. So in the late 1960's, I am glad I did not have to serve another 7 years, I served as chairman of the Appropriations Subcommittee on the District of Columbia. It was at that time, Mr. Chairman, that I, Robert C. Byrd, you are looking right straight at him, if you look this way.

[Laughter.]

Senator BYRD. That I provided the first appropriations for the initial construction of the Washington Metro system. Those first two appropriations together totaled less than $100 million, but they would start the ball rolling toward Federal assistance that would total tens of billions of dollars to construct the Washington Metro system. So I thought I was entitled to try to get some money for West Virginia's roads as well.

The rationale behind the completion of the Appalachian Development Highway System is no less sound today than it was in 1964. Unfortunately, there are still children in Appalachia who lack decent transportation routes to school. There are still pregnant mothers, elderly citizens and others who lack timely road access to area hospitals. There are thousands upon thousands of people who cannot obtain sustainable well-paying jobs because of poor road access to major employment centers.

The entire status of the Appalachian Development Highway System is laid out in great detail in the Cost to Complete Report for 2002 just completed by the Appalachian Regional Commission this month. Mr. Chairman, I would ask if this report might be made part of the committee's record, or at least be in the committee's permanent files.

Senator REID. Hearing no objection, that will be the order.

[The document will be retained in the committee's files.]

Senator BYRD. Thank you.

The enactment of TEA–21 signaled a new day in the advancement of the ADHS. TEA–21 took a great leap forward by authorizing direct contract authority from the highway trust fund to the States for the construction of the ADHS. And Senator Phil Gramm of Texas, Senator John Warner of Virginia and Senator Max Baucus of Montana worked with me and helped me as we worked together to improve that bill. TEA–21 took a great leap forward by authorizing direct contract authority from the highway trust fund to the States for the construction of the ADHS. Up until that point,

funding for the ADHS had been limited to uncertain and inconsistent general fund appropriations.

By providing the States of the Appalachian Region with a consistent and predictable source of funds to move forward on its uncompleted ADHS segments, TEA–21 served to reinvigorate our efforts to honor the promise made to the people of the Appalachian region. As is made clear in the Cost to Complete Report, this initiative has been a great success, one for which this committee can be very proud. States are making greater progress toward the completion of the system than they would otherwise have made, and more than they have made in any 5-year segment in our recent memory. Since the last Cost to Complete Report, 183 miles of the system have been open to traffic and we have successfully brought down the cost to complete the system by roughly $1.7 billion in Federal funds. Back when we were debating TEA–21, some questions were asked as to how committed the States would be to completing the unfinished segments of the Appalachian Highway System. I am pleased, Mr. Chairman, to report that the 13 States to date have succeeded in obligating just under 90 percent of the obligation authority that has been granted to them for the completion of the system. Of critical importance to this discussion is the fact that the unfinished segments of the ADHS represents some of the most dangerous, most deficient roadways in our entire Nation.

One thing that is often lost in our debate over the necessity to invest in our highways is the issue of safety. The Federal Highway Administration has published report indicating that substandard road conditions are a factor in 30 percent of all fatal highway accidents. I was in one of those fatal highway accidents, Mr. Chairman, and so was my former, late colleague Senator Randolph. We were driving one Sunday afternoon on a two-lane highway and we crashed head-on into a car coming from the opposite direction. So I know something about those highways. My wife and I have traveled them at all hours of the day and I think all hours of the night. I do not know of a road in West Virginia that we have not traveled on in these more than 50 years in which I have been in politics.

They have also found that upgrading two-lane roads to four-lane divided highways decreased fatal car accidents by 71 percent, and that widening traffic lanes have served to reduce fatalities by 21 percent. Had the highway on which I was traveling on that Sunday afternoon been a four-lane highway, that accident would not have happened. These are precisely the kind of road improvements that are funded through the ADHS. In my State, the largest segment of unfinished Appalachian highway if completed will replace the second most dangerous segment of roadway in my State.

So even those who would question the wisdom of completing these highways in the name of economic development should take a hard look at the fact that the people of rural Appalachia are taking their lives in their hands every day as they drive on their currently inadequate roads. Nor would the argument of economic development hold up against completing these Appalachian highways, certainly not in my State.

Mr. Chairman, it is time for this committee and the entire Congress, in concert with the Administration, to take the last great leap forward and authorize sufficient contract authority to finally

complete the Appalachian highway system. As you enact another 6-year highway bill with sufficient funds to complete the system, we will finally pay off the full costs of the ADHS almost by then, almost 45 years after the system was first promised to the people of my neglected region. When we convene the 108th Congress, it is my intention to introduce legislation to complete the job.

I am very pleased that this Administration has taken on the goal of completing the ADHS. In her letter accompanying the Cost to Complete Report, Administrator Peters said, "The completion of the Appalachian Development Highway System is an important part of the mission of the Federal Highway Administration," and that the ARC's 2002 Cost to Complete Report, "provides a sound basis for apportioning future funding to complete the system."

Mr. Chairman, I thank Mary Peters for her leadership on this issue and I look forward to seeing her commitment borne out in their reauthorization legislation which will be submitted next year. Completion of a new highway bill will be a mammoth task for the 108th Congress. I can say, Mr. Chairman, that over the many years of my public career, one of the accomplishments of which I am most proud was my amendment providing an additional $8 billion in funding to break the logjam during the debate on the Intermodal Surface Transportation Efficiency Act in 1991. Another was my cosponsorship of the Byrd-Gramm-Baucus-Warner amendment during the Senate debate on the TEA–21 in 1998. That effort resulted in some $26 billion in funding being added to that bill, and it put us on a path to historic funding increases for our Nation's highway infrastructure.

I look forward, again, to working with this committee on completion of a bill that makes the necessary investments in our Nation's highways, not just in the Appalachian region, but across our entire country. Now, someone will hand me this map—Mr. Chairman, I have been—I was not here when Noah started his ark, but Abraham lived to be 175, and Isaac lived to be 180. Abraham, Isaac—Jacob lived to be 147, and Strom Thurmond is just 100.

[Laughter.]

Senator BYRD. I am pressing on and during my work in representing West Virginia in the Congress, I am proud to show this map. This is a roadmap of West Virginia in 1947. I was in the West Virginia House of Delegates at that time. In the whole State, this rugged mountainous State of 24,000 square miles—rugged, rugged—in the whole State at that time, there were only four miles of divided four-lane highways. Governor Voinovich, on the roadmap of 1947, not one mile is shown on this map.

In those days, it took a day or a 1½ or 2 days to get from the southernmost point of West Virginia to the northernmost part, or to the eastern panhandle. And so it is a great joy to me to be able to look back and know that I voted with General Eisenhower in his days for the Interstate system. I used to say that Nixon was my favorite President in my time, my favorite Republican President, but I have changed that view. My favorite Republican President is former General Eisenhower. He said a prayer. He did not ask somebody else to order the prayer. He spoke the prayer in his first inauguration. He prayed, and that greatly impressed me. But he

was the daddy of the Interstate system, and I was a member of the other body and voted for it—voted for the money to pay for it.

Over the years as a member of that body and later as a member of the Senate, I voted to support moneys for the Interstate system and for the Appalachian Highway System. So I am very proud, Governor Voinovich, to be a neighbor of yours and we both know the importance and the value of good highways. But West Virginia is still wanting to have the promise fulfilled that we made back in 1965 when we inaugurated the Appalachian Regional Highway System.

Senator REID. How many miles of divided highway do you have now?

Senator BYRD. A little over 1,000.

So thank you very much, Mr. Chairman and members. I value my membership in the U.S. Senate at a time when there sit in that august body such Senators as the three who are before me today. I appreciate your courtesy and your kindness. May you succeed in your efforts and count on me if I can be of help, and I will certainly be there trying.

Senator REID. Senator Byrd, we are going to have a new panel now, but I am wondering if I could visit with you just on an unrelated matter. I will meet you outside.

Senator BYRD. Yes.

Senator VOINOVICH. Mr. Chairman, could I make a comment?

Senator REID. Of course.

Senator VOINOVICH. I would like to publicly thank Senator Byrd for the leadership that he has exercised over the years, particularly in regard to Appalachia. Senator, I can understand how you feel about this. You were there in the beginning of this work. A lot of projects have yet to be finished in Cleveland, ones that I started as mayor there. I want to help finish them up as a member of the U.S. Senate. I will join you to make it possible that you will finish up your work.

I think the committee should know that Appalachia still lags behind in America today. The infrastructure is not in place in spite of the fact that in my State, we have rebuilt many schools in rural areas, the most depressed areas, and brought in fiber-optics and technology and computers. In many of those communities, we are trying to get economic development and can't get economic development without highways.

In terms of the quality of life, the situation has improved substantially from the days when Senator John Kennedy campaigned there and showed the nation the dirt floors in people's homes. Today, the infant mortality is down. We are getting good health care. Part of it, and I want to thank this committee, is the reauthorization of the ARC, which is going to continue to bring money into those areas.

So Senator Byrd, thank you very much on behalf of the citizens of Ohio for your leadership over the years.

Senator BYRD. Thank you, Governor.

Our final miles in West Virginia on corridor D are in the Parkersburg area, where we cross over the river into your great State. I think you are a very valuable member of the Senate and a great

booster of our highway building and needs. We look to you to help us to fulfill this promise to our peoples on both sides of the river.

Senator JEFFORDS. Thank you, Senator, and I look forward to working with you on the reauthorization of our bill here, and for your help and guidance as we moved forward. You have been a tremendous help to this committee and we look forward to working with you.

Senator REID. The people of West Virginia should understand, as should the people in this whole corridor, Senator Byrd had the seniority to take the chairmanship of the Energy and Water Subcommittee when Senator Bennett Johnston left, but he said, "You can go ahead and take it, but the one thing I want is to make sure you take care of the Appalachian corridor." So I have done that every year.

Senator BYRD. Yes, you have.

Senator REID. I want you to know that I have not forgotten that.

Senator BYRD. Thank you.

Senator REID. That is in you would think an unrelated subcommittee, but because of Senator Byrd, it's related.

Senator BYRD. Thank you.

Senator REID. The next panel is the Honorable Mary Peters, the Honorable Joseph Perkins, and JayEtta Hecker. Would you please come forward and would you get them started? I am going to step outside.

Senator JEFFORDS. Senator Voinovich, do you have a statement that you would like to make while we get organized here?

Senator VOINOVICH. Yes, I think I would like to do that.

Senator JEFFORDS. Please do.

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator VOINOVICH. First of all, I would like to thank the chairman for conducting this hearing today. I am glad that Gordon Proctor, who is the Director of the Ohio Department of Transportation, is going to be testifying today. Gordon worked with me when I was Governor, and with Jerry Raye, who was our director. It is nice to know somebody as they work their way up to have the main job today. We are looking forward to your testimony, Gordon.

Mr. Chairman, as the infrastructure built in the 19th and 20th centuries reaches the end of its useful life, we are now faced with a question of how to fulfill current requirements and make improvements to our infrastructure that will best serve our Nation in this century. And while progress has been made, we all know that large capital and maintenance investments are going to have to be made.

The first step in getting that done is developing a coherent and comprehensive national infrastructure strategy, and that is to get an assessment of the unmet infrastructure needs. When I was chairman of this subcommittee in 2000, I asked GAO to conduct a survey of the unmet major needs in the major public infrastructure areas which receive Federal assistance, including highways and mass transit.

IN JULY OF 2001, THE GAO RELEASED IN ITS REPORT, ENTITLED U.S. INFRASTRUCTURE AGENCIES APPROACHES TO DEVELOPING INVESTMENTS VARY. IN THE REPORT, THE GAO PROVIDED A SURVEY OF SEVEN AGENCIES. IN THE FEDERAL HIGHWAY ADMINISTRATION, THEY ESTIMATED THAT $50.8 BILLION PER YEAR OVER 20 YEARS WOULD BE NEEDED JUST TO MAINTAIN THE CURRENT PHYSICAL CONDITION OF THE NATION'S HIGHWAYS AND BRIDGES. IN ADDITION, THEY SAID AN INVESTMENT OF $83.4 BILLION PER YEAR—PER YEAR—OVER 20 YEARS WOULD BE NEEDED TO IMPROVE THE INFRASTRUCTURE.

The GAO report also reported that the Federal Transit Administration estimates the average cost to meet the Nation's mass transit needs is as high as $16 billion per year for 20 years.

I understand that our witnesses this morning are going to be making mention of some of those estimates. I am anxious to hear about them. Senator Byrd already eloquently mentioned the Appalachian Development Highway System, and Madam Secretary, we are very pleased that you understand how important it is. It would be wonderful if this Administration could say, we put the frosting on the cake and finished it up.

It is no secret that the Nation has an aging infrastructure. We have got to figure our levels of funding and figure out where it fits in as far as this country's national priorities. I think that we need to, as Members of Congress and of this committee, develop a long-range strategy to deal with not only this infrastructure problem, but water and sewers and some of the other things that have been neglected around here for too long, while we go on undertaking other areas where perhaps Congress has not got as much authority or responsibility.

I ask that my statement be made part of the record, Mr. Chairman.

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Thank you, Mr. Chairman, for conducting this hearing today on the state of our nation's infrastructure.

I would especially like to welcome Gordon Proctor, Director of the Ohio Department of Transportation, who is here to testify on Ohio's transportation needs, particularly those of the State's aging interstate highway system.

Mr. Chairman, as the infrastructure built in the 19th and 20th Centuries reaches the end of its useful life, we are now faced with the question of how to fulfill current requirements and make improvements to our infrastructure that will best serve our nation in the 21st Century.

While progress has been made at the Federal, State, and local levels to acknowledge and begin to address public infrastructure needs, major areas are still not being addressed, such as large capital investments and operations and maintenance. I recognize that simply devoting more Federal money to infrastructure needs is not the solution. Rather, a strategy must be developed to address the full range of short- and long-term issues, including appropriate Federal and state roles, adequate project evaluation, priority-setting, program efficiency and management.

The first step in developing a coherent and comprehensive national infrastructure strategy is an assessment of our nation's unmet infrastructure needs. I realize that even the concept of "unmet needs" is difficult to define and that every Federal agency may define the term differently. That is why, as chairman of this subcommittee in 2000, I asked the General Accounting Office (GAO) to conduct a survey of unmet needs in the major public infrastructure areas which receive Federal assistance, including highways and mass transit.

Consequently, in July 2001, the GAO released its report, U.S. Infrastructure: Agencies' Approaches to Developing Investment Estimates Vary. In the report, the GAO provided a survey of seven Federal agencies' estimates for infrastructure investment. The Federal Highway Administration (FHWA), for example, estimated that $50.8 billion per year over 20 years would be needed just to maintain the current physical condition of the nation's highways and bridges. In addition, an investment of $83.4 billion per year over 20 years would be needed to improve the infrastructure.

The GAO also reported that the Federal Transit Administration (FTA) estimates the average cost to meet the nation's mass transit needs is as high as $16 billion per year for 20 years.

I understand FHWA Administrator Mary Peters and other witnesses this morning will present updated needs estimates for our highways and transit systems.

In addition, the Appalachian Regional Commission (ARC) recently completed its Cost to Complete Report for the Appalachian Development Highway System (ADHS), a 3,025 mile system of highways that is designed to bring economic development to Appalachia. According to the Report, the estimated cost to complete the ADHS (combined Federal and State cost) is $8.5 billion. Thanks to TEA–21, which authorized $2.25 billion for the construction of the ADHS, the remaining Federal funds needed from Congress to complete the ADHS are $4.5 billion, $1.7 billion less than was needed in 1997. I look forward to addressing the ADHS' funding needs in next year's highway bill.

It is no secret that this nation has an aging transportation infrastructure. If we continue to ignore the upkeep, and allow the deterioration of our infrastructure, we risk disruptions in commerce and reduced protection for public safety, health, and the environment. In my view, it is the responsibility of Congress to ensure that funding levels are adequate and efficiently allocated to our nation's priority needs.

I strongly believe that Congress and the Administration need to develop a strategy to address the backlog of unmet infrastructure needs in this country, and ascertain the Federal role in responding to this backlog.

In 1998 Congress recognized the importance of our nation's transportation system through the enactment of the 6-year Transportation Equity Act for the 21st Century (TEA–21), which increased by nearly 40 percent Federal investment in highways and transit.

As Chairman of the National Governors Association, I was involved in negotiating TEA–21 and lobbied Congress to ensure that all Highway Trust Fund revenues were spent on transportation. I also fought to even out highway funding fluctuations and assure a predictable flow of funding to the States. TEA–21 achieved this goal with record, guaranteed levels of funding. However, more recently, as evidenced by this year's negative Revenue Aligned Budget Authority (RABA) calculation of $4.4 billion, we need to find a better way to smooth out the effects of fluctuating trust fund receipts for the long-term without adding to the Federal budget deficit.

TEA–21 also dedicated nearly all highway gas taxes to transportation funding and guarantees that States will receive at least 90.5 percent of their share of their contribution to the highway account of the Highway Trust Fund. Under TEA–21, Ohio received a 23 percent increase in transportation funding.

While TEA–21 has enabled States and localities to improve the condition of deteriorating and unsafe highways and to increase capacity and performance, the system is still aging, and in need of additional investment.

As a member of this subcommittee and its former chairman I am eager to work on the reauthorization of the Federal-aid highway program. I understand that groups are talking about funding levels of up to $50 billion a year, which is supported by the GAO study I mentioned earlier. I tell you now I do not think that is something we will be able to do unless Congress and/or the States raise the gas tax.

The short-and long-term viability of the Highway Trust Fund to meet our transportation needs is an issue that will be discussed in the coming months. In the short-term, we will have to determine the annual funding level the Highway Trust Fund can sustain and still meet its obligations. With our country's finances already in the red, I do not think we can expect that additional resources outside the Highway Trust Fund will be available for highway projects. We must plan for the future based on the principle that the highway program is a fully user-fee based system that pays its own way.

In the long-term, we also have to recognize that two of Congress' goals protecting the environment and promoting energy efficiency will inadvertently affect the amount of money available for transportation projects. For instance, improvements in fuel efficiency and the use of alternative fuels, which we should encourage because they are good for the environment, will decrease revenues to the Highway

Trust Fund. If we are to meet our future transportation needs, we will have to find ways to make up for this lost revenue.

Again, thank you, Mr. Chairman, for holding this hearing. I look forward to the testimony of today's witnesses.

Senator VOINOVICH. I just think that we have to understand that the money to do the job is not present. I met recently with the people who build the highways and we talked. They were reminding me that the GAO report said that it would take $50-some billion a year, and I said, well, we are providing $31.5 billion per year. If we go by the formula, we shouldn't be even providing that this year because of the fact that they miscalculated the amount of money that would be available.

So we have got to face up to the reality, and the reality is this, and nobody likes to talk about it, but we are going to have to increase the Federal gas tax and/or raise gas taxes in our respective States to meet the responsibilities that we have. We also have to take the dollars that we have available to us and work harder and smarter and do more with less, which was my credo when I was Governor of Ohio. But for us to think that somehow we are going to squeeze more money out of this and deal with our highway problems is just not being realistic.

I think it is really important that the people who are advocates of more highway spending better understand that we have gone from a $313 billion surplus for 2002 to borrowing $340 billion, including using all the Social Security surplus money, to run this government. At the rate we are going, next year we could be up around $400 billion.

So I do not see money coming from some other source. In fact, there will be people here that will want to reach into the highway trust fund and use that for other purposes. As chairman of the National Governors' Association in 1998, we fought hard to put that firewall up and say that money that is going to be used for highways, and we need to have a continual amount of money that we could rely upon.

So I think that we are going to hear all this testimony today, but the fact is we are going to need some more money to get the job done, and I think everybody ought to face up to that responsibility and figure out how we can go about getting it.

Thank you, Mr. Chairman.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. Thank you for that realistic appraisal.

First of all, I want to thank Senator Reid, and not just for holding this committee hearing, but for all the work that he has done to benefit the committee regarding our most important responsibility next year—reauthorizing ISTEA and TEA–21. Congress is sometimes criticized correctly for waiting until a problem happens before action is taken, and then the law is sometimes passed very quickly, without enough careful analysis. Throughout the year, Senator Reid has greatly helped to gather much needed transportation information well ahead of time, that will be used and will be of great use as we are writing the transportation bill.

In the past year, we have had 14 hearings and roundtable discussions to learn about the successes of our current transportation

law. Today's hearing is a milestone in that it completes an ambitious and rigorous TEA–21 reauthorization hearing agenda which we unveiled 1 year ago. With the help of Senator Smith, we carved out a hearing agenda that explored a range of topics from rural transportation to air quality, freight delivery, transportation finance and everything in between. Throughout the year, this committee has sought out innovative ways to garner as much information as possible, and we have held two joint committee hearings, two field hearings and three roundtables in addition to 10 full subcommittee hearings.

We have heard testimony from over 100 witnesses over the course of the past year. These witnesses have hailed from 30 different States and have represented nearly 60 different organizations, State and Federal agencies and associations. This has not been an easy undertaking, but it was accomplished successfully through the hard work of dedicated members and staff, and a record of over 1,000 pages of testimony as a result of our efforts.

Today, we focus on the critical topic—the conditions of our transportation system and how best to maintain and manage this extremely valuable asset. Asset management may not seem exciting, but it is critical to America's future. At the micro level, asset management means that a parent racing out for a quart of milk does not hit the huge pothole and have to change tires at 7 a.m. At the macro level, it protects American commerce, while preventing much larger expenditures later.

Each dollar spent keeping a road in good condition save $10, versus rebuilding roads that have deteriorated. Transportation assets are a key complement of Americans, a component of America's economy, critical to family farmers, small businesses and the Nation's greatest corporations.

There are least 3.11 million miles of public road mileage. There are over 550,000 bridges owned and maintained by the public, in addition to 9.4 billion rides taken by Americans on transit systems. We need to ensure that these assets are able to keep pace with the ever increasing demands that will be placed on the system in the coming years.

Our system must be well maintained and in good working condition. This will require a balanced energy investment that promotes good management of our current assets, while retaining the flexibility to add capacity in critical areas. Today, Vermont has approximately 14,000 miles of roadway, 32 [sic] miles of Interstate, and over 2,370 miles of toll-free State highways, and 11,210 miles of municipal roads. There are 16 public use airports and 10 State-owned airports—Burlington International Airport, the fourth busiest airport in New England, with eight carriers and approximately 900,000 passengers a year.

So Mr. Chairman, I appreciate all the work you have done, and now we look forward to hearing the testimony.

Senator REID. Thank you, Mr. Chairman.

Our first witness in this panel is Federal Highway Administrator Mary Peters. This is her third appearance this year before this subcommittee. I also want to express my appreciation for your coming to Nevada in February to join me in Reno. I'm sorry. The first hearing I want to express my appreciation was way back in Feb-

ruary when you just joined us in your Federal position. And then I want to express my appreciation to you for coming to Reno for the hearing that we had this past August. You made the hearing a real success.

Our second witness will be Joseph Perkins, Commissioner of the Alaska Department of Transportation and Public Facilities. Commissioner Perkins wins a prize for the longest trip, as you always do, to testify before this subcommittee. Thank you for traveling so far to join us. We look forward to your testimony about the American Association of State Highway and Transportation Officials, AASHTO, and their bottom line report.

Our third witness on the first panel will be JayEtta Hecker from the United States General Accounting Office. Ms. Hecker, thank you very much for being here. You, too, have appeared before this committee and subcommittee on a number of occasions. We appreciate the good work the GAO does in all fields, and especially in this area. We look forward to your work on the next transportation bill.

You are all familiar with this little light. I know that Mary Peters and JayEtta Hecker are familiar with it, but you, Joseph Perkins, should be aware that there will be a yellow light come up when you have a minute and a red light when you are all through. We would ask you to stick with this as much as you can. We have a lot of things going on around here this time of year, but your testimony is extremely important.

We will first hear from Mary Peters.

Please proceed.

STATEMENT OF HON. MARY E. PETERS, ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

Ms. PETERS. Senator, thank you so much. Mr. Chairman, members of the committee, thank you for the opportunity to provide testimony on the state of our Nation's highway and bridge infrastructure.

First of all, I want to apologize for the delay in providing the Conditions and Performance Report to the committee. The report is now in final clearance and I am able to share some of the report's findings with you. A summary of the major findings of the report is attached to my written statement.

The 2002 addition of the C&P Report will be the first to capture the effect of increased investment in transportation infrastructure under TEA–21 by all levels of government. Increased Federal funding for highway capital investment through 2000 has been matched, and even exceeded, by increases in State and local investments as well. These funds have been very well spent.

Under TEA–21, States substantially increased their investment in system preservation projects, now reflected in the improvement in the overall physical condition of our Nation's infrastructure. For example, the percent of highway mileage with acceptable ride quality rose from 82.5 percent in 1993 to 86 percent in 2000.

The 2002 report also documents the Nation's continued improvement in the area of highway safety. I am pleased to report that highways have become safer even as travel on our Nation's system

has sharply increased. The fatality rate per 100 million miles traveled has decreased from 3.3 in 1980 to 1.5 in 2000. From 1997 to 2000, investment in system expansion grew more slowly, increasing 20.8 percent, from $21.6 billion to $25.9 billion. Thus, despite historic investment in highway infrastructure and improved conditions on many roads and bridges, operational performance of the system, as determined by congestion, has steadily deteriorated.

The heart of the Conditions and Performance Report is an analysis of future investment requirements under different scenarios. The Cost to Improve Highways and Bridges scenario defines the upper limit of cost effective national investment based on engineering and economic criteria. Essentially, it is an investment ceiling above which it would not be cost-beneficial to invest. This scenario implicitly assumes unlimited availability of funding and does not take into account competing investment options in the economy or even whether or not those additional investment options are available at all.

The Cost to Maintain Highways and Bridges scenario is designed to show the investment required to keep future indicators of conditions and performance at current levels. The current annual investment level under the Cost to Improve Highways and Bridges scenario is projected to be $106.9 billion for 2001 through 2020. This is 65.3 percent higher than the $64.6 billion of total capital investment by all levels of government in 2000.

The average annual investment under the Cost to Maintain scenario for highways and bridges is projected to be $75.9 billion for 2001 through 2020. That is a 17.5 percent increase over capital spending in 2000.

If investments were to remain at 2000 levels, or anticipated levels for 2001 through 2003, it is projected that the recent trends observed in the condition and performance of the highways and bridges would continue. That is, conditions and safety performance would improve, but the operational performance of the highway system would further deteriorate. Average speeds would decline, the amount of delay experienced by drivers would increase, and congested periods on the Nation's urban principal arterials would lengthen. Although improvement in bridge conditions would continue, the aging of the Nation's bridges, particularly on the Interstate system, will present additional challenges to us all in the future.

Since 1997, infrastructure investment at all levels of government has been more successful in addressing physical conditions than operating performance on the system. Therefore, the 2002 Conditions and Performance Report indicates that, while future funding continues to address system preservation needs, it would now be cost-beneficial to devote a larger share of any available future increases in highway capital investment to expanding the capacity of our system.

Mr. Chairman and members of the committee, I thank you again for the opportunity to testify today, and I look forward to working with you as we prepare for reauthorization of the surface transportation programs. I would pleased to answer any questions you have at the appropriate time.

Thank you.

Senator REID. Mr. Perkins?

STATEMENT OF HON. JOSEPH PERKINS, COMMISSIONER, ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

Mr. PERKINS. Thank you, Mr. Chairman.

I am Joe Perkins, the Commissioner of the Alaska Department of Transportation, and chairman of AASHTO's Standing Committee on Highways. On behalf of the 50-State Departments of Transportation, I am here today to briefly summarize our recently completed bottom line report. This report is a comprehensive assessment of the investments needed from 2004 to 2009 to improve or maintain our national transportation system.

Our findings are as follows. An annual capital investment of $92 billion for highways and bridges is necessary to maintain the condition and performance of the system. $125.6 billion would be needed to improve their condition and performance. An annual capital investment of $19 billion is required to maintain the condition and service performance of the Nation's transit systems. And $44 billion would be needed to improve transit conditions and performance.

To put these figures in perspective, U.S. highway investment from all levels of government—Federal, State and local, including maintenance capital and other expenditures—grew from $75 billion in 1990 to $128 billion in 2000, an increase of 71 percent. Of this total, States contributed 51.7 percent, local governments 24.3 percent, and the Federal Government 24 percent.

Of the 2000 total dollars, $64 billion was capital investment. If capital investment over the next decade were to increase at the same rate as overall highway spending in the 1990's, it would need to reach $110 billion by 2010. This tells me our forecast to $125 billion is right on the money.

Our assessment is based on data provided to the Federal Highway Administration by the States, considering 112,000 sample road segments, and on data provided to the Federal Transit Administration by transit agencies. Our methodology is based on that of USDOT Conditions and Performance Reports. Several factors create the basis of our findings. First, repair backlog—over time, weather, wear and age take their toll on roads, bridges and transit facilities. The repairs, replacements and upgrades needed to bring the existing system up to standards have created huge backlogs in these areas.

The good news is that because of the significant increase in funding made possible through ISTEA and TEA–21, progress has been made. The 1999 bridge repair backlog of $87 billion has been reduced to $52 billion today. Pavement conditions have improved on the Interstate, are holding their own in rural areas, but are deteriorating in urban areas. So while close to 80 percent of the roads are rated fair to good, much remains to be done.

The second factor is demand. The U.S. population grew by 100 million over the last 40 years and is expected to grow by at least 100 million over the next 40 years. Highway demand, measured through vehicles miles traveled, increased from 2.1 to 2.7 trillion over the last decade, and is expected to grow by another $600 million by 2010. Transit ridership has been growing at 3.5 percent for

the last 6 years. If that continues, transit ridership will double by 2020.

The challenges faced by my DOT in Alaska are somewhat different from those in the lower 48, but are just as significant. Our roads face extreme weather and geological conditions requiring more frequent repair. We have a marine highway system served by one of the largest ocean-going ferry fleets in the Nation, a network of remote airfields, as well as Anchorage and Fairbanks International Airports, and of course the Alaska Railroad. We also have over 300 miles of our national highway system that is not paved. In contrast, we have a congestion problem in Anchorage.

Mr. Chairman, we hope this comprehensive qualification of the Nation's highway and transit needs contained in our bottom line report is helpful to you in determining future funding levels needed for TEA–21 authorization.

Thank you for inviting me to make this presentation.

Senator REID. Ms. Hecker?

STATEMENT OF JAYETTA HECKER, DIRECTOR OF PHYSICAL INFRASTRUCTURE ISSUES, GENERAL ACCOUNTING OFFICE

Ms. HECKER. Good morning, Mr. Chairman, Senator Voinovich, Senator Jeffords. We are very pleased to be here today and speak on the report that we have done for you and you are releasing today on challenges confronting the Nation in dealing with the range of mobility needs for both surface transportation and for freight transportation.

The focus of the work really is on a couple of areas. One was, what are the key challenges in maintaining mobility in these areas; and then from that, we addressed what are some of the key strategies for addressing these problems.

I will briefly summarize the challenges and then spend most of the time on what we outlined as the key strategies. The challenge, as you have heard before, is preventing congestion from overwhelming the system. In fact, from the numbers you are hearing today, you can see there is widespread agreement that the challenge is actually to keep it from deteriorating; that just doing that is actually an enormous challenge.

So the data I am not going to review. It is unequivocal that we have got congestion. We also, though, have underutilized parts of the infrastructure, and that is an important thing that I will come back to. But there are peak periods, there are bottlenecks that are absolutely critical and that are continuing to play a key role. As you know, one of the key parts of our linkage of transportation investments is promoting efficiency, and we have generated very important benefits in logistics over the past decades, but in fact the congestion is beginning to deteriorate and we are not having those same potentials for improvement in the movement of goods and services.

The other kind of challenges really relate to something you heard from Senator Byrd—underserved populations, rural populations, elderly, which will be an increasing problem over the coming decades. So there are real challenges that already exist and are likely to be even more severe in the future, of underserved populations.

In addition, another challenge that we outline in the report that is inherent in transportation is achieving a balance with the environment and social goals. Clearly, the transportation system presents challenges to the environment and that balance is one of the critical challenges.

The first of three strategies that we outline is basically, focus on the whole system, move away from modal stovepipes. The second is, get more attention and focus on the performance of the existing infrastructure, not just building new. And the third is identifying financing options and new sources of revenue.

The first area, focusing on the entire system, rather than modes, builds on the concern that is a growing consensus that the modal funding mechanisms distort public decisionmaking. Particularly in the freight area, we are not getting the best investment, the best decisions. It is having to go forward only if there is CMAQ money or if there is NHS money, or if there is Border money, but there basically is an impediment for the best investment and the best decisionmaking in infrastructure and meeting mobility needs.

The second is to tie Federal funding to defined outcomes, and relate those to specific national interests and priorities. Again, that is an area that is not in the current system well enough.

The third is to match or better align funding criteria with national priorities. So that is the area of moving away from a pure modal focus and trying to get more intermodal integration in the way transportation is funded, and particularly focusing on both the freight side and the passenger side. We do a lot of work on Amtrak and the Amtrak relationship to highway investment, or to the essential air service. All of these programs have to be viewed in a coherent, integrated way.

The second point or strategy is probably the single most important one. It is, not relying on new construction; recognizing that in fact new construction cannot meet and match the mobility needs of the country. There is a limitation by available space, by public opposition, and clearly, by money. We have seen today, we have heard these numbers. There is no way that with our deficit situation that these kinds of numbers can be brought to bear. So the importance of focusing on performance is that is where we get more out of the existing infrastructure.

Focus on—I know you like specifics, Senator Reid—more focus on rehabilitation; more focus on improving traffic flow, incident management, coordinating traffic signals, better and more consistent use of technology. One of the hardest ones, yet one of the most promising, is demand management, moving toward a system where fees more accurately capture the cost of use so that individuals, freight, and passengers are making better choices about their use of infrastructure.

The third area I will just briefly mention, it is the area where you had the hearing last week, on focusing new sources of revenue. I think your realism, Senator Voinovich, was accurate. A lot of the notion of alternative financing, it is debt financing that ultimately still has to be repaid. The user principle is an important one. So as we look to new financing, new sources, recognize the importance of the user-pay principle for promoting efficiency in the use of our transportation infrastructure.

That concludes my statement. I would be pleased to answer any questions.

Senator REID. Thank you.

What I would ask is unanimous consent that the three symposia that the full committee held and this subcommittee held, be included in the official record of this year's hearing process in TEA–21 reauthorization. Hearing no objection, that is the order.

[Transcripts of the symposia referenced by Senator Reid appear in Part II of the hearings of the Committee on Environment and Public Works, S. Hrg. 107–668]

Senator REID. I also have a statement that I want made part of the record from Garth Dull. He represents—was formerly head of—the Nevada Department of Transportation and represents Safe Roads. I would ask that his statement be part of the record.

[The referenced document follows:]

STATEMENT OF GARTH DULL, NEVADA FOR SAFE ROADS

Introduction

Thank you, Mr. Chairman. My name is Garth Dull and I am here today to represent Nevada for Safe Roads, a highway safety coalition focused on keeping trucks from getting longer and heavier. Among the members of our coalition are the Nevada Conference of Police and Sheriffs, the Alliance for Retired Americans, and the AFL–CIO. Attached is a full membership list.

I have both hands-on and policy experience with the issue of truck size and weight from my more than 30 years as a practicing highway engineer and senior policy official with the Nevada Department of Transportation. I served as Director of NDOT from 1986 until 1995, during which time I was responsible for the agency's budget and oversaw the design, construction, and maintenance of over 5000 miles of roads and bridges. Truck size and weight directly impacts each. The heaviest trucks would tear up the pavements and reduce bridge life yet fail to pay their fair share of highway costs.

I know that there are a number of proposals to allow trucks to get longer and heavier. Let me say right now: That would be a bad idea. Trucks are big enough. If you allow them to get any bigger, they will wreak havoc on our highway infrastructure and cause more fatal crashes. There is no question about that.

Bigger Trucks Would Tear Up Our Roads and Bridges

In my tenure at NDOT, like all DOTs, we designed roads and bridges to accommodate projected heavy truck traffic. Most of Nevada's bridges—70–80 percent, in fact—were built before 1975, meaning they were not built to accommodate the weight or number of trucks on the road today. NDOT completed a study in 1994 showing that some of the heavy trucks using our roads today overstress our older simple span bridges by as much as 30 percent beyond their design parameters.[1] While no one can quantify exactly what truck weight does to bridge life, we know that it does shorten it. Bridges are designed with a safety margin to ensure against bridge failure. Bigger trucks erode that margin, increasing the number of bridges that must be replaced, strengthened, or posted.

About 15 percent of Nevada's bridges are structurally deficient or functionally obsolete, meaning they are in need of serious repair.[2] There is an even worse backlog nationwide: Nearly 30 percent of bridges nationwide are structurally deficient or functionally obsolete.[3] The US Department of Transportation found in its 2000 Comprehensive Truck Size and Weight Study that allowing bigger trucks nationwide would only increase the number of bridges that must be upgraded. Longer combination vehicles (LCVs)—long double and triple trailer trucks—would alone mean $319 billion in additional bridge costs.[4]

Heavier trucks also have the potential to decrease pavement life, particularly when weight is added without adding additional axles. The American Association of Highway Transportation Officials (AASHTO) determined in its 1950's Road Test

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[1]Nevada Department f Transportation (NDOT), (Bridge Study), 1994.
[2]USDOT's National Bridge Inventory, 2000.
[3]USDOT, 1999 Status Report on the Nation's Hiahwavs, Bridges and Transit: Conditions and Performance, Report to Congress, p. 3–14.
[4]USDOT Study, Vol. III, Table VI–2, p. VI–2.

that pavement damage increases exponentially with the weight of a truck. For example, one 80,000-pound five-axle truck does the same road damage as 9,600 cars. A seven-axle triple does as much damage as more than 27,000 cars. In a number of States, five-axle trucks operate well above 80,000 pounds. A number of States allow five-axle trucks to operate above 80,000 pounds on the Interstate highways under claims of grandfather rights.

The number of axles a triple trailer truck has is directly related to the amount of pavement damage it causes. Some triple trailer trucks will operate with nine axles, which is easier on pavements, but in Nevada, triples can run at 119,000 pounds with only seven axles. Seven axles give the operators the greatest payload per axle.

The Heaviest Trucks Fail To Pay Their Fair Share

To add insult to injury, the heaviest trucks fail to pay their fair share of road costs. The 2000 Federal Highway Cost Allocation Study found that heavy trucks on the road today underpay their share of hiqhway costs nearly $1.9 billion.[5] Triple trailer trucks pay 70 percent of their costs through fuel taxes, long doubles pay 60 percent, and 80,000-pound singles pay 80 percent. A single operating at 90,000 pounds, as some proposals suggest, would pay only 50–60 percent of its costs.[6]

NDOT found that Nevada's motorists subsidized heavy trucks for 15 of the 19 years between 1984 and 1998, when the agency completed its last highway cost allocation study. When I was Director of NDOT, I asked our State legislature to enact a cost recovery system. Between 1985 and 1989, the legislature enacted a tax structure that required trucks to pay their fair share of highway costs. Unfortunately, the legislature repealed this system in 1989.[7] Since then, underpayments have gotten consistently worse. In fact, heavy trucks underpaid by $335 million in the 1998–1999 biennium.[8]

To simply maintain Nevada's roads and bridges at the current level of service will take an additional $1.8 billion over the next 10 years.[9] Simply maintaining our nation's roads and bridges will take $1.13 trillion over the next 20 years.[10] Bigger trucks would only mean higher costs.

Bigger Trucks Would Be More Dangerous

As you know, the Federal Government has responsibility for setting maximum truck weight limits on the Interstate Highway System, and for regulating the maximum length and weight of LCVs pursuant to the 1991 LCV Freeze. Our highways are dangerous enough as it is. Nearly 3,500 large trucks were involved in crashes in Nevada in the year 2000.[11] Increasing the weight of the typical tractor-trailer and expanding the routes on which LCVs are allowed to operate would put everyday motorists in even more danger.

In August of 2000, the US Department of Transportation completed its Comprehensive Truck Size and Weight Study (US DOT Study). In this study, the US DOT found that LCVs are likely to have fatal accident involvement rates at least 11 percent higher than today's single tractor-trailers.[12]

There is good reason to believe that the fatal accident rate for LCVs could be much higher. Trucks with multiple trailers have extra "articulation points," the points where the tractor and trailers hook up. These articulation points can add instability. One measure of stability is rearward amplification: After the tractor makes an evasive maneuver, a lateral force moves down the truck so that the rear trailer snaps back, much like creating a "crack-the-whip" effect. The US DOT Study found that on this measure of stability triples show more than 200 percent poorer performance than single tractor-trailers.[13]

Another problem with articulation points is trailer sway. In 1984, the California Department of Transportation (CaITrans) conducted its Longer Combination Vehicles Operational Test (CalTrans Operational Test), and found that the third trailer

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[5]Federal Highway Administration, Federal Highwav Cost Allocation Study, 2000 Addendum (Federal HCAS), unpublished Table 3: Federal Over and Underpayment by 20 Vehicle Classes.

[6]Federal HCAS, unpublished Table VI–5: Federal Equity Ratios for Selected Vehicle Classes Based on Registered Weights.

[7]NDOT, 1999 Highwav Cost Allocation Study (Nevada HCAS), p. 8.

[8]Nevada HCAS, Table 17, pp. 31 & 37.

[9]NDOT, (Report), August 2000.

[10]USDOT's Status Report, Exhibit 7–1, p. 7–5.

[11]NDOT, 2000 Nevada Traffic Crashes (NDOT Crash Report), p. 23.

[12]US Department of Transportation, Comprehensive Truck Size and Weight Study (US DOT Study), August 2000, Volume III: Scenario Analysis, p. VIII–5.

[13]USDOT Study, Vol. III, Figure VIII–11, p. VIII–12.

on a triple trailer truck swayed constantly from side-to-side from four-to-six inches to as much as three-to-four feet, even on a straight road on a windless day.[14]

Because they are so big and so slow, LCVs have difficulty maintaining speed on upgrades, creating serious safety risks. During the CalTrans Operational Test, triples and long doubles on 3 percent to 4 percent grades achieved speeds that were 15mph to 22mph slower than the mean speed for single trailer trucks.[15] Slow trucks and fast cars are a dangerous combination. According to a 1981 University of Texas study, a speed differential of 15 mph increases accident risk nine times.[16]

Heavier single trailer trucks would also be more dangerous. Heavier single tractor-trailers will tend to have a higher center of gravity. Raising the center of gravity increases the risk of dangerous rollovers.[17] In Nevada, 115 large trucks were involved in rollover crashes in the year 2000.[18] I recently passed the scene of a rollover crash in the "Spaghetti Bowl," where 1–80 and I580 meet in Reno. A truck took a curve a little too fast and rolled over, backing up traffic for miles.

Increasing truck weight is also likely to lead to brake maintenance problems. Roadside inspections continually show that brake adjustment levels are a serious issue. The Commercial Vehicle Safety Alliance found during its Roadcheck 2000 that almost 30 percent of the vehicles inspected had brakes far enough out of adjustment to be taken out of service.[19] Heavier singles often have an extra axle at the rear of the truck to prevent additional pavement damage, and on that axle are two additional brakes. The US DOT expressed specific concern about the ability to maintain those extra brakes.[20] When brakes are out of adjustment, trucks can take substantially longer to stop. In one study, an 80,000-pound truck took 300 feet—the length of a football field—to come to a complete stop from 60mph on a dry road. When that truck's brakes were put out of adjustment to the level at which a law enforcement officer would take the truck out of service, the truck took 450 feet to come to a complete stop.[21]

Heavier weights also cause more severe accidents. According to the University of Michigan Transportation Research Institute (UMTRI), "The general point is that the energy to be dissipated in a collision, and hence the damage done, increases with weight, and that the probability of injury increases with increasing disparity of weights in two-vehicle collisions.[22] This is simple physics: Force equals mass times velocity. When you increase the mass—in this case, the weight of the truck—you increase the force, or the severity of the crash.

Finally, longer single trailer trucks also pose a safety hazard. Longer trucks take longer to pass and to be passed by other vehicles on a two-lane road.[23] Longer trailers also "swing out" into adjacent traffic lanes after the truck's tractor has completed its turn. This off-tracking can take up to more than half the width of the oncoming traffic lane. Motorists can be caught unaware by the unexpected swingout and be hit by the extra-long trailer.[24]

The Transportation Research Board's Recent Report is Faulty

In Special Report 267, issued this past May, the Transportation Research Board (TRB) recommended creating a new Federal bureaucracy to oversee truck size and weight regulation, in particular permit programs and pilot projects that would put bigger trucks on our roads now and test their impacts later. This report is based neither on sound analysis nor on sound public policy. The TRB conducted no new research and presented no significant new findings on the safety and infrastructure impacts of longer and heavier trucks. In fact, they ignored or attempted to discount the many studies that show that bigger trucks would be more dangerous and would have a negative impact on roads and bridges.

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[14]California Department of Transportation, Longer Combination Vehicles Operational Test (CalTrans Operational Test), 1984, video narrative accompanying the written report.

[15]CalTrans Operational Test, Fig. 9, p. 41.

[16]University of Texas Center for Transportation Research, An Assessment of Changes in Truck Dimensions on Highwav Geometric Desiqn Principles and Practices, 1981.

[17]US DOT Study, Vol. III, p. VIII–8.

[18]NDOT Crash Report, p. 26.

[19]Commercial Vehicle Safety Alliance, Final Report on Roadcheck 2000, Appendix A.

[20]USDOT Study, Vol. III, p. VIII–11.

[21]Richard Radlinski of the National Highway Traffic Safety Administration, "Braking Performance of Heavy U.S. Vehicles," Society of Automotive Engineers Technical Paper Series, International Congress and Exposition, Detroit, MI, February 23–27, 1987, Figures 9 & 16, pp. 8 & 12.

[22]USDOT Study, Phase 1, Working Papers 1 & 2: Vehicle Characteristics Affecting Safety, prepared by the University of Michigan Transportation Research Institute, 1995, p. 38.

[23]USDOT Study, Vol. III, p. VIII–11.

[24]USDOT Study, Phase 1, Working Paper 5: Roadway Geometry, prepared by the Battelle Team, 1995, Fig. 1, p. 4.

Take the issue of safety. The TRB declares that there is a "substantial probability" that the safety effects of bigger trucks—or, in plain English, the dangers of increasing truck size and weight—would be large. But the TRB says that it "hopes" that the changes would contribute to safety.[25]

The TRB cites the US DOT's Comprehensive Truck Size and Weight Study as well as a 1991 Association of American Railroads (AAR) report on the safety of multi-trailer trucks. 'The US DOT found that multi-trailer trucks had an overall fatal crash involvement rate 11 percent higher than single trailer trucks after correcting for travel distribution differences by highway type. The AAR study found that multi-trailer trucks had an even higher fatal accident rate—66 percent higher than single trailer trucks.

The TRB says that the US DOT's findings "contradict" the AAR's findings, but the two studies support each other: they both found higher crash involvement rates for multi-trailer trucks. Because the studies were 9 years apart and used different analysis periods, it is reasonable to expect some variation in crash involvement ratios. Also, travel data for multi-trailer trucks suffers from fairly high uncertainty rates that result in large variations year-to-year in apparent fatality involvement rates. Either fatal crash rate—11 percent or 66 percent—or something in-between—is completely unacceptable.

As to bridges, the US DOT Study also concluded that there would be enormous additional bridge costs from the nationwide operation of LCVs and heavier singles. The US DOT based its analysis on a presumption that the Federal and State governments would spend the resources necessary to prevent bridges from collapsing or failing. As I said earlier, it found that with nationwide operations of LCVs, the total costs of reconstructing bridges would be $53 billion, with an additional $266 billion in costs borne by highway users in extra fuel and lost productivity.

The TRB criticizes the US DOT's methodology for overestimating bridge costs because the DOT assumed that all affected bridges would need to be replaced. At the same time, the TRB said that the DOT underestimated bridge fatigue and the need to make future bridges stronger to accommodate the heavier trucks. Yet they say that the correct analysis has yet to be conducted, meaning they do not know what the bridge costs will be.[26]

As I said earlier, nearly 30 percent of our nation's bridges are structurally deficient or functionally obsolete. There is an obvious backlog on maintenance and a shortage of funding. Yet the TRB is proposing testing these trucks on our highways.

We have had LCVs in Nevada for 30 years. Nobody has said that we have not learned enough about them and certainly no one wants more of them.

Congress Should Retain Jurisdiction Over Truck Size and Weight on the Federal System Proponents of bigger trucks have asked for a "State option" plan whereby the States would be able to set their own truck size and weight limits on the most important part of the Federal system: the Interstate highways. But any law regarding the national transportation system should have national oversight.

In a previous authorization debate, some suggested that Congress devolve power to the States to create their own highway design standards. Some joked that we could have green signs in Nevada and yellow signs in Wyoming, but more importantly Congress realized that there must be basic uniformity on the Federal Aid system. That is why the Federal Government sets design, maintenance and construction criteria for the Federal Aid Highway System. Truck size and weight should be no exception.

If the States were allowed to set their own limits, those with higher limits would place tremendous pressure on States with lower limits to allow bigger trucks to remain economically competitive. A number of Governors and State DOT directors have already rejected the State option approach for this reason. When Federal Highway Administrator Mary Peters was Arizona's DOT Director, she wrote a letter to her Washington representatives opposing bigger trucks. In her words, while proponents of bigger trucks "argue that expanding the truck weight limit would be at a State's discretion, Arizona could not realistically exclude larger trucks from commerce here if all of the States surrounding Arizona opt for the higher limits. Regulation of interstate commerce is clearly one of the areas reserved by the Constitution to the Congress.[27]

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[25]Transportation Research Board, Regulation of Weights, Lengths, and Widths of Commercial Motor Vehicles (TRB Report), Special Report 267, May 16, 2002, p. 3–21.

[26]TRB Report, pp. 2.21–2.23.

[27]Other State officials who have written letters (of which I am aware) are the Secretaries of the Florida Department of Transportation and the New Mexico State Highway and Transportation Department; the Illinois Secretary of State; and the Governors of Arkansas, Minnesota, Mississippi, Nevada and Rhode Island.

What's more, "State option" is the reason there are 50 different sets of truck size and weight limits on the Interstate System. Before Congress set the current size and weight limits on single trailer trucks and twin 28-foot "short" doubles in 1982, the States had jurisdiction and local pressures dictated the various limits. The trucking industry played the States off one another to get higher limits. When three States held out, the trucking industry claimed they were hurting productivity and asked Congress to force those States to raise their limits.[28]

For these same reasons, the western States should not be "carved out" of the Federal picture as some proponents of bigger trucks suggest. The West does have wide-open spaces and a greater distance between communities, but we also have many mountainous areas that make heavy truck operations treacherous. Truck operators do not always upgrade their engines to accommodate extra weight, and for that reason triple trailer trucks are often the slowest trucks on the road. Driving up steep grades, that power-to-weight ratio becomes even worse. The CalTrans Operational Test proved this point. CalTrans drove a triple trailer truck up the Grapevine, a 6 percent grade pass on 1–5. The triple was the slowest truck on the road and blocked traffic in the right lane. The lighter trucks passed the triple in the two lanes to the left, leaving only one lane for cars.[29]

Driving down steep grades can also mean serious braking problems. According to UMTRI, "Given that the pounds of brake mass to pounds of vehicle mass is limited for trucks, there is a greater tendency for truck brakes to overheat than there is for car brakes.[30] In other words, a truck's brakes can overheat when in constant use going down a hill. When that happens, the brakes fail to work properly, particularly when brakes are out of adjustment which, as I noted earlier, they often are.[31] That is why we build truck escape ramps.

Finally, a recent AAR study found that bigger trucks would result in 1,000 additional LCVs each day on 1–15 from Chicago to Los Angeles. That is a tremendous amount of truck traffic.

The Safe Highways and Infrastructure Preservation Act

I am here today to ask you to reject any increases in truck size and weight. But I also ask you to take it one step further. There are loopholes in the current law that allow trucks to get longer and heavier, and weights on the National Highway System (NHS) are being ratcheted up. "The Safe Highways and Infrastructure Preservation Act", which has been introduced in the House of Representatives, would put a stop to these backdoor increases. The bill would establish common sense truck size and weight limits on the National Highway System and close loopholes in the law that allow longer and heavier trucks. I urge you to support a similar measure in the Senate.

This is what the bill would do:

1. The bill would freeze all current trailer lengths on the NHS

Trucks have been getting longer. There is no Federal trailer length maximum, only a minimum of 48 feet. The standard trailer length has increased over time from 25 feet in 1946 to 53 feet today. Eleven States allow trailers 57 feet or longer to operate regularly, with more than half of these having legalized the extra long trailers since 1990.[32] H.R. 3132 would freeze all current trailer lengths on the National Highway System.

2. The bill would freeze all overweight permitting practices

Trucks have been getting heavier on our Interstate highways. Truck operators are applying for—and getting—more "multiple trip divisible load" permits to run well over the Federal legal limit. States that issue these permits claim grandfather rights to allow trucks to operate over the Federal legal limit. H.R. 3132 would freeze all overweight permitting practices.

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[28]Oral statement of Edward V. Kiley, Senior Vice President, American Trucking Associations before the Committee on Public Works and Transportation, US House of Representatives, May 4, 1982.

[29]CalTrans Operational Test, video narrative accompanying the written report.

[30]USDOT Study, Phase 1, Working Papers 1 & 2, p. 13.

[31]Radlinski for NHTSA, pp. 11–12.

[32]The 11 States and their year of legalization are Oklahoma (1983), Wyoming (1984), Louisiana (1985), New Mexico (1986), Texas (1989), Colorado (1990), Kansas (1991), Arizona (1991), Florida (1992), Mississippi (1993) and Alabama (1993).

3. The bill would extend the Federal Interstate weight limits to the entire National Highway System, grandfathering in higher weights. The bill would also extend the LCV Freeze to the entire NHS Trucks have also been getting heavier on the non-Interstate portions of the NHS

Federal truck weight limits, including the LCV Freeze established by ISTEA in 1991, are limited to the 44,000-mile Interstate Highway System. By contrast, State weight limits apply to the more than 156,000 miles of NHS.

In June of 2001, Ohio raised the allowable tandem axle weight on NHS routes from the Federal limit of 34,000 pounds to 40,000 pounds. Georgia raised the allowable tandem axle weight on NHS routes from 37,340 pounds to 40,680 pounds 3 years ago.

If NHS weights continue to rise across the country, Congress will be faced with similar pushes for heavier Interstate weight limits.

4. The bill would address illegal overweight operations

About 10–20 percent of trucks are operating illegally overweight.[33] The US DOT says that a truck operator who runs at 10,000 pounds over the Federal legal limit for 1 year will earn an extra $25,000.[34] That is a huge profit incentive, especially when fines across the country often do not even cover the cost of filing the paperwork for the citation, let along acting as any sort of deterrent.[35] H.R. 3132 would direct the US DOT to establish a model fine system.

The Federal Government has a responsibility to keep trucks from becoming bigger and more dangerous. I ask that you support this measure.

Conclusion

Thank you for inviting me to testify today. I am happy to answer any of your questions.

NEVADA FOR SAFE ROADS

State and Regional Organizations

Nevada Conference of Police & Sheriffs (NCOPS) Nevada State AFL–CIO

Nevada Alliance for Retired Americans (NARA)

Nevada Parent Teacher Association (PTA)

Peace Officers Research Association of Nevada (PORAN) Southern Nevada Council UAW Retirees Southern Nevada Fire Chiefs Association Southern Nevada Fire Prevention Association

Local Organizations

Clark County Chapter 4530 NARA Clark County Commission

Las Vegas Police Protective Association Reno Police Protective Association Republican Women of Reno Teamsters Local 533

Teamsters Local 631

Washoe County Commission Washoe County Medical Society

Community Leaders

Andy Anderson, President, NCOPS

Charlie Cox, President UAW Local 2162, Sparks

Garth Dull, former DOT Director

Jane Feldman, Conservation Chair, Southern Nevada Group of the Sierra Club Clarence Fend, AARP

The Honorable Bob Ferraro, city of Boulder City

Robert "Bob" Forbuss, Vice Chair, Las Vegas Convention & Visitors Authority Dario Herrera, Chairman, Clark County Commission

The Honorable Charles Horne, city of Mesquite

Jim Hulse, retired Professor of History

Wayne R. King, Teamsters Construction Division

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[33]USDOT Study, Phase 1, Working Paper 10: Enforcement, prepared by the Battelle Team, 1995, pp. 2–3 and Transportation Research Board, Special Report 225, Truck Weight Limits: Issues and Options, National Academy of Sciences, 1990, p. 141.

[34]Church and Mergel, Effectiveness of Violator Penalties in Compelling Compliance with State Truck Weight Limits, prepared for the US DOT, September 2000, p. 12.

[35]See Church and Mergel, pp. 19 & 20 for a list of first offense fines by State. In the contiguous States, the lowest fine for a 10,000-pound illegal overload is $55 in Delaware; the highest is $2,625 in South Dakota.

Helen Klatt, PhD, Past President, Nevada Federation of Republican Women Cheryl Lau, former Secretary of State

Stan Olsen, Government Liaison, Las Vegas Metropolitan Police Bette Renwick, President, Republican Women of Henderson Ken Riddle, President, Southern Nevada Fire Chiefs Association Danny Thompson, Secretary-Treasurer, AFL–CIO

Linda Wilcock, President-Elect, Greater Federation of Women's Clubs

Senator REID. Senator Jeffords, would you ask the first round of questions? We will have 5 minutes, just like the witnesses. If you want to go again, we can have you do that. Chairman Jeffords?

Senator JEFFORDS. Thank you very much, Mr. Chairman.

Ms. Peters, I have a few questions for you. What avenues can Congress take to ensure the performance of the system does not continue to degrade?

Ms. PETERS. Mr. Chairman, I believe the way we can do that is to continue to have performance measures, as Ms. Hecker indicated. We need to have performance measures such as the pavement condition, the bridge condition, and monitor those to ensure that investments are made; that we are getting the best life out of our transportation assets.

Senator JEFFORDS. One of the key features of our transportation program is its flexibility. Under TEA–21, a State can move funds from program to program. This feature enjoys universal support. I wonder, however, if we should be concerned about flexing money out of the bridge or Interstate maintenance program. How can we be sure that our national interest in asset management is adequately addressed, while preserving the flexibility provisions under the law?

Ms. PETERS. Mr. Chairman, again I think what we need to do is establish metrics where we are spending the money and meeting certain performance measures, and ensuring that States are doing that before we are transferring money out. As you know, we are fans at the Department of this flexibility provision as well, but we need to balance that, of course, with the performance of the system.

Our preference is to work with States in establishing those performance measures and with the AASHTO community so that we all agree together how we can best get the longest useful life out of our transportation assets.

Senator JEFFORDS. The Interstate system is vital to the economy. It moves a majority of the traffic in our country. What level of investment is needed to ensure that this vital network is free of major problems?

Ms. PETERS. Mr. Chairman, we did look at the specific level of investment in our Interstate highways, and in fact some of the best pavement conditions and best bridge conditions, as indicated earlier, do exist on our Interstate highway systems today, which again is appropriate because those systems do carry the majority of the travel.

In looking specifically at those systems, I think we have to continue to focus both on how we are building, and on how we are maintaining and operating them to ensure that we are getting the maximum useful life out of them. Just for example, if we look at our pavement condition in the year 2000, overall pavement condition, it is about 86 percent, meaning the pavement with acceptable ride quality. On the Interstate system, it is nearly 97 percent, so continuing that type of focus is important in the future.

Senator JEFFORDS. Mr. Perkins, how is AASHTO's strategic highway safety plan different from previous safety related efforts and programs?

Mr. PERKINS. Our safety plan actually is taking a look at some 20-plus activities. We are trying to put everything together, which includes the driver, the vehicle, all aspects of safety. This will result in also looking to see what kind of safety measures we can take, such as widening, such as different kinds of intersections and so on that we can build to meet these safety things. It is much more comprehensive program, Senator.

Senator JEFFORDS. Ms. Hecker, how would you assess the quality of the data that is used by FHWA in the development of the Conditions and Performance Report? What can be done to improve the quality of future FHWA Conditions and Performance Reports?

Ms. HECKER. We have reviewed them in the past, and in fact have positive observations, both on the methodology and the quality of the data. I think the improvement goes to my point, though, about the strategies for improving the performance—those bottom line numbers, because they are so large and so beyond the existing resources or readily imaginable new resources. It is really, how do we get more for the money; how can we actually enhance the performance and do that, not with these numbers for new construction, but through less capital-intensive means that improve the performance of the system.

Senator JEFFORDS. We have heard a lot in previous hearings about the growing congestion overtaking our metropolitan areas. I see congestion even in my travels between Rutland and Burlington, Vermont. Is congestion a growing concern in the rural portions as well?

Ms. HECKER. Yes. We have recently completed a study of the Interstate, and while congestion was more serious in the urban areas, we saw substantial agreement among States that congestion was an emerging problem in rural areas as well. Part of this is really the interface of freight and passenger traffic. That is where you get a lot of these bottlenecks where it may not be a heavily populated area, but if you combine peak times with movements of freight traffic through the area at those same times, then it is going to create congestion.

Senator JEFFORDS. Thank you.

Thank you, Mr. Chairman.

Senator REID. Senator Voinovich.

Senator VOINOVICH. Ms. Peters, you talked about the increased congestion in urban areas. That has been a perplexing problem for this committee for as long as I have been here. What are your suggestions in terms of dealing with that? It gets into the environmental concerns and others, but we just, as you mention, I think, in your testimony, it is getting worse all the time. We are seeing more and more people sitting in their automobiles for hours in some cases trying to get home or go to work—usually it is going home. What are your ideas?

Ms. PETERS. I don't know, Senator. I spent literally two full hours trying to travel 13 miles in this region 1 day last week, so I think—and I was trying to get to work that day—so it is a problem both going to work and coming home from work. But I think

there are a variety of strategies we can employ. One of the things that really concerns us in looking at this edition of the Conditions and Performance Report, as was mentioned earlier, is congestion is no longer just a big city issue. Congestion in cities of 500,000 population or less has increased 217 percent from 1987 to 2000. So in answer to your question, sir, we believe that there are a variety of tactics that we can use—first of all, bringing as much as we can to the table in terms of investment, so that we have investment choices and we can make those investments; as was mentioned by GAO, operating the system more efficiently, using technology or what is known as intelligent transportation systems to increase the through-put of the systems; maintaining those systems so that we have the highest performance of those systems, as was mentioned, is another tool that we can use as well.

And, using the practices once we have decided to build a section of highway or freeway or expand that section of highway or freeway, of getting that done as quickly as and as efficiently as possible so that we have that portion of the transportation system available for use, is important.

All of these tools can be used to deal with this issue of congestion. I do believe, though, we still do need to strategically add capacity. In areas such as Senator Reid's State in the Las Vegas area, with the growth that they are seeing, it simply is not possible to deal with it, even using the methods that I have described.

Senator VOINOVICH. One of the things that I am hoping this committee can get done before we get into the final phase of this legislation is to get the 1309 provisions taken care of. We have been waiting years to get regulations out of the Department of Transportation going forward with those streamlined provisions of the legislation, recognizing the environmental concerns that we have. What are the chances of us getting something back that we can move on rapidly to get that out of the way?

Ms. PETERS. Senator, I think that the President's executive order which was issued the week before last was our effort both at withdrawing the existing regulations which were very controversial on both sides of the aisle, and moving forward with something that we believe will help us fulfill the tenets of section 1309 and get transportation projects moved through much more efficiently and effectively.

Within the context of the reauthorization proposal which the Administration would hope to bring forward early next year, we may have other suggestions, but we do believe that the President's executive order will help us get these projects moving without sacrificing environmental concerns.

Senator VOINOVICH. When you are entertaining highway projects, do you give consideration at all to the negative impact those projects might have on the traveling public? By that I mean, I will never forget when the State of Ohio contemplated putting a third lane on I–71. The original proposal was that we were going to shut it down to one lane. I just thought it was incredible, and they said, well, it's a way to save money. And I said, I can just see people traveling on I–71 in one lane and what it would do to the inconvenience to the public and the congestion and the use of gasoline, let

alone the stress on the individuals driving the automobiles, and their families.

Do you take that into consideration when you get some of these proposals back from the States on how they are going to go forward with a project?

Ms. PETERS. Senator, we do, and are working very actively with the AASHTO community, and in particular the committee that is chaired by Director Perkins here, the Standing Committee on Highways. We are looking at methods of constructing projects that are less detrimental to the traveling public, using tools such as design-build and lane rental incentives, we can keep more of the roadway section open and serving the public during construction periods than we have in the past. I think that is an area that is ripe for more improvement and we look forward to working with you and with members of the AASHTO community on making those improvements.

Senator VOINOVICH. I know that we had a project in the Cleveland area, and I think it may have been the first or second dual-dual highway system where you have the main road and then you can get off on kind of like a speedway—not a speedway, but it is less traffic. It is just amazing what a difference that has made. And that was insisted on because we needed to put an exit onto 271 Interstate highway, and that would have kind of shut the highway down. So somebody in Washington said, let's give consideration to putting in another roadway that we can keep going, and it has turned into this dual-dual. It has just been amazing what it has done to reduce congestion in the area.

The other thing I will never forget is that we had to raise our Ohio Turnpike—it had two lanes, and we increased the fees on the turnpike and went to a third lane. I do now know whether you have gone from a highway where you have gone from two lanes to three lanes, but it is just amazing how it has relieved some of the congestion and reduced the number of traffic fatalities that we have had there. But you do take those things into consideration?

Ms. PETERS. We do, sir.

Senator VOINOVICH. Because a lot of them cost money, but you have to weigh that versus some of the other things that are available.

Ms. PETERS. That is correct.

Senator REID. The only good news that I have heard this morning is from you, Ms. Hecker, and that is we have to try something new in this new highway bill, and that is really hard to do—to break our old legislative habits. Our legislative habit in the past has been just more roads, more highways. We don't have money to do that, so we are going to have to come up with something new. So what did you call it? Demand management? What was the term?

Ms. HECKER. Demand management has many aspects to it, but basically right now we are managing demand with congestion, that the excess of demand over supply is evidenced by people waiting in line and by the unreliability of trips.

Senator REID. This is really kind of a scary time to have this bill facing us. We know we do not have the money that we need. Some are talking about increasing gas taxes to try to meet the needs that

we have. There are lots of interesting proposals, but I do not think there is—I ask you this, Ms. Peters. Your proposal includes funding levels that are high enough to ensure both conditions and performance. I do not see how that is going to improve. You know, we are limited in money. So as I have heard here today, the best we can do is manage what we have and not look forward to a lot of improvement. Is that a fair statement?

Ms. PETERS. Mr. Chairman, Senator Reid, the report, the Conditions and Performance Report is intended to be an objective analysis of long-term needs only, and it does not get into some of the policy issues. But if I could go away from that report, I think Ms. Hecker is exactly right in terms of what we need to do in the future and look at managing our system as a whole. In the past, I believe that we as an industry have been too supply side focused, and we really need to look at the demand side and determine what are the ways that we can meet demand. One of the ways is to reduce that demand. Other ways are to strategically add capacity, get more out of the system that we have today. Those are the types of conversations that we look forward to having with you as the Administration develops a reauthorization proposal.

Senator REID. Ms. Hecker, you mentioned freight and passenger—the problems it causes. We have been trying for 5 years. We have approved Amtrak route from L.A. to Las Vegas. We have been trying for all those years to get that done. It would not seem like a real big deal. The tracks are already there. But the main problem is the freight and passengers. The passengers always take second-fiddle to freight. As a result of that, a ride from L.A. to Las Vegas should take 4 hours or thereabouts. I mean, they are saying it could take 8 or 9 hours. Well, it defeats the whole purpose of what we are trying to accomplish is to alleviate some of the problems we have on I–15, which is just a jam-packed highway system.

So I think we are going to have to put our heads together, all of us—AASHTO, Federal Highway Administration, see what we can get from the experts at GAO, as noticed, and look at this highway bill as a time for doing something different to alleviate the transportation problems of this country. Because as much as we all, and as Senator Byrd talked, we need more lanes and things that we have done in the past. We are going to have to come up with novel new ways with a limited amount of resources to try to alleviate the traffic that we have. Because as Senator Voinovich, the one thing you did not mention, Senator Voinovich, with your example of reducing the lanes from two to one while they put in a third lane, is what it does to people's businesses; what it does to commerce. Somebody is paying for those trucks that are stuck in traffic. Somebody is paying for those people who are trying to get to work and can't, or have another appointment someplace else. It just increases everyone's cost of doing business. That is one of the problems we have with these jam-packed highways.

I have a number of questions that I would submit to the witnesses in writing. I have several questions for you, Ms. Peters. I have questions for all three of you that I would like you to answer—the same question. And for you, Mr. Perkins, we have a number of questions that we need to ask, not the least of which is, we have some mega-projects coming up in this highway bill. Ques-

tion: What are these mega-projects like the Wilson Bridge out here—what does that do to overall highway funding? It is obvious, the answer is it hurts it very badly. And then for you, Ms. Hecker, I have a number of questions that I need to submit to you.

Thank you all very much for being here. I would ask that these questions that we submit to you, if you could get the answers back in a couple of weeks, that would be a big help to us.

Senator VOINOVICH. Mr. Chairman, I also have some questions that I would like to submit.

Senator REID. Yes, that would be certainly appropriate.

The third panel is the Honorable Gordon Proctor, who is the Director of the Ohio Department of Transportation. I don't know how he got on the witness list, but he is on it. We have Thomas L. Jackson, President-elect of the American Society of Civil Engineers. We have Dr. William Buechner, Vice President, Economics and Research, American Road and Transportation Builders Association.

We would ask you all to take your places here. You know what the rules are. We will first hear from Director Proctor, the State of Ohio. They are expecting you to do very, very well because Senator Voinovich has highly recommended you. So we have great expectations.

Mr. PROCTOR. I will try to fulfill his expectations, Mr. Chairman.

STATEMENT OF GORDON PROCTOR, DIRECTOR, OHIO DEPARTMENT OF TRANSPORTATION

Mr. PROCTOR. Mr. Chairman, members of the committee, I am Gordon Proctor, Director of the Ohio Department of Transportation. I very much appreciate this opportunity to testify, and we very much appreciate the assistance of Senator Voinovich. His leadership on transportation in Ohio is very much appreciated.

As you shape the next transportation act, I ask that you focus on the tremendous need to rebuild, reconstruct and rejuvenate the Interstate highway system. This system will reach its 50th anniversary in 2006, mid-way through the next act. The Interstate highway system has served us well and today plays a vital and irreplaceable role in our transportation system. At the same time, the system is aging, stressed and sorely in need of additional investment to ensure the safety, adequacy and competitiveness of our Nation's transportation system.

When we put this system in context, it represents only 1.2 percent of the public road miles in the United States, but it carries 24 percent of all traffic and an estimated 80 percent of all truck freight. Traffic volumes on the Interstate have risen 41 percent in the past 10 years, and truck volumes have grown by even more.

The advent of computerized inventory systems, combined with the ease and access of the Interstate highway network, led to the creation of just-in-time inventory. This strategy played a large role in dropping the Nation's cost of logistics from 16 percent of the gross domestic product in 1978 to only 10 percent of the gross domestic product today. That means that a substantial portion of America's rise in productivity in the past 20 years has been attributable to our Interstate highway system. As Governor Taft has said, the Interstates are the conveyor belt for America's just-in-time economy.

However, we are experiencing very troubling trends in Ohio and across the country. Ohio is a good microcosm because our Interstate highway system is America's fourth largest and we estimate it carries the third greatest value of truck freight. I mention it not because it is unique, but because it is so typical. In the past 25 years in Ohio, we have experienced an 89 percent increase in truck volumes. Routinely every day in Ohio, truck volumes on our major Interstate highways approach 20,000 trucks a day. We estimate truck volumes will grow by approximately 60 percent over the next 20 years, and some estimate that the growth will be even higher.

That means within 20 years, 30,000 trucks a day will be the norm on the Interstates in Cincinnati, Dayton, Springfield, Toledo, Cleveland, Akron, Canton and Youngstown. Those routes used to be our safest and most reliable routes, but now severe congestion, outdated interchanges, poor geometrics, and tremendous volumes have turned nearly every Interstate route in Ohio and in Ohio cities into a high congestion, high accident bottleneck. I–75 in Toledo carries 19,000 trucks a day. It is 43 percent over capacity and it has 100 accidents per mile, per year. On I–75 in Cincinnati, we have 184,000 vehicles, 14,000 trucks and an average of 80 accidents per mile, per year.

Our most congested location in Ohio is the overlap of Interstate 70 and 71 in Columbus, which is the literal and figurative crossroads of Ohio. Volumes are 114 percent over capacity and we average 274 accidents per mile, per year—274 accidents per mile, per year. That equals more than one accident per every business day. Within a 2.5 mile radius of the intersection of those two Interstates, we have had 2,037 accidents over a 3-year period.

I will offer one final example. Just in Dayton, where we have 19,000 trucks a day and 80 accidents per mile, per year, it would cost us $750 million to reconstruct I–75 in Dayton to make it meet all current standards. We will never have $750 million, so we have a secondary plan to invest $300 million to merely make it adequate. We can afford $300 million for Dayton. That equals 1 year's total new construction budget for the Ohio Department of Transportation. But you multiply that times 10, and you will know what we need in Cincinnati, in Columbus, in Cleveland and Akron and Canton and Youngstown, as well as Columbus. And then if you multiply that by all the States in the country, and as I say, what is in Ohio is not unique—it is very typical—it represents a major challenge that is addressed in the Condition and Performance Report.

What can Congress do? I would ask that you please not dilute the basic highway core formula. We ask that you protect us from historic preservation requirements that could treat the Interstate system as a historic artifact in a few years as it reaches its 50th year. We ask that no new regulations be adopted that could impede our progress. And finally, we endorse an idea first suggested by Administrator Peters that a national commission is needed to evaluate the future of the Interstate system.

Thank you very much, and I would be happy to answer questions at the appropriate time.

Senator REID. Very important testimony. I am very impressed.

Thomas Jackson, please proceed.

STATEMENT OF THOMAS L. JACKSON, PRESIDENT-ELECT, AMERICAN SOCIETY OF CIVIL ENGINEERS

Mr. JACKSON. Good morning, Mr. Chairman, and members of the committee. My name is Tom Jackson. Thank you for the opportunity to be here. I am currently serving as the President-Elect of the American Society of Civil Engineers, and I am pleased to represent ASCE here this morning.

For 150 years, ASCE has been representing engineers who are responsible for the Nation's built environment. ASCE represents more than 130,000 civil engineers worldwide. We look forward to working with the committee on the reauthorization of TEA–21. ASCE believes the reauthorization should focus on three goals: expanding infrastructure investment, enhancing infrastructure delivery, and maximizing infrastructure effectiveness.

In 2001, ASCE released a report card for America's infrastructure which gave America's infrastructure a grade of D-plus based on 12 categories. In our role as steward of the infrastructure, ASCE developed its first report card in 1998, and the infrastructure scored an overall grade of D. So there has been some modest improvement since 1998. In 2001, the Nation's roads earned a D-plus, up from a D-minus in 1998, and the Nation's bridges received a grade of C, an improvement from C-minus in 1998. The enactment of TEA–21 and additional State and local programs to fund surface transportation infrastructure has begun to address the investment crisis in crumbling infrastructure. But on our highways, nearly 70 percent of those traveling in peak hour traffic experience congested conditions. Vehicle travel on America's highways increased by 148 percent from 1970 to 2000. The Nation's population grew by 38 percent over that period, while new road mileage increased by only 6 percent.

According to a study by the Texas Transportation Institute, the total congestion bill for the 75 areas studied in 2000 came to $67.5 billion. In 1998, 29 percent of the Nation's bridges were rated structurally deficient or functionally obsolete by the Federal Highway Administration. The FHWA tells us that $10.6 billion are required each year for the next 20 years to eliminate the current backlog of bridge deficiencies and to ensure safety. Even with TEA–21's commitment, our Nation must increase its annual investment by at least $35 billion at all levels to improve the condition of our highways. The Nation should invest $106.9 billion a year in its road and bridge systems over the next 20 years, according to a FHWA 2002 report.

While traveling on our highways has increased dramatically in the past 10 years, America has been seriously underinvesting in needed road and bridge repairs, and has failed to even maintain the substandard conditions we currently have. This is a dangerous trend that is affecting highway safety and the health of the American economy.

Establishing a sound financial foundation for future surface transportation improvements is an essential part of TEA–21 reauthorization and one way to improve the Nation's infrastructure grade point average. The Department of Transportation data indicate that an investment of $75.9 billion per year is needed to preserve the system in its current condition. ASCE supports the total

annual Federal funding of $40 billion to $50 billion for the Federal Highway Aid Program. To achieve this level, ASCE supports an increase of six cents per gallon in the Federal user fee on gasoline. Additionally, ASCE supports adding a provision to the law that would index it based on the consumer price index, or CPI. These changes would provide a much-needed infusion of funding toward the $50 billion per year needed.

Safety and security have always been important, but have been driven to the top of our priority list by the events of 9–11. In response, ASCE believes that one cent of the proposed six cents increase in user fee be directed toward safety and security projects. Even with increases in gasoline user fee, it is likely that the tax base revenues will not be sufficient to keep pace with the Nation's transportation needs.

The innovative financing programs in TEA–21 have been a good start, but more needs to be done. ASCE encourages the use of life-cycle costs, analysis principles, and a design process to evaluate the total cost of the projects. The analysis should include initial construction, operation, maintenance, environmental, safety and all other costs reasonably anticipated during the life of the project, whether borne by the project owner or those otherwise affected. There continues to be a great deal of discussion on truck weights and sizes and their effects on roads and bridges. As an engineer, I can tell you increases in truck sizes and weights impact negatively on the life expectancy of roads and bridges.

However, it is important to note that highways can be designed and constructed to accommodate various truck sizes and weights. Truck and highway design should be coordinated through joint research activities such as the National Cooperative Highway Research Program. New and reconstructed roadways should be designed to support modern truck sizes and weight, and to ensure the safe operation of the system.

Let me conclude with this thought. A crumbling infrastructure cannot support a healthy economy or a healthy population.

Thank you very much. I will be prepared to answer to answer any questions.

Senator REID. Dr. Buechner?

STATEMENT OF WILLIAM R. BUECHNER, VICE PRESIDENT, ECONOMICS AND RESEARCH, AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION

Mr. BUECHNER. Mr. Chairman, Senator Voinovich—thank you very much for inviting the American Road and Transportation Builders Association to testify this morning. I am Dr. William Buechner, ARTBA's Vice President for Economics and Research. Prior to joining ARTBA in 1996, I served for 22 years as senior economist for the congressional Joint Economic Committee, and I have a doctorate in economics from Harvard University.

Mr. Chairman, at the outset, I want to express our association's deep appreciation to you personally and to the bipartisan leadership of this committee for your work this year to maintain the fiscal year 2003 highway program at the current-year $31.8 billion funding level.

The 2002 Conditions and Performance Report discussed earlier this morning by Federal Highway Administrator Mary Peters indicates that an average annual investment of just under $76 billion by all levels of government would be required during the next 20 years to maintain current conditions on the Nation's highways and bridges. During the past 20 years, the Federal share of highway investment has been around 45 to 47 percent, which implies that a Federal investment of about $35 billion a year for the next 20 years would meet our highway investment requirements.

I think this greatly understates our investment needs. These conditions and performance reports are excellent reports, but you have to dig down into the details to find out the real level of needs. There are three reasons why the $76 billion investment figure is understated. The first is that it is stated in year 2000 dollars. Obviously, future inflation will significantly add to the investment required. For example, with projected inflation over the next few years of 2.4 percent per year, costs would be 10 percent higher than that in 2004 when we start the reauthorization period, and almost 25 percent higher in 2009. Congress needs to take this into account when setting annual highway investment levels.

Second, it focuses on user costs, which are a combination of congestion costs, crash costs, and vehicle repair costs. The Conditions and Performance Report makes it very clear that the $76 billion figure will not maintain current conditions in terms of congestion. Traffic congestion at that level will continue to get worse, and the Administrator said that this morning.

Finally, the report assumes that traffic growth is going to slow down significantly in the next 20 years, from 3 percent growth per year in the last 20 years to 2 percent per year in the next 20 years. This assumption greatly reduces the investment needs because less traffic means fewer highway repairs and less need for new capacity. Virtually every past report has understated traffic growth. This report points out that if you just assume continued traffic growth for the next 20 years as we have in the past 20 years, that we would actually require $120 billion worth of investment just to maintain conditions.

The AASHTO bottom line report, which was discussed earlier, concluded that an average annual investment of $92 billion in 2000 dollars by all level of governments would be needed to maintain conditions, which is about $16 billion more than the Administrator focused on this morning.

When ARTBA analyzed the data in the 1999 Conditions and Performance Report and adjusted the data for inflation and VMT growth, we concluded it would take an average Federal program of about $50 billion a year for the next 6 years just to maintain structural, safety and performance conditions on the Nation's highways and bridges. When the new report is finally released later this year, I think the data will inescapably show that a Federal highway investment of at least $50 billion per year will be required, and maybe $60 billion or more.

ARTBA has developed a TEA–21 reauthorization funding proposal, which we call "Two Cents Makes Sense," that shows how the Federal share of highway investment requirements during the next 6 years can be substantially met. First, we are recommending a

Federal highway program funded at $35 billion in fiscal year 2004, and then growing $5 billion a year to $60 billion a year by fiscal year 2009. The program would also double transit investment to $14 billion by 2009. This approach would result in a manageable program for both the State DOTs and the highway construction industry.

We are also suggesting a fundamental change in the way highway trust fund cash is managed, to assure that highway users pay no more into the trust fund than is needed to cover actual cash outlays from the trust fund. Under our recommended changes, we calculate that a small annual increase in the Federal highway user fee of about two cents per gallon per year would be needed at most to meet projected cash outlays from the highway trust fund to fund the program that we have recommended. About a half a cent of this increase would come from permanently indexing the highway user fee to the consumer price index, and the other penny and a half a year would have to be included in the reauthorization legislation.

To put this into perspective, we have included a chart in our prepared statement showing that the average weekly change in the retail price of gasoline over the last year and a half has been two-and-a-half cents a week. So we are talking about an annual increase that is smaller than the weekly change that Americans have become used to in the retail price of gasoline.

Finally, we have proposed a change in the RABA provision to assure that the funding would be completely budget-neutral and would have no impact on the Federal surplus or deficit.

Mr. Chairman, again I appreciate the opportunity to discuss the Nation's highway investment requirements and how to meet them. I would be prepared to answer questions.

Senator REID. Mr. Proctor, the State of Ohio has not grown much in the way of people, right, in the last decade?

Mr. PROCTOR. That is correct, Mr. Chairman.

Senator REID. Tell me why the traffic is increasing so much, then?

Mr. PROCTOR. As the gross domestic product rises, volumes of traffic, and particularly truck volumes, correlate almost one to one. In my written testimony, we have a chart to that effect. As we rise in affluence, we buy more things. Each product gets a little more complicated. With the advent of just-in-time inventory, people do not store components. So the volume of traffic per dollar of output has grown steadily over the last few decades, to the point where we have had a 90 percent increase in truck volumes in Ohio in the last 25 years, whereas Senator Voinovich knows our State's population has grown very little.

Senator REID. I want to compliment all the witnesses today, but I particularly want to compliment you. The work that you have done preparing for this hearing will serve the committee big-time, so to speak.

Mr. PROCTOR. We hope so, Mr. Chairman.

Senator REID. You have done a very good job, and I appreciate very much your work.

Mr. PROCTOR. And if I could stress, too—I cite this not because Ohio is so unique, but my counterparts from Pennsylvania and New Jersey or Virginia . . .

Senator REID. Are having the same problems.

Mr. PROCTOR. . . . or anywhere else could have made this same presentation and we think that is a national issue for all of my counterparts.

Senator REID. Mr. Jackson, you have indicated that you feel the gas tax should be increased by six cents a gallon. Is that right?

Mr. JACKSON. Yes.

Senator REID. That would be about $8 billion a year or something like that—that would raise? Is that about right?

Mr. JACKSON. Yes, we support an increase in the user fee on gasoline, as we prefer to call it.

Senator REID. Now, Dr. Buechner, did you also recommend an increase in the gas tax?

Mr. BUECHNER. Our "Two Cents Makes Sense" proposal found that it would take about two cents a year for the next 6 years to fund a program that would grow from $35 billion to about $60 billion, which is a practical program for meeting the investment needs.

Senator REID. Also, you indicated that would cause also the transit to also be about $14 billion or $15 billion a year, is that right?

Mr. BUECHNER. Yes, sir.

Senator REID. Mr. Jackson, your report card on America should not make us feel very good—a D-plus and a C. My concern, though, is why did the bridges do so well, because we hear all the time about the deteriorating status of our bridges.

Mr. JACKSON. In the ISTEA and TEA–21 programs there has been a considerable amount of work done on the bridges, which helped. The Federal Bridge Replacement Program has also addressed those bridges which were structurally deficient.

Senator REID. So we have done some good, then.

Mr. JACKSON. There has been some headway made on the Federal Bridge Program.

Senator REID. Each of you know that we are really not talking about raising the gas tax. I think it is going to be hard to do. But you have made it very clear that under the present conditions and the amount of money we have, we are in big trouble. Is that what you are telling us?

[All witnesses respond in the affirmative.]

Senator REID. Because with the trust fund being less than we expected, if we can get up to levels from previous years, we will be doing well. And even at that, we are slowly going under. Is that a fair statement?

Mr. BUECHNER. It would be fiscal year 2006 under current revenue projections before we even got back to the 2002 funding level.

Senator REID. What does that do to our highway system in the country?

Mr. BUECHNER. Congestion will continue to get much worse, and it will start having a significant impact on the economy. I think we are at a level now, at a situation now where failing to address some of these things will start to have an impact on jobs, on growth.

Senator REID. You, as a PhD Harvard economist, have no doubt that this congestion will hurt the economy?

Mr. BUECHNER. Oh, I think it is probably already doing that. It is probably already having a significant influence, and letting it get worse will just make things worse.

Senator REID. Do either of the two of you disagree?

[Both witnesses indicate in the affirmative.]

Senator REID. Senator Voinovich?

Senator VOINOVICH. It is interesting. I have a reputation for being a deficit hawk in the Senate, and I vote against most appropriation bills. I received a call from Mitch Daniels early on telling me that we had made a mistake on the trust fund and that we had overextended ourselves and we needed to reduce it substantially. I said, in spite of my feelings regarding the budget, that I thought it was important that we at least bring the amount of money up to the $28.7 billion that we had promised when we put the program together, and underscored how important this even amount of money meant to the industry and to the States.

That being said, I think that we ought to recognize that the additional money, if we reach the $31.5 billion we want, a portion of that money is going to be borrowed to pay for that. That is money we are going to borrow from the—either be paid for with the Social Security surplus, or we borrow. Whatever the case may be, we are borrowing it. We are going to have to remedy that formula, as you point out, with the—what did you say?—2006 to get up to the level where we are right now. So that is going to be a major consideration by this committee. If we are going to not have that happen, it means that we are going to have to have more money.

Now, either we borrow the money to pay for it, or we raise the money to pay for it. That means that if you are fiscally responsible and we have this agreed upon user-pay philosophy in this area, that gas taxes, if we are going to get the job done, are going to have to be raised. In addition to that, they may have to be raised on the State level in some places.

The issue is, what is the proper relationship in terms of the State and the local and the Federal? This was, as one of our witnesses said, 51 percent was State, 23 percent was local and then 24 percent Federal. Is that the breakdown? Do you know what the percentages are?

Mr. BUECHNER. That would be the breakdown for all highway expenses, including standard maintenance, which is generally not eligible for Federal aid. It includes highway patrol. It includes bond redemptions and things like that.

Senator VOINOVICH. Let's say about the Interstate—how much of that is paid for by the Federal Government?

Mr. PROCTOR. Eighty percent, approximately.

Senator VOINOVICH. About 80 percent.

Mr. PROCTOR. About 80 percent, at least using Ohio as an example, about 80 percent.

Senator VOINOVICH. So if we were going to do a better job and meet this—and by the way, this number, the $50 billion, is the one that has been bandied around. This is the one that, as I mentioned, in July of 2001, the GAO said that it was going to be $50.8 billion over 20 years, and then if we wanted to do an additional investment, it would take another—we would have to bring it up to $83.4 billion. So the real issue here is, where are we going to get the

money to do the job that needs to be done, and Mr. Chairman, what responsibility do we have on the Federal level for this, and what responsibility should the States have as our partner. Do you want to comment on that?

Mr. BUECHNER. For the capital costs, the real construction work, the Federal share has been about 45 to 47 percent over the last 20 years. So the Federal program is a major source of funding for the improvements that we are talking about here.

Senator VOINOVICH. Gordon, do you want to respond?

Mr. PROCTOR. Yes, Mr. Chairman, Senator Voinovich, clearly the cost has to be shared, and the States have to do their part. They cannot say this is solely a Federal problem, and I believe both States and the Federal Government have to step forward. I do have to say, even though the numbers are huge, an incremental increase will still do a lot of good for a lot of people. We may not solve everything, but eliminating one bottleneck in Cincinnati with the Fort Washington Way project created tremendous benefits. Eliminating one bottleneck in Toledo by eliminating a lift-bridge on the Interstate, we did not solve all of Toledo's problems, but that one project is creating a tremendous amount of good.

So if we can get any increment of investment, we may not be solving every problem, but we will be doing a lot of citizens a lot of good in a lot of cities. And so we cannot be paralyzed by the magnitude of those numbers. We have to keep thinking incrementally how can we steadily approach this problem. It does do tremendous amounts of good if we can get any incremental growth.

Senator REID. You illustrated that very well with your Dayton example. I am sorry, Senator Voinovich, I hope there is nothing to this, but we have had another letter that is very suspicious in nature delivered to the Senate credit union. This announcement is that no one should go into the Hart Building. So we will submit some questions to you in writing. Is that where your office is?

Senator VOINOVICH. Yes, it is.

Senator REID. So Senator Voinovich cannot go back into his office. We hope this is of short duration, but it is the world we live in. We have questions we will submit to you. We are sorry that this has arisen and we will submit some questions to you in writing.

[Whereupon, at 11:53 a.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. ROBERT C. BYRD, U.S. SENATOR FROM THE STATE OF WEST VIRGINIA

Mr. Chairman, in just a few months time this subcommittee will be responsible for reporting one of the most important, if not the most important, pieces of legislation for the 108th Congress. It is impossible to overstate the importance that I attach to the reauthorization of the Federal-aid Highway Program. This program is at the very core of the Federal infrastructure investment exercise. As such, I am grateful to you, Mr. Chairman, for allowing me this opportunity to testify at this, the last hearing you will hold in the nation's Capitol on the reauthorization of the Transportation Equity Act for the 21st Century, or "TEA–21."

Later this morning, you will also take testimony from our very capable Federal Highway Administrator, Ms. Mary Peters, on the condition and performance of our National Highway System. The Administration's upcoming Conditions and Performance Report will again remind us that a great deal more needs to be invested in our infrastructure if we are not to fall further and further behind in stemming the deterioration of our nation's highways and bridges and alleviating congestion on our

nation's roads. Administrator Peters will testify that, even in the wake of the historic funding increase accomplished through TEA–21, congestion on our roads continues to worsen. An investment in our highway infrastructure by all levels of government will have to increase by more than 65 percent or $42.2 billion per year to actually improve the condition of our nation's highways. A funding increase of more than 17 percent or $11.3 billion will be necessary simply to maintain the current inadequate conditions of our highway network, where more than one in four of our nation's bridges are classified as deficient. As chairman of the Senate Appropriations Committee, I have sought to do my part by championing the highest level of Federal highway investment that is possible under our budget constraints. As a member of the Appropriations Committee and the Transportation Subcommittee, you are well aware that the involvement of the Appropriations Committee has never been more critical than this year. The Transportation Appropriations Bill for Fiscal Year 2003 as reported by my committee back in July restores every penny of the $8.6 billion cut in highway funding proposed by President Bush. And I am pleased to say that every member of the Appropriations Committee voted to report that bill.

Mr. Chairman, one of the observations contained in Administrator Peters' testimony that especially caught my eye is her statement that, "The condition of higher-order roads, such as Interstates, has improved considerably since 1993 while the condition on many lower-order roads has deteriorated." It appears that the pattern of road conditions is beginning to mirror the distribution of wealth in our country, whereby the rich are getting richer while the poor get poorer. That observation leads me into my principal topic for my testimony this morning—the need to use this next highway bill to finally fulfill a promise that was made to one of the most impoverished and isolated regions of our country more than 35 years ago. We need to use this next highway bill to finally complete the Appalachian Development Highway System or "ADHS."

Mr. Chairman, while serving in the other body, I had the great privilege of casting my vote in favor of establishing the Interstate Highway System back in 1958. However, in 1964 it was recognized by the first Appalachian Regional Commission that while the Interstate Highway System was slated to provide historic economic benefits to most of our Nation, the system was designed to bypass the Appalachian Region due to the extremely high cost associated with building highways through Appalachia's rugged topography. As a result, the construction of the interstates had the detrimental effect of drawing passengers and freight, and the accompanying economic benefits, away from the Appalachian Region.

In 1965, the Congress adopted the Appalachian Regional Development Act which promised a network of modern highways to connect the Appalachian Region to the rest of the nation's highway network and, even more importantly, the rest of the nation's economy. Absent the Appalachian Highway System, my region of the country would have been left solely with a transportation infrastructure of dangerous, narrow, winding roads which follow the path of river valleys and stream beds between mountains. These roads are still, more often than not, two-lane roads that are squeezed into very limited rights-of-way. They are characterized by low travel speeds and long travel distances and are often built to inadequate design standards.

Mr. Chairman, as you know well, we have virtually completed the construction of the Interstate Highway System and have moved on to many other important transportation goals. However, the people of my region are still waiting for the Federal Government to live up to its promise, made some 37 years ago, to complete the Appalachian Development Highway System. The system is still less than 80 percent complete and I regret to observe that my home State of West Virginia is below the average for the entire Appalachian Region with only 72 percent of its mileage complete and open to traffic.

Mr. Chairman, the rationale behind the completion of the Appalachian Development Highway System is no less sound today than it was in 1964. Unfortunately, there are still children in Appalachia who lack decent transportation routes to school; and there are still pregnant mothers, elderly citizens and others who lack timely road access to area hospitals. There are thousands upon thousands of people who cannot obtain sustainable well paying jobs because of poor road access to major employment centers. The entire status of the Appalachian Development Highway System is laid out in great detail in the Cost to Complete Report for 2002 just completed by the Appalachian Regional Commission this month. I would ask, Mr. Chairman, if this report could be made part of the committee's permanent hearing record. This is the most comprehensive report on the status of the Appalachian Development Highway System to date and I commend the staff of the Appalachian Regional Commission for their hard work on this report. The last report was completed in 1997 just prior to congressional consideration of TEA–21.

The enactment of TEA–21 signaled a new day in the advancement of the Appalachian Development Highway System. Through the work of this committee, the House Transportation and Infrastructure Committee and the Administration, we took a great leap forward by authorizing direct contract authority from the Highway Trust Fund to the States for the construction of the ADHS. Up until that point, funding for the Appalachian Highway System had been limited to uncertain and inconsistent general fund appropriations. By providing the States of the Appalachian Region with a consistent and predictable source of funds to move forward on its uncompleted ADHS segments, TEA–21 served to reinvigorate our efforts to honor the promise made to the people of the Appalachian Region.

As is made clear in the Cost to Complete Report, this initiative has been a great success—one for which this committee can be very proud. States are making greater progress toward the completion of the system than they have in any 5 year segment in recent memory. Since the last Cost to Complete Report, 183 miles of the system have been opened to traffic and we have successfully bought down the cost to complete the system by roughly $1.7 billion in Federal funds.

Back when we were debating TEA–21, some questions were asked as to how committed the States would be to completing the unfinished segments of the Appalachian Highway System. I'm pleased to report that the 13 States, to date, have succeeded in obligating just under 90 percent of the obligation authority that has been granted to them for the completion of the system. I think you will find, Mr. Chairman, that a 90 percent obligation rate compares quite favorable to some of the other programs through which the States were granted multiple years to obligate their funds.

TEA–21 apportioned $2.25 billion in contract authority to the Appalachian Highway System over the life of the reauthorization bill. However as I stated, over the period covered by that bill, we will have bought down roughly $1.7 billion of the cost to complete the system. I believe the difference in those two figures merits some explanation. The remaining Federal funds needed to complete the ADHS are now estimated by the Appalachian Commission to be $4.467 billion.

The considerable cost in completing the last 20 percent of the system is explained by the fact that the easiest segments of the system to build have already been built. With the availability of the contract authority in TEA–21, the Appalachian States turned in earnest to designing some of their unfinished segments. That design process revealed cost growth that exceeded the roughly 20 percent cost growth that is attributable to the inflation index associated with highway construction. Much of the cost growth, it should be mentioned, is attributable to complying with other Federal laws, especially costs associated with environmental mitigation measures.

However, of critical importance is the fact that these unfinished segments represent some the most dangerous and most deficient roadways in our entire nation. One thing that is often lost in our debate over the necessity to invest in our highways is the issue of safety. The Federal Highway Administration has published reports indicating that substandard road conditions are a factor in 30 percent of all fatal highway accidents. I'm quite sure that the percentage is a great deal higher in the Appalachian Region.

The Federal Highway Administration found that upgrading two-lane roads to four-lane divided highways decreased fatal car accidents by 71 percent and that widening traffic lanes has served to reduce fatalities by 21 percent. These are precisely the kind of road improvements that are funded through the ADHS. In my State, the largest segment of unfinished Appalachian Highway, if completed, will replace the second most dangerous segment of roadway in my State. So, even those who would question the wisdom of completing these highways in the name of economic development should take a hard look at the fact that the people of rural Appalachia are taking their lives in their hands every day as they drive on their currently inadequate roads.

Mr. Chairman it is time for this committee and the entire Congress, in concert with the Administration, to take the last great leap forward and authorize sufficient contract authority to finally complete the Appalachian Highway System. If you enact another 6 year highway bill with sufficient funds to complete the system, we will finally pay off the full costs of the ADHS almost 45 years after the system was first promised to the people of my region. When we convene the 108th Congress, it is my intention to introduce legislation which will be named the "Appalachian Development Highway System Completion Act". That bill will provide sufficient contract authority to complete the system. Importantly, it will guarantee that the States of the Appalachian Region do not pay a penalty, either through the distribution of minimum allocation funds, or the distribution of obligation limitation, for receiving sufficient funds to complete the Appalachian system.

I'm very pleased that this Administration has taken on the goal of completing the ADHS. In her letter accompanying the Cost to Complete Report, Administrator Peters said "The completion of the ADHS is an important part of the mission of the Federal Highway Administration. We consider the accessibility, mobility and economic stimulation provided by the ADHS to be entirely consistent with the goals of our agency". She goes on to say the Appalachian Regional Commission's 2002 Cost to Complete Report "provides a sound basis for apportioning future funding to complete the system." I thank Mary Peters and the entire Federal Highway Administration for their leadership on this issue and I look forward to seeing their commitment borne out in their reauthorization legislation which will be submitted next year.

Completion of a new highway bill will be a mammoth task for the 108th Congress. I can tell you, Mr. Chairman that over the many years of my public career, one of the accomplishments of which I am most proud was my amendment providing an additional $8 billion in funding to break the logjam during the debate on the Intermodal Surface Transportation Efficiency Act in 1991. Another was my sponsorship of the Byrd, Gramm, Baucas, Warner Amendment during the Senate debate on TEA–21 in 1998. That effort resulted in some $26 billion in funding being added to that bill and put us on a path to historic funding increases for our nation's highway infrastructure. I look forward again to working with this committee on completion of a bill that makes the necessary investments in our nation's highways, not just in the Appalachian Region, but across our entire country.

Thank you Mr. Chairman.

STATEMENT OF HON. MARY E. PETERS, ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

Mr. Chairman and members of the committee, thank you for this opportunity to discuss the state of our Nation's highway and bridge infrastructure.

Section 502(g) of title 23 United States Code (U.S.C.) requires the Secretary of Transportation to submit to the Congress every 2 years a report that describes "estimates of the future highway and bridge needs of the United States" and "the backlog of current highway and bridge needs." This is commonly known as the Conditions and Performance Report. Since 1993, the Federal Highway Administration (FHWA) has partnered with the Federal Transit Administration (FTA) to produce a Conditions and Performance Report that contains both highway and transit data.

The 2002 edition of the Conditions and Performance Report is in final clearance. I know that this report is of interest to Congress in the reauthorization process, and it is my hope that the report will be transmitted to the Congress this fall. Today, I would like to share some of the findings from the Conditions and Performance Report that can help you understand the state of the Nation's highway and bridge infrastructure. In addition, a summary of the major findings of the Conditions and Performance Report is attached to this statement.

Significant Increases in Highway and Bridge Infrastructure Investment

The 2002 edition of the Conditions and Performance Report is the first edition to capture the effects of investment in highways, bridges, and transit under the Transportation Equity Act for the 21st Century (TEA–21). Since the enactment of TEA–21 in 1998, combined investment in highway infrastructure, by all levels of government, has increased sharply. Total highway expenditures by Federal, State, and local governments increased by 25.0 percent between 1997 and 2000. This equates to a 14.4 percent increase in constant dollar terms. Highway capital spending alone rose to $64.6 billion in 2000, a 33.7 percent increase over 1997.

The increased Federal funding levels for highway capital investment under TEA–21 through 2000 have been matched and exceeded by increases in State and local investment. This is a very important point. State and local governments did not simply substitute Federal funds for their own during this robust economic period. Instead, they poured billions of additional dollars into transportation projects beyond the minimum increases necessary to meet Federal matching requirements. As a result, the State share of highway capital investment rose from 1997 to 2000. In 1998, the State share of highway capital outlays was above 60 percent for the first time since 1959, and remained above that level through 2000.

New Emphasis on System Preservation

The TEA–21 era coincided with a shift in the types of capital improvements made by State and local governments. Under TEA–21, States redirected their investments toward system preservation projects (the resurfacing, rehabilitation, or reconstruction of existing highway lanes and bridges). There was a 45.7 percent increase in

spending on system preservation, from $23.2 billion in 1997 to $33.6 billion in 2000. The fact that system preservation projects tend to have shorter lead times and are often less controversial than system expansion projects, may have contributed to such projects attracting a greater share of the increased funding available under TEA–21. Investment in system expansion (the construction of new roads and bridges and the widening of existing roads) grew more slowly, rising 20.8 percent from $21.6 billion to $25.9 billion.

This increase in system preservation investment has had a profound effect on the overall physical condition of the Nation's highway and bridge infrastructure. The percentage of highway mileage with "acceptable" ride quality rose from 82.5 percent in 1993 to 86.0 percent in 2000. The percentage of bridge deck area considered deficient dropped from 30.9 percent in 1996 to 27.9 percent in 2000. These improvements, however, were not uniform across all highways and bridges. For example, the condition of higher-order roads, such as Interstates, has improved considerably since 1993, while conditions on many lower-order roads have deteriorated. Bridge condition also differs by functional system. Interstate bridges, for example, tend to be less structurally deficient or functionally obsolete than bridges on collector or local roads.

Continued Improvement in Highway Safety

The 2002 Conditions and Performance Report also documents the Nation's continued improvement in the area of highway safety. Safety is the top priority for the Department of Transportation. I am pleased to report that highways have become safer even as travel sharply increased. The fatality rate per 100 million vehicle miles traveled has decreased, from 3.3 in 1980 to 1.5 in 2000, which met the Department's Performance Plan target. The Department will continue to work with our State and local partners to reduce the number of crashes on our Nation's highways even further.

Deterioration in Operational Performance

Despite the historic investment in highway infrastructure and improved conditions on many roads and bridges, operational performance of the infrastructure-the quality of the user's experience-has steadily deteriorated over the past decade. In 1987 for example, a trip that would take 20 minutes during non-congested periods required, on average, 25.8 minutes under congested conditions. By 2000, the same trip under congested conditions required 30.2 minutes, or an additional 4.4 minutes.

Some estimates attribute as much delay to incidents as to recurring congestion. Part of the answer to all forms of congestion is an increased emphasis on operations, including more effective responses to incidents, better management of work zones, and deployment of Intelligent Transportation Systems.

Highway Investment Requirements Analysis

The heart of the Conditions and Performance Report is an analysis of future capital investment requirements under different scenarios. The Cost to Improve Highways and Bridges scenario is intended to define the upper limit of cost-effective national investment based on engineering and economic criteria. This is essentially an "investment ceiling" above which it would not be cost-beneficial to invest. This scenario implicitly assumes unlimited availability of funding, and does not take into account competing investment options in the economy that may have an even more favorable cost-benefit return. The Cost to Maintain Highways and Bridges scenario is designed to show the investment required to keep future indicators of conditions and performance at current levels, based on long term projections of future highway use. These benchmarks are intended to be illustrative and do not represent comprehensive alternative transportation policies.

In addition to these primary scenarios, the report also identifies the projected level of investment required to achieve other specific benchmarks, such as average pavement conditions, and estimates the current backlog of cost-beneficial preservation and capacity investments based solely on current conditions and traffic volume.

It is important to note that the scenarios in the Conditions and Performance Report are intended to address investment requirements for all levels of government combined. The report makes no attempt to address the question of what share of total infrastructure investment should be borne by the Federal Government, State governments, local governments, or the private sector.

The average annual investment level under the Cost to Improve Highways and Bridges Scenario is projected to be $106.9 billion for 2001 through 2020, stated in constant year 2000 dollars. This is 65.3 percent higher than the $64.6 billion of total capital investments by all levels of government in 2000. The average annual investment level under the Cost to Maintain Highways and Bridges is projected to be

$75.9 billion for 2001 through 2020, which is 17.5 percent larger than the $64.6 billion of capital spending in 2000.

Capital spending by all levels of government is projected to increase in constant dollar terms over the remainder of the life of TEA–21. This assumes, however, that Federal, State, and local governments will be in a financial position to allow them to continue to increase their highway and bridge investments. Government at all levels may not be able to sustain the rate of increase in infrastructure investment observed in recent years.

In addition to the two investment scenarios I have just described, the Conditions and Performance Report also predicts the impacts of numerous alternative investment levels on a variety of condition and performance indicators.

If investment were to remain at year 2000 levels, or anticipated levels for 2001 to 2003, it is projected that recent trends observed in the condition and performance of the highway system would continue. At this range of investment levels, physical conditions and safety performance would improve, but the operational performance of the highway system would further deteriorate. Average speeds would decline, the amount of delay experienced by drivers would increase, and the average length of congested periods on the Nation's urban principal arterials would increase. Recent trends toward improvement in bridge conditions would also continue; however, the aging of the Nation's bridges, particularly on the Interstate system, will present additional challenges in the future.

The preceding edition of the Conditions and Performance report suggested that it would be cost-beneficial to apply a larger share of future highway investment increases to system preservation. As I previously noted, such a shift did occur between 1997 and 2000, resulting in significant improvements in the physical conditions of the Nation's highways and bridges; however, the operational performance of the highway system continued to decline over this period. Since 1997, infrastructure investment at all levels of government has been more successful in addressing physical conditions than operating performance. Therefore, the Conditions and Performance Report now suggests that it would be cost-beneficial to devote a larger share of future increases in highway capital investment to system expansion.

Conclusion

In conclusion, the state of the Nation's road and bridge infrastructure has generally improved due to the significant investment increases of the TEA–21 era. Since the enactment of TEA–21, State and local governments-spurred in part by higher levels of Federal investment-have poured billions of dollars into highway infrastructure. This investment led to improved highway and bridge conditions, particularly on higher-order functional systems. Despite record levels of funding, however, operational performance-measured by congestion-worsened throughout the country. Congestion increased in metropolitan areas of every size. FHWA's analysis of highway and bridge needs and investment requirements suggests that future funding continue to address system preservation needs, but that increases be reoriented toward system expansion to reduce user costs and enhance system performance.

Mr. Chairman and members of the committee, this concludes my statement. I again thank you for the opportunity to testify today and I look forward to working with you as we prepare for reauthorization of the surface transportation programs. I will be pleased to answer any questions you may have.

System and Use Characteristics: Highways

There were over 3.95 million miles of public roads in the United States in 2000. **This mileage was overwhelmingly rural and locally-owned.** About 3.09 million miles were in rural areas in 2000, or 78 percent of total mileage. The remaining 860,000 miles were in urban communities. There were 586,930 bridges in the United States in 2000.

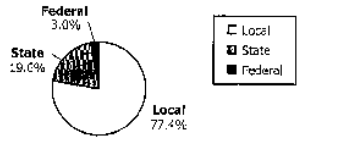
Numerous trends are changing the extent and use of the American highway network. **While locally-owned road mileage increased between 1993 and 2000, rural mileage decreased during that period.** This has been an ongoing trend, partly reflecting the reclassification of Federal roads and the growth of metropolitan areas throughout the United States.

Percentage of Highway Miles, Lane Miles, and Vehicle Miles Traveled by Functional System, 2000

FUNCTIONAL SYSTEM	MILES	LANE-MILES	VEHICLE-MILES TRAVELED
Rural Areas			
Interstate	0.8%	1.6%	9.8%
Other Principal Arterial	2.5%	3.1%	9.0%
Minor Arteria	3.5%	3.5%	6.2%
Major Collector	11.0%	10.6%	7.6%
Minor Collector	6.9%	6.6%	2.1%
Local	53.5%	51.3%	4.6%
Subtotal Rural	**78.2%**	**76.6%**	**39.4%**
Urban Areas			
Interstate	0.6%	0.9%	14.4%
Other Freeway and Expressway	0.4%	0.5%	6.4%
Other Principal Arterial	1.4%	2.3%	14.5%
Minor Arterial	2.3%	2.8%	11.8%
Collector	2.2%	2.3%	5.6%
Local	15.3%	14.6%	8.6%
Subtotal Urban	**22.2%**	**23.4%**	**60.6%**
Total	**100.0%**	**100.0%**	**100.0%**

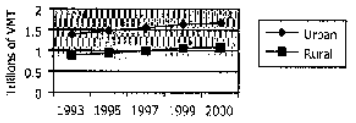
In terms of ownership, about 77 percent of miles were locally-controlled, 19 percent were controlled by States, and the remaining 3 percent were controlled by the Federal Government. **The share of locally-owned roads has steadily increased, while the shares of State and Federal roads have decreased.** Much of the change in Federal ownership has occurred as Federal land management agencies reclassified some of their mileage.

Highway Mileage by Jurisdiction, 2000



Americans traveled 2.7 trillion vehicle miles in 2000. While highway mileage is mostly rural, a majority of highway travel (61 percent) occurred in urban areas in 2000. Since 1997, however, **rural travel has grown at a faster average annual rate** (2.8 percent) than urban travel (2.6 percent). This represents a change from the last Conditions and Performance Report, when urban travel growth rates were greater than the preceding decade. Still, vehicle miles traveled (VMT) increased on every highway functional system between 1997 and 2000.

Highway Vehicle Travel, 1993 to 2000

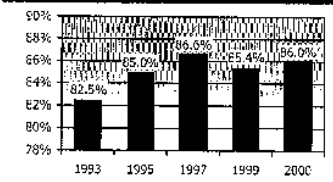


The growth in VMT has exceeded the increase in highway lane miles. **Between 1993 and 2000, lane miles grew by 0.2 percent annually, while VMT increased by 2.7 percent annually.** VMT for combination trucks grew faster between 1997 and 2000 than VMT for single-unit vehicles and passenger vehicles.

System Conditions: Highway & Bridges

The ride quality of 86.0 percent of the total road mileage is rated "Acceptable" for 2000, up from 85.4 percent in 1999. Of the total rural road miles, 89.0 percent are rated as having acceptable ride quality, while 79.8 percent of total small urban road miles and 76.6 percent of the total road miles in urbanized areas are rated as having acceptable ride quality.

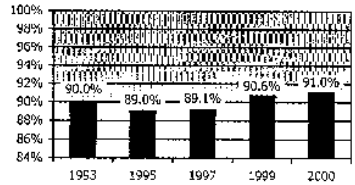
Miles with "Acceptable" Ride Quality



On the National Highway System (NHS), 93.0 percent of the pavements meet or exceed standards for acceptable ride quality. **Of all vehicle miles traveled (VMT) on the NHS, 91.0 percent were on pavements with acceptable ride quality.**

The condition of higher order roads improved, while those of the lower order roads declined.

VMT on NHS Acceptable Pavements



Three indicators are commonly used to describe bridge condition. Bridge component ratings provide a detailed description of elements, but these are more widely used within the engineering community. The number of deficient bridges is widely used by policymakers to describe bridge quality nationwide, but this indicator fails to provide a specific description of bridge elements. The Federal Highway Administration has developed a new indicator that will provide a better measure of bridges impact on mobility: the amount of deck area on deficient bridges.

In 2000, 27.9 percent of the Nation's bridge deck area was on bridges that were classified as structurally deficient. **The percentage decreased on every functional system from 1996 to 2000** Rural Interstate bridges had the smallest amount in 2000 (about 15 percent), while urban collector bridges had the largest amount (39.6 percent).

Deficient Bridge Deck Area by Functional System, 2000

FUNCTIONAL SYSTEM	
Rural	
Interstate	15.0%
Other Principal Arterial	17.6%
Minor Arterial	22.9%
Major Collector	22.7%
Minor Collector	22.5%
Local	25.1%
Subtotal	**21.8%**
Urban	
Interstate	31.6%
Other Freeway and Expressway	28.9%
Other Principal Arterial	36.4%
Minor Arterial	37.3%
Collector	39.6%
Local	36.4%
Subtotal	**33.6%**
Bridge Total	**27.9%**

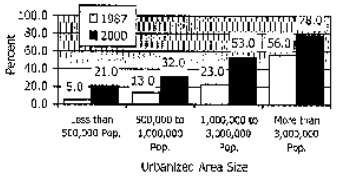
Operational Performance: Highways

Since the last edition of the C&P Report, FHWA has adopted three new measures of congestion. **These measures clearly show congestion is increasing throughout the Nation.**

Percent of Additional Travel Time:

Percent of Additional Travel Time is an indicator of the additional time required to make a trip during the congested peak travel period rather than at other times of the day. In 2000, an average peak period trip required 51.0 percent more time than the same trip under non-peak, non-congested conditions. In 1987, a 20-minute trip during non-congested periods required 25.8 minutes under congested conditions. The same trip in 2000 required 30.2 minutes, or an additional 4.4 minutes. Between 1987 and 2000, the percent of additional travel time grew fastest in urbanized areas with a population between 1 million and 3 million.

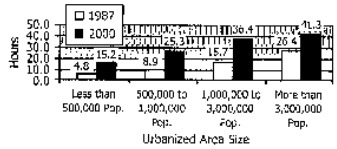
Percent of Additional Travel Time, 1987 vs 2000



Annual Hours of Delay:

Annual Hours of Traveler Delay is an indicator of the total time an individual loses due to traveling under congested conditions. Cities with less than 500,000 population experienced the greatest percentage growth in the average annual delay experienced by drivers, from 4.8 hours in 1987 to 15.2 hours in 2000—an increase of 217 percent. Drivers in cities with populations under 500,000 were experiencing close to the same delays in 2000 as communities with populations between 1 million and 3 million in 1997.

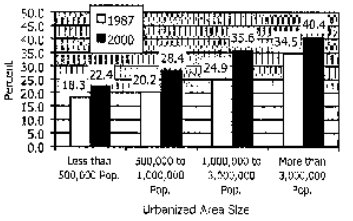
Annual Hours of Traveler Delay, 1987 vs 2000



Percent of Travel Under Congested Conditions:

Percent of Travel Under Congested Conditions is defined as the percentage of traffic on freeways and principal arterial streets in an urbanized area moving at less than free flow speeds. Congested Travel increased from 31.7 percent in 1992 to 33.1 percent in 2000. Based on this measure, the congested period, or "Rush Hour," increased from 5 to 5.3 hours per day over this period—approximately 18 minutes. For urban areas with populations greater than 3 million, 40.4 percent of daily travel in 2000 was under congested conditions.

Percent of Travel Under Congested Conditions, 1987 vs 2000

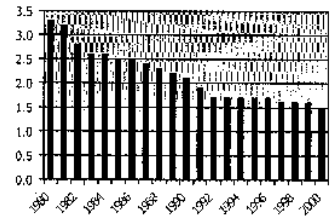


Safety Performance: Highways

Safety is the top priority for the U.S. Department of Transportation. The Safety Strategic Goal in the Department's 2003 Performance Plan aims to "promote the public health and safety by working toward the elimination of transportation-related deaths and injuries."

Over the past thirty years, remarkable progress has been made in making highways safer, with **highways becoming safer even as travel sharply increased.** The exhibit below, for example, describes the fatality rate per 100 million vehicle miles traveled from 1980 to 2000. **The fatality rate has decreased,** from 3.3 in 1980 to 1.5 in 2000, which met the Department's Performance Plan target.

Fatality Rate, 1980-2000



Source: Fatality Analysis Reporting System

The injury rate has also declined in recent years, as detailed in the exhibit below. In 1988, the rate was 169 per 100 million vehicle miles traveled; by 2000, that rate had dropped to 116. While significant, the declining injury rate falls short of the Performance Plan goal of 113 per 100 million vehicle miles.

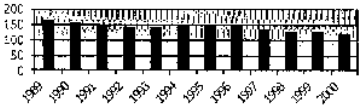
Alcohol impairment is a leading cause of crashes and a serious public safety problem in the United States. In 2000, alcohol was involved in 40 percent of fatal crashes and 8 percent of all crashes.

There are three main groups involved in alcohol-impaired driving:

- The largest group, **21- to 34-year-old adults,** was responsible for 31 percent of all fatal crashes in 2000. Studies show that these drivers tend to have much higher levels of intoxication than other age groups.
- **Chronic drunk drivers** are another large group. Fatally injured drivers with a blood alcohol concentration greater than 0.10 grams per deciliter were six times as likely to have a prior conviction for driving while intoxicated than fatally injured sober drivers.
- Finally, **underage drinkers** are disproportionately over-represented in impaired driving statistics.

Speeding and alcohol impairment are closely linked in many crashes. In 2000, 23 percent of underage *speeding* drivers involved in fatal crashes were intoxicated. By contrast, 10 percent of underage *nonspeeding* drivers involved in fatal crashes were intoxicated.

Injury Rate, 1989-2000



Source: Fatality Analysis Reporting System.

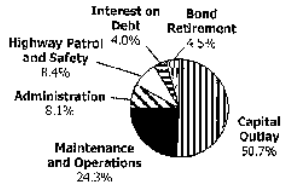
While the number of overall highway fatalities and injuries has decreased in recent years, this is not uniformly true for all vehicle groups. The number of occupants killed in passenger cars, for instance, decreased from 21,566 in 1993 to 20,492 in 2000. In contrast, the number of occupants killed in light and large trucks, motorcycles, and other vehicles all increased during this period.

Finance: Highway and Bridge

Taken together, all levels of government spent $127.5 billion for highways in 2000. The Federal government funded $27.7 billion (21.7 percent). States funded $67.0 billion (52.6 percent). Counties, cities, and other local government entities funded $32.7 billion (25.7 percent).

Total highway expenditures by all levels of government increased 25.0 percent between 1996 and 2000. Highway spending rose faster than inflation over this period, growing 14.4 percent in constant dollar terms.

Highway Expenditures by Type, 2000

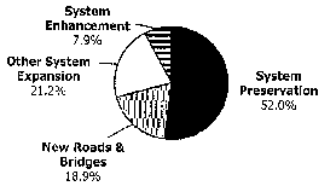


Of the total $127.5 billion spent for highways in 2000, $64.6 billion (50.7 percent) went for capital outlay. This was the first time this percentage exceeded 50 percent since 1975.

Capital outlay grew by 33.7 percent between 1997 and 2000. Large increases in Federal investment under the Transportation Equity Act for the 21st Century (TEA-21) were outpaced by even larger increases in State and local investment, as the combined State and local share of funding for capital outlay rose from 58.4 percent in 1997 to 60.1 percent in 2000.

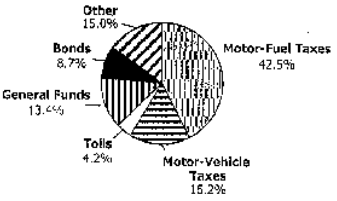
State and local governments devoted a larger share of their capital spending to the preservation of their existing roads and bridges in 2000 than in 1997. The share of capital funds used for system preservation rose from 47.6 percent to 52.0 percent. All levels of government spent a combined $33.6 billion of capital funds for system preservation in 2000; $12.2 billion went for new roads and bridges; $13.7 billion went for adding new lanes to existing roads; and $5.1 billion went for system enhancements, such as safety, operational or environmental enhancements.

Distribution of Highway Capital Outlay By Improvement Type, 2000



Highway-user revenues--the total amount generated from motor-fuel taxes, motor-vehicle fees, and tolls--were $100.6 billion in 2000. Of this, $81.0 billion (80.5 percent) was spent on highways. This represented 62.9 percent of the total revenues generated by all levels of government in 2000 for use on highways.

Revenue Sources for Highways, 2000



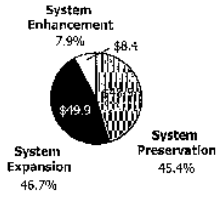
Capital Investment Requirements: Highway and Bridge

The average annual **Cost to Improve Highways and Bridges for the 20-year period 2001-2020 is projected to be $106.9 billion. This represents the investment by all levels of government required to implement all cost-beneficial improvements on highways and bridges.** This level of investment would address the existing backlog of highway ($271.7 billion) and bridge ($54.7 billion) deficiencies, as well as new deficiencies as they arise during the 20-year period, when it is cost-beneficial to do so.

Investment requirements for system preservation make up 45.4 percent of the total Cost to Improve Highways and Bridges. This includes all *capital* investment required to preserve the condition of the pavement and bridge infrastructure, such as resurfacing, rehabilitation, and reconstruction. This does not include the costs of routine maintenance.

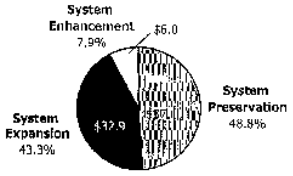
Investment requirements for system expansion make up 46.7 percent of the total Cost to Improve Highways and Bridges. The remaining 7.9 percent of the Cost to Improve is not directly modeled; this represents the current share of capital spending on system enhancements such as safety, operational, and environmental investments.

Cost to Improve Highways and Bridges Distribution by Improvement Type



The **Cost to Maintain Highways and Bridges represents the investment required by all levels of government so that critical indicators of overall conditions and performance in the year 2020 will match their year 2000 values.** For bridge preservation, it represents the level of investment required to maintain the existing backlog of bridge deficiencies at its current level. For system expansion, and pavement preservation, it represents the investment required to prevent average highway user costs (including travel time costs, vehicle operating costs, and crash costs) from rising in the future. Agency costs, such as maintenance, and societal costs, such as emissions, are also considered in the analysis, although they are not directly targeted. The average annual investment required for the **Cost to Maintain Highways and Bridges is projected to be $75.9 billion.**

Cost to Maintain Highways and Bridges Distribution by Improvement Type



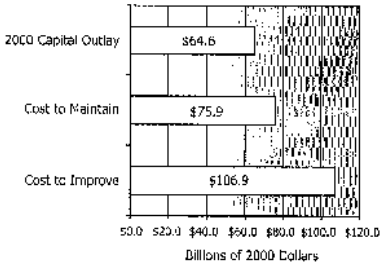
The scope of user costs has been expanded from those considered in previous reports to include an estimate for delays resulting from incidents, as well as for recurring daily congestion. A reliability premium has also been added to reflect the additional costs that unpredictable delays impose beyond those of expected delays for which drivers can plan. Including these items in the analysis makes it considerably more expensive to maintain average user costs.

Comparison of Spending and Investment Requirements: Highway and Bridge

While this report does not recommend any specific level of investment, a comparison of the investment requirement scenarios with current and projected spending levels provides some insights into the likelihood that the level of performance implied by the scenarios will be obtained.

Federal, State, and local capital expenditures for highways and bridges totaled $64.6 billion in 2000. **Capital outlay by all levels of government would have to increase by 17.5 percent above this level to reach the projected $75.9 billion Cost to Maintain Highways and Bridges level. An increase of 65.3 percent would be required to reach the projected $106.9 billion Cost to Improve Highways and Bridges level.**

2000 Capital Outlay vs Highway and Bridge Investment Requirements

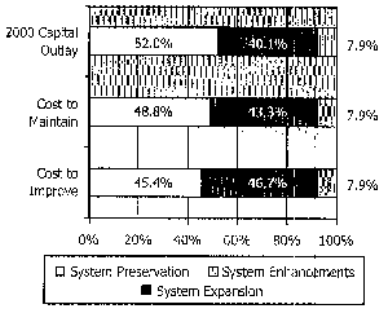


Capital spending by all levels of government grew sharply between 1997 and 2000 and is projected to continue to increase in constant dollar terms from 2000 to 2003, albeit at a slower rate. These projected increases in combined Federal, State and local capital spending would move the Nation closer to the level of the investment requirement scenarios. However, capital outlay would still have to increase 11.3 percent above projected annual spending over this period to reach the Cost to Maintain level, and would need to increase 56.6 percent to reach the Cost to Improve level.

In 2000, 40.1 percent of highway capital outlay went for system expansion, including the construction of new roads and bridges and the widening of existing facilities. **The analytical models used to develop the investment requirements in this report suggest that if capital investment increases, it would be cost-beneficial to devote a larger share to system expansion** to alleviate the effects that future travel growth would have on recurring and non-recurring delay.

For the Cost to Maintain Highways and Bridges, 43.3 percent of the projected 20-year investment requirements are for system expansion. If funding increases above this level, the analysis suggests increasing investment in system expansion, so that for the Cost to Improve Highways and Bridges, 46.7 percent of the total investment requirements are for system expansion.

Investment Requirements and 2000 Capital Outlay Distribution by Improvement Type



Impacts of Investment: Highway and Bridge

Linkage Between Recent Condition and Performance Trends and Recent Spending Trends

Spending by all levels of government on system preservation increased by 45.7 percent from $23.0 to $33.6 billion between 1997 and 2000. This increased investment in roadway and bridge rehabilitation and resurfacing is reflected in the improvements in pavement ride quality and reductions in bridge deficiencies that are described elsewhere in this report.

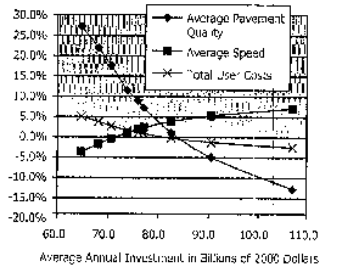
Investment in system expansion has also increased, but at a much lower rate relative to outlays for system preservation. While the rate of growth in average annual hours of traveler delay has decreased, the level of investment has not stopped the overall growth in congestion.

Impact of Future Investment on Highway Conditions and Performance

If average annual highway capital investment from 2001 to 2020 reached the projected $106.9 billion **Cost to Improve Highways and Bridges** level and is applied in the manner suggested by the analysis, the average pavement quality is projected to improve by 13.9 percent relative to year 2000 levels. Improvements in highway operational performance would cause average speeds to rise by 6.0 percent, while average highway user costs would decline by 3.6 percent.

If all levels of government combined invested at the **Cost To Maintain** projected level of $75.9 billion, and shifted more of their investment toward system expansion to address increasing congestion problems, average speeds would improve, while average pavement roughness would worsen. By definition, user costs would remain at year 2000 levels.

Projected Changes in 2020 Highway Condition and Performance Measures Compared to 2000 Levels at Different Possible Funding Levels



Impact of Investment on Travel Growth

While future travel growth will be primarily driven by factors such as population growth and growth in economic activity, the amount of travel growth on a highway segment may also be affected by the level of investment on that segment. Investments that reduce the economic cost of using a facility may lead to increased use, while increasing congestion on an unimproved roadway may cause travel growth to be lower than it otherwise would be. The travel growth forecasts used in the analysis of highway investment requirements in this report are dynamic, in the sense that they allow allow feedback between the level of future investment and future VMT growth.

If highway-user costs are maintained at current levels as they would be under the Cost to Maintain scenario, the analysis projects that urban VMT would grow by an average annual rate of 1.96 percent. If highway-user costs declined, as they would under the Cost to Improve scenario this rate would increase to 2.19 percent per year.

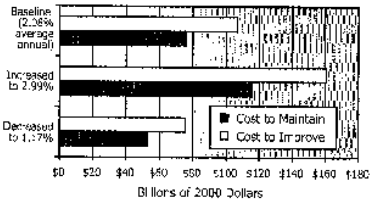
Sensitivity Analysis: Highway and Bridge

The usefulness of any investment requirements analysis depends on the validity of the underlying assumptions used to develop the analysis. Since there may be a range of appropriate values for several of the model parameters used in these analyses, this report includes an analysis of the sensitivity of the estimated Cost to Maintain Highways and Bridges and Cost to Improve Highways and Bridges to changes in these assumptions.

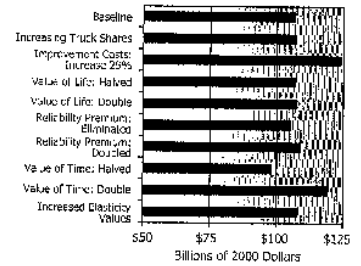
Travel Forecasts

The Highway Economic Requirements System (HERS) assumes that the State-supplied baseline travel forecast for each highway section represents not what future travel *will* be, but what it *would* be if investment rose to the level required to keep highway user costs constant. The aggregate annual growth rate drawn from these section level forecasts is 2.08 percent. If instead, the 2.99 average annual VMT growth rate observed from 1980 to 2000 were a better predictor of future constant price VMT growth, then the estimated Cost to Maintain and Cost to Improve would each be over 50 percent higher. Conversely, if the "true" annual VMT growth that would occur at a constant level of service were only 1.17 percent, the Cost to Maintain and Cost to Improve would fall significantly.

Impact of Reducing Baseline VMT Growth Assumptions on Average Annual Investment Requirements



Impact of Other Alternate Assumptions on the Average Annual Cost to Improve Highways and Bridges



Value of Time

The value of time in HERS was developed using a standard methodology adopted by the Department, but other values are used inside and outside the Federal government. Doubling the value of time would increase the Cost to Improve by 11.7 percent. Cutting it in half would reduce the Cost to Improve by 8.1 percent.

Construction Costs

If currently unforeseen circumstances were to cause future highway construction costs to unexpectedly rise by 25 percent in constant dollar terms, this would increase the Cost to Improve by 16.1 percent. The increased cost of individual projects would be partially offset in this scenario by some projects that would no longer be cost-beneficial.

Note:
The impacts of alternative model parameters and procedures are more ambiguous for the Cost to Maintain, as many of these parameters are used in the calculation of baseline user costs. By changing these parameters, the target user cost level being maintained under the scenario is also changed.

A-9

RESPONSES OF MARY PETERS TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. You stated in your testimony that the percentage of "acceptable" highway mileage has increased since 1993. How do you define acceptable? What are the other ratings you use in the Conditions and Performance Report to describe highway and bridge infrastructure and how are these defined?

Response. The pavement ratings in the Conditions and Performance report are based primarily on the International Roughness Index (IRI) values, reported annually by the States as part of the Highway Performance Monitoring System (HPMS). The IRI measures the cumulative deviation from a smooth surface in inches per

mile. This standard is generally accepted worldwide as an effective pavement roughness measurement and, as an objective, mechanically measured value, is considered to be more consistent across jurisdictions than other more subjective measures. The HPMS reporting requirements allow States to provide a Pavement Serviceability Rating (PSR) in lieu of an IRI value for certain types of highways. The PSR is an older subjective rating system in which inspectors evaluate pavement condition on a scale of 1 to 5. In cases where PSR values are reported, a mathematical conversion was made to translate them to a roughly corresponding IRI value.

For all types of roads, the C&P report applies the pavement classification standards introduced in the annual FHWA Performance Plan for NHS routes. To be rated "acceptable," a highway section must have a measured International Roughness Index (IRI) value of less than or equal to 170 inches per mile. Good pavements comprise a subset of acceptable pavements. For a pavement to be rated as "good," the IRI value must be less than or equal to 95 inches per mile. Previous editions of the C&P report used a different set of pavement condition categories, oriented around PSR ratings, and utilizing a more relaxed set of standards for non-Interstate routes. To facilitate comparisons between this report and previous editions, some data are provided based on the old classification scheme.

The bridge condition ratings in the Conditions and Performance report are based on data reported in the National Bridge Inventory. Three indicators are examined in the report, bridge condition ratings, the number of deficient bridges, and the percentage of deck area on deficient bridges. Condition ratings are assigned to the bridge deck, superstructure, and substructure during bridge inspections, on a ten point system ranging from 9—"Excellent" to 0—"Failed". The number of deficiencies and the percentage of deck area on deficient bridges are both based on assessments on whether a bridge is structurally deficient or functionally obsolete. Bridges are considered structurally deficient if they are restricted to light vehicles, require immediate rehabilitation to remain open, or are closed. Bridges are considered functionally obsolete if they have deck geometry, load carrying capacity, clearance, or approach roadway alignment that no longer meets the criteria for the system of which the bridge is a part.

Question 2. In your testimony, you indicated that the condition of the higher-order roads have improved over the last several years while the condition of lower-order roads have deteriorated. What accounts for the deterioration of the lower-order roads? What impact has this had on roadway safety? What can be done to ensure lower-order roads are not neglected?

Response. The physical condition of lower-order roads (i.e., minor arterials and collectors) may have deteriorated due to greater emphasis placed on the maintenance, reconstruction, and construction of higher-order roads that carry the majority of the Nation's traffic. Since funds are limited, any increase in the commitment of funds to projects on higher-order roads reduces the amount of funds available for the lower-order roads.

The level of funding is not available to properly support the Nation's higher-order roads and at the same time totally support the lower-order roads. Since higher-order roads support greater levels of traffic and truck volumes, funds allocated to these projects have a potentially greater beneficial impact on the Nation's highway system. This does not mean the needs of the lower-order roads are ignored-only that available funds are being allocated in an attempt to provide the most benefit to the Nation's highway system user.

Regarding safety, some States provide safety set-aside funds for projects on any public road and 15 to 35 percent of bridge funds are set aside for "off-system" bridges on lower-order roads. But the responsibility of repairing and maintaining these roads falls primarily on local governments and some States. Safety conditions on these roads are poor, particularly in rural areas. From 1994 to 2000, over 59 percent of all fatalities occurred on rural roads, most of them considered lower-order. Rural local roads had a fatality rate six times higher than Urban Interstates in 1999 even though they had a third of the traffic.

Lower-order roads are often two-lane. In 2000, 57 percent of all fatalities occurred on two-lane roads and 76 percent of these fatalities occurred on rural two-lane roads. Incentives to States to provide greater funding and technical assistance to local transportation practitioners are needed to improve the safety of these roads.

Question 3. What affect has increased congestion over the last decade had on the condition, as well as performance, of the nation's highways and bridges? What is the most cost-effective way to deal with increasing congestion in our urban areas?

Response. Congestion is an indicator of the operational performance of the highway system rather than one of the physical condition of the infrastructure. However, they are indirectly related in the sense that both are affected by traffic volumes.

Increasing traffic volumes can contribute to both the accelerated deterioration of the infrastructure and to increased levels of congestion. The net impact on the condition and performance of the system depends on both the level of investment in highways and on the type of improvements that are implemented.

The most cost-effective approach to reducing highway congestion is likely to be different for different areas. In most areas, the best solution likely involves increasing the effective capacity of the corridor. This investment can come in many forms, including improved facility management and operations, selective additions of new roads and new lanes, or investments in new or upgraded transit facilities. In other cases, it may be more cost effective to address travel demand through road pricing, land use planning, and economic development policies. A comprehensive strategy incorporating elements of all of these approaches in varying degrees is likely to be the most cost-effective.

Question 4. In your testimony, you stated that "government at all levels may not be able to sustain the rate of increases in infrastructure investment observed in recent years." Given increasingly tight State budgets and the economic downturn in recent years, has there been an indication that State and local governments may not be able to sustain a high level capital investment over the life of the next highway bill?

Response. Combined State and local government capital expenditures increased 37.1 percent from 1997 to 2000, rising even faster than Federal cash outlays during the first 3 years of TEA–21. Consequently, the portion of total capital investment funded by State and local governments rose above 60 percent for the first time since 1959. The rate of growth of State and local funding was unusually high during this 3-year period, relative to historic trends. Given increasingly tight State and local budgets, it would not be surprising if State and local highway capital investments were to grow more slowly in the short term.

While final data are not yet available, preliminary indications suggest that State and local capital investment has grown more slowly than Federal investment in 2001 and 2002. However, there is no indication that State and local governments would have major difficulties in sustaining their capital investment levels in the long term, though the high rates of spending growth experienced from 1997 to 2000 may not be repeated.

Question 5. Please explain how the operational performance of the nation's highways and bridges declined at the same time as their physical condition has improved. What needs to be done to improve the operational performance of our highways and bridges?

Response. Changes in the condition and performance of the nation's highway system over time depend both on changes in travel behavior and demand and on the level and type of investment in highway infrastructure. Some types of highway and bridge improvements (such as resurfacing and bridge rehabilitation) are aimed at preserving the existing infrastructure, while others (such as ITS and lane additions) are designed to increase the effective capacity of the system. During the late 1990's, increases in the level of highway capital investment were accompanied by a shift in highway capital investment from system expansion toward system preservation. The result was a significant increase in system preservation expenditures, which in turn led to improvements in pavement quality and reductions in bridge deficiencies. Investments in system expansion, however, were not able to keep up with increases in highway travel, resulting in increased congestion and declining performance.

Congestion and performance are also affected by a variety of temporary disruptions, such as crashes and breakdowns, work zones, bad weather, and special events. FHWA is working with its State and local partners to improve traffic monitoring, incident response, work zone management, traveler information, and other operational strategies to mitigate the delay caused by these disruptions.

The C&P investment analysis suggests that there are tremendous current and future needs for strategies to address highway congestion and delay, in addition to investment needs to preserve the physical condition of the existing infrastructure. While investment in capacity expansion would be required to address growing congestion problems, this investment can come in many forms. A comprehensive strategy of improving the effective capacity of the highway system through improved facility management and operations, along with selective additions of new roads and new lanes may be the best approach for dealing with the capacity deficiencies identified in this report.

Question 6. I understand that you have called for the creation of a blue-ribbon commission to study and make recommendations on addressing the needs of the Interstate highway system. Can you describe in more detail what you propose the

blue-ribbon commission study? Will the blue-ribbon commission be ready to make recommendations in time to inform the debate for the highway bill next year?

Response. The Interstate System will reach its fiftieth year during the middle of the next reauthorization bill. As the Interstate System approaches this milestone, it is appropriate to critically examine all aspects of this System, the backbone of America's surface transportation network. That is why the Federal Highway Administration is seriously considering a blue-ribbon commission to evaluate the many dimensions of this system, including its needs, conditions, and performance. Additionally, the future of the Interstate System should be examined, including the System's relevance to emerging economic and demographic changes.

RESPONSES OF MARY PETERS TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. We have heard from your testimony that we have seen some improvements in areas such as safety, bridge and pavement ratings due to increased funding levels of TEA–21. At the same time, system performance is on the decline despite our increased investment levels. What needs to be done in the way of improving the operation of our transportation system? Are there barriers within the current funding structure that limit a State's ability to make operational improvements or implement operational programs?

Response. The operation of our transportation system can be improved by monitoring and responding quickly to the many disruptions to traffic, such as incidents and bad weather. Work zones and special events can be better managed. More effective information can be provided to travelers so that they can adjust their routes, schedules, or choice of mode. Traffic signals can be better synchronized and modest design changes, such as turn lanes, can be made to improve traffic flow. These improvements typically involve the application of technology, the deployment of people and equipment to respond to incidents or clear snow, and better coordination of the many agencies which operate or affect local roads.

There are relatively few absolute barriers to spending on operational improvements, but there are numerous impediments and a common lack of priority. Many operational improvements are eligible for Federal funds, but operations have not been emphasized in legislative programs or policy statements as has the traditional focus on construction and preservation.

We have elevated the importance of operations with our Congestion Mitigation Vital Few Goal activities and the creation of our Office of Operations. We are working with our State and local partners to identify and encourage effective practices for incident management, work zone management, traveler information, and development of congestion management partnerships.

Question 2. We have heard a lot about the physical needs in terms of pavement, bridges, and buses for our transportation system. Are there any estimates for needed or desired operational improvements or programs? Intelligent Transportation Systems are tools that can assist in improving systems performance. Are there any estimates for implementing ITS nationally?

Response. A combination of improved operations, capital investments, and behavioral adjustments is needed to maintain flows of people and goods, respond to emergencies, correct unsafe conditions, reduce security threats, and preserve highway assets. Historically, highway agencies have focused most of their attention on building and maintaining road infrastructure. Less attention has been paid to operating the road system to provide the highest level of service possible. With increasing road congestion, the expense and difficulty of building new facilities, and the need for safe and secure highways, this view has begun to change. Many highway officials now recognize that operational strategies, including traffic control and enforcement, incident and emergency operational strategies, ice and snow removal, and the deployment of Intelligent Transportation Systems (ITS) technologies, can make a major difference in how the highway system performs.

We have begun to develop and validate a comprehensive assessment of operations as part of the Highway Economic Requirements System (HERS) for future editions of the Conditions and Performance Report. At this time, we have preliminary estimates for various aspects of operations, as described below.

Major forms of operational improvements in metropolitan areas include incident management, variable message signs, advanced traffic signal control, ramp metering, and emergency vehicle signal preemption. Infrastructure needed to support these strategies includes electronic roadway monitoring and traffic management centers. Over the next 20 years, $8 billion may be needed just to maintain existing investments in metropolitan area operations. Expansion of technologies could cost

an additional $5 billion for expansion at current rates, to $29 billion for more aggressive deployment to meet the most pressing operational needs by 2020.

Weather has a major effect on highway mobility and safety and is a significant expense for State and local highway agencies. Each year, State and local agencies spend more than $2 billion on snow and ice control operations, and over $5 billion annually for infrastructure repair because of snow and ice damage.

Roadway Weather Information Systems (RWIS) provide critical data for efficient and effective responses to bad weather. The total capital cost for a basic nationwide system may be about $32 million for expressways and $54 million for principal arterials. The operation and maintenance cost of a weather station is estimated to be about 15 percent of the capital cost, which adds about $13 million per year to the totals for expressways and principal arterials.

Traveler information systems provide assistance to the individual surface transportation traveler and allow transportation agencies in urban and rural environments to manage service disruptions and congestion. Costs for metropolitan areas may range from $17 million to $41 million for capital and $1 million to $2.4 million a year for operation and maintenance.

There are numerous other areas where investments will improve operations especially in the area of freight transportation. For example, the Federal Railroad Administration estimates that lost time for highway users at the most heavily traveled rail-highway grade crossings on the Federal-aid system will increase from between $5.5 billion to $7.8 billion over the 2003 to 2022 period. Annual hours of time wasted for autos could increase to between 35 million and 123 million hours by 2022. Trucks could spend between 4.9 and 6.6 million more hours behind closed gates by 2022 than presently, depending on how frequently trains passed through crossings during daily highway traffic peaks. Much of these losses can be eliminated by replacing the grade crossings with bridges.

Question 3. In your testimony, you mention the need for metrics and performance measures to better assist decisionmakers in making the proper balance of investments. What metrics and performance measures should be in place nationally to better assist Congress in understanding how and where to invest transportation resources?

Response. One of the purposes of the 1993 Government Performance and Results Act (GPRA) is to "improve Federal program effectiveness and public accountability by promoting a new focus on results, service quality, and customer satisfaction." FHWA has developed a Strategic Plan that sets out long-term programmatic, policy, and management goals. Strategic goals measure the FHWA's contribution to mobility; safety; productivity; the human and natural environment; and national security. Each year, the FHWA prepares a Performance Plan that helps the agency meet the broad goals in the Strategic Plan. These metrics help measure and assess how well the FHWA is delivering products and services to its customers.

The FHWA has been working to develop new metrics that better focus on the impact that the condition and performance of the highway system has on highway-users, our ultimate customers. For example, our Performance Plan has been modified to look at the percentage of travel that occurs on roads with acceptable ride quality, rather than simply looking at miles of pavement. New measures of operational performance have been adopted to measure the annual delay experienced by drivers, rather than simply looking at the percentage of congested roads. We are also engaged in research to better quantify the costs that congestion-related unpredictability of trip time imposes on drivers. As we have worked to improve our understanding of the impacts of different types of investments on highway-users, we have identified areas where we may need to change the type of condition, performance and safety data that we routinely collect. We will continue to work with our State and local partners to identify and obtain the information required to assist decisionmakers at all levels of government in maximizing the effectiveness of their transportation spending.

Question 4. I look forward to working with the Administration on the next reauthorization. When can Congress expect to receive detailed legislative proposals from the Administration for the reauthorization of the transportation bill?

Response. The Administration is working expeditiously to complete its reauthorization proposal. Secretary Mineta has indicated his desire to transmit a reauthorization proposal no later than the transmittal of the President's fiscal year 2004 budget.

RESPONSES OF MARY PETERS TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Thank you for your testimony on the 2002 Conditions and Performance Report. Your statement highlights a simple fact: At existing levels of investment, travelers and freight haulers will continue to experience increased congestion and delays. Our transportation sector is too important to our economy and our quality of life to accept continued decline in system performance. Our greatest challenge will be to increase funding to levels necessary to address this deterioration in performance. In know that the Administration is currently developing its reauthorization proposal. Will your proposal include funding levels that are high enough to ensure that both conditions and performance will improve rather than decline over the next 6 years?

Response. The Conditions and Performance Report provides an important assessment of the needs and investment requirements of the Nation's highways and bridges. Accordingly, the Administration will use this report, along with other policy documents, when developing its reauthorization proposal. The reauthorization proposal will try to strike the appropriate balance between competing policy and budgetary interests.

Question 2. We appreciate your testimony today on the Department of Transportation's upcoming 2002 Conditions and Performance Report. This report provides us with information that is critical to our efforts to write the next transportation bill. When can we expect to receive the full report?

Response. Various officials within the Department of Transportation and the Office of Management and Budget have worked extensively to review, revise and clear the key report findings so that we could share them in today's testimony. However, the full report explores a number of other critical issues that have not been covered today, and these sections have not yet been fully reviewed. Also, due to the sheer size and complexity of the document, significant time will be required for the layout and printing of the report once the content has been finalized.

Based on these considerations, we anticipate that we will be transmitting the report to you in early December of this year; printed and electronic versions of the report should be available for the general public by the end of December.

Question 3. While DOT's Conditions and Performance Report finds that the conditions of our highway system have improved somewhat, the operational performance of our highway system continues to deteriorate. This comes as no surprise to anyone who drives regularly. Each of you recommends an increased emphasis on operations, which is the theme that this subcommittee has addressed twice in the past year with a hearing on Intelligent Transportation Systems and a symposium on operational issues. I intend to address this issue in next year's transportation bill and would appreciate your thoughts on how we can encourage States and metropolitan areas to focus more attention to the operations and management of road systems.

Response. The Federal Highway Administration recognized the importance of operations when it reorganized into core business units and placed operations on a par with infrastructure and safety. Other national organizations, such as the American Association of State Highway and Transportation Officials and the Transportation Research Board, have made similar changes to their committee structures. State Departments of Transportation tend to realign themselves to be consistent with their national partners, so we expect operations to receive increasing emphasis at the State and local levels.

FHWA further reinforced the importance of operations by assigning leadership for our Congestion Mitigation Vital Few Goal activities to our Office of Operations. We are focusing our attention on incident management, work zone management, traveler information, and development of congestion management partnerships.

FHWA met with officials from State and local governments at the National Summit on Operations, held in October 2001. Participants in the Summit recognized that managers of the highway system need timely and comprehensive information, effective traffic management tools, adequate financial resources, and institutional authority and accountability to enable users to make the best use of the transportation system. Much of the discussion centered on an information infrastructure, or "infostructure," and regional operations collaboration and coordination.

Participants discussed an "infostructure" of monitoring technology and data sharing to provide timely, comprehensive information to managers and users of highway and transit systems. The proposed infostructure would include statewide reporting of capacity reducing events on the National Highway System, additional monitoring of freeways and principal arterials in major metropolitan areas, and additional security monitoring of critical infrastructure. Participants also felt that locally determined additional monitoring of traffic conditions, weather, and surface transportation facilities should be encouraged.

An increased emphasis on Regional Operations Collaborations and Coordination (ROCCs) was proposed to provide the institutional coordination and accountability needed to operate highways and transit across jurisdictional and agency boundaries. ROCC activities would: establish and sustain a forum in which regional operations policies, protocols, activities, and projects are defined, discussed, debated, and coordinated by transportation system operators, including State and local transportation and public works agencies, public safety personnel, and transit system operators; carry out regional planning for operations activities, including development, maintenance, and monitoring of effective implementation of a regional concept of operations; set performance targets and report to the public on system performance; prepare a Regional Operations Action Plan, using performance data to identify operational problems, evaluate potential solutions, and facilitate their accomplishment; ensure the coordinated delivery of timely information on transportation system operations to the full range of system users; and provide substantive input to the statewide and/or regional transportation planning process on necessary investments to improve system performance.

STATEMENT OF JOSEPH L. PERKINS, COMMISSIONER, ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES, ON BEHALF OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

Founded in 1914, AASHTO represents the departments concerned with highway and transportation in the 50 States, the District of Columbia and Puerto Rico. Its mission is a transportation system for the Nation that balances mobility, economic prosperity, safety and the environment.

Mr. Chairman and members of the subcommittee, I am Joe Perkins, Commissioner of the Alaska Department of Transportation and chairman of the American Association of State Highway and Transportation Officials' (AASHTO) Standing Committee on Highways, and am appearing before you today on behalf of AASHTO's members, which include the transportation agencies representing the 50 States, the District of Columbia and Puerto Rico. I am here to report to you on AASHTO's Bottom Line Report which we released jointly with you on September 26th and which documents the nation's highway, bridge and transit needs.

First, however, I want to thank you for your recognition of the needs of our nation's surface transportation and its vital contribution to preserving the nation's economy and our quality of life. We appreciate your leadership and efforts to ensure that in the final year of the Transportation Equity Act for the 21st Century (TEA–21), funding will be restored to current levels.

Key Findings

As Congress begins its deliberations on the reauthorization of Federal highway and transit programs, AASHTO with the assistance of the U.S. Federal Highway Administration, the U.S. Federal Transit Administration and the Transportation Research Board has undertaken a comprehensive assessment of the investments needed through 2009 to maintain or improve our nation's surface transportation system.

The results of this assessment show that:

- An annual capital investment of $92 billion by all levels of government for highways and bridges is necessary to maintain both the physical condition and performance of the system over 20 years and explicitly during the next reauthorization cycle. This level of investment holds user cost at less than a 1-percent increase; holds pavement roughness and delay constant; and maintains current levels of system reliability.
- An annual capital investment of $125.6 billion by all levels of government for highways and bridges is necessary to improve both the physical condition and performance of the system over 20 years and explicitly during the next reauthorization cycle. With this level of investment, pavement condition improves by almost 15 percent; delay falls by almost 13 percent despite expected growth in travel; average speeds increase; and decreased user costs equate to an approximate $60 billion per year savings.

From Fiscal Year 1990 to 2000, spending by all levels of government for capital, maintenance and operations grew from $75 billion to $128.5 billion—a 71 percent increase. In Fiscal Year 2000, $64.4 billion from all levels of government was invested in highway and bridge capital improvements. Applying the same rate of growth—71 percent—would increase capital investment by all levels of government to $110 billion, which is comparable to the results of AASHTO's assessment.

- An annual capital investment of $18.9 billion is required between 2004 and 2009 from all levels of government just to maintain the existing physical condition

and service performance of the nation's transit systems, if ridership only grows modestly at 1.6 percent per year. In Fiscal Year 2000, about $9.5 billion was spent by all levels of government on transit capital infrastructure.

- An annual capital investment of $43.9 billion is required to improve the current physical condition and service performance of the nation's transit systems, if ridership continues to grow at 3.5 percent.

AASHTO's assessment of investment needs is based on rigorous, quantitative evaluation using the same data sets and models as used for the development of the U.S. Department of Transportation's Conditions and Performance Report. Highway data used for this assessment is provided to the FHWA by the State transportation agencies, which inventory and analyze 112,000 sample road segments. The source of bridge data is FHWA's National Bridge Inventory data base, and transit system and facility data supplied to FTA by transit agencies.

While AASHTO and FHWA utilize virtually the same data and modeling techniques, there are likely to be differences in the results that are reported. The differences can be attributed to variations in base years and time spans, and modeling assumptions and scenarios.

Key Factors Contributing to Needs

The Backlog. Our nation's repair backlog is a key contributor to our investment needs. Much of the growth in investment needs results from the aging of the transportation system. Over time, weather, ear and age take their tolls on roads, bridges and transit facilities. The repairs, replacements and upgrades needed to bring the existing system up to standard have created a huge backlog of needed investment.

The good news is that with the expanded funding under ISTEA and TEA–21, much progress has been made. The 1999 bridge repair backlog of $87 billion has been reduced to $57 billion today, and the percentage of bridges rated acceptable has increased from 65 percent to 72 percent. More than 80 percent of all roads are rated good to fair. Rural roads, which comprise the great majority of roads, but a much smaller share of travel, have been able to hold their condition relatively stable. Urban roads, in poorer condition to begin with, have deteriorated further. There is continuing improvement in the condition of Interstate pavements, both rural and urban, but despite this progress 18 percent of the Interstate pavements are in poor or mediocre condition, requiring immediate investment.

While we currently have no means of statistically monitoring highway performance, anecdotal evidence and specialized studies make it clear that congestion and declining performance is common. For example, according to the Texas Transportation Institute's most recent Urban Mobility Report, which examines congestion in 75 metropolitan areas, "All of the size categories show more severe congestion that lasts a longer period of time and affects more of the transportation network in 2000 than in 1982. The average annual delay per peak road traveler climbed from 16 hours in 1982 to 62 hours in 2000. And delay over the same period more than quadrupled in areas with less than 1 million people."

With regard to transit, the significant increase in funding made possible through ISTEA and TEA–21, together with expanded State and local investment, helped spur a 22 percent transit ridership increase during the past 6 years, bringing ridership to its highest level in 40 years. However, 22 percent of the nation's buses and 43 percent of its rail rolling stock currently exceed their recommended service life. In rural areas, an estimated 55 percent of the existing fleet has already exceeded their recommended service life.

While ISTEA and TEA–21 enabled us to make great strides, much remains to be done.

The Outlook for Demand. A second factor contributing to needs is demand. The U.S. population grew by 100 million over the last 40 years, and is expected to grow by at least 100 million over the next forty. Fifty-four percent of this travel takes place on major highways—Interstates, expressways and major arterials. These are the very facilities—under the States' jurisdiction—which must serve interstate, interregional, intercity commercial and passenger traffic while increasingly serving as the main streets for connecting us with the activities of our daily lives.

Over the past 30 years, the Nation has experienced extraordinary growth in workers and in their travel. This era has been characterized by the baby boom generation's arrival in the work force, the surge of women into the workplace, sharp increases in driver licensing and auto ownership and a shift in lifestyles. Growth in travel tracks directly with rising incomes, employment and the economy. Over the last decade, vehicle miles traveled (VMT) increased from 2.1 trillion miles to 2.7 trillion, and is expected to grow by another 600 billion by the year 2010.

Since the mid–1990's, transit ridership has increased more than 22 percent from 7.8 billion trips annually in 1995 to more than 9.5 billion trips in 2001. Transit rid-

ership has been growing at a rate of 3.5 percent annually over the last 6 years. If this rate of growth continues, ridership will double in the next 20 years.

Over the next 20 years, domestic freight moved by truck is expected to increase by 70 percent. International trade, which is expected to increase by more than 3 percent annually—doubling by 2020—will strain the nation's highways, ports and gateways. Growing volumes of NAFTA trade with Canada and Mexico, and trade with Latin America, the Pacific Rim and Europe—which is giving Americans and residents of other nations greater access to a wide variety of goods at lower costs—has brought significant challenges. The infrastructure at our seaports has grown older and less efficient. Larger trucks operating on older access routes have to deal with short traffic signal cycles and deficient roadway designs. Key border crossings are increasingly congested and our major trade corridors lack the capacity to accommodate projected freight traffic. Increased investment is needed to fix bottlenecks, provide capacity and enhance security.

In rural areas, the competitiveness of the U.S. agricultural sector depends on an efficient, economic and competitive U.S. domestic transportation system. In urban areas, businesses increasingly are dependent on reliable, just-in-time delivery.

Managing the System. Over the past 20 years, growth in travel on the nation's highways has far exceeded growth in highway capacity. As a result, congestion is a critical problem for metro areas nationwide. It is estimated that more than 60 percent of all delays are the result of non-recurring congestion caused by crashes, weather or other incidents. Efficient management and operation strategies can reduce delays and improve reliability, while also providing such benefits as quicker response by emergency vehicles.

System management and operations covers a wide array of strategies including: incident detection and response; snow and ice management; emergency and disaster response; planning construction disruption; traffic and transit operation and management; and traveler/shipper information. Both capital and operating investments are needed to achieve the benefits of system management. Such investments are eligible for TEA–21 funding, and are an important element for reauthorization.

Other Highway Cost Factors

In addition to the needs estimates produced through the modeling analysis, there are other cost factors, which need to be considered. These include estimates for safety and security, Interstate interchanges, and increasing program delivery costs, which together may equal as much as $11 billion annually.

Safety. On a typical day, 114 people lose their lives on the nation's highways. In the year 2000, a total of 41,821 peoples died and 3.2 million were injured. Studies by the U.S. Department of Transportation show that this staggering number of deaths and injuries results in over a $200 billion per year economic loss to the Nation. AASHTO has developed a Strategic Highway Safety Plan that identifies 22 key emphasis areas targeted at drivers, vehicles, highways, enforcement, emergency medical services and management. We estimate that implementation of activities in these emphasis areas could save even more that the goal of 5,000 to 7,000 lives annually. Implementation is estimated at $3 billion annually in capital costs and $1 billion annually in operating costs.

Security. The heightened threat of terrorism introduces new imperatives to the Nation's highway and transit systems. While our highway and transit network is robust and redundant, the consequences, direct and indirect, of a large-scale attack can be significant. Lost links could have long-term significant economic consequences—not to mention the immediate harm done. It is also critical as a means through which first responders reach impacted areas and by which the public is removed from the area in danger.

Protecting the traveling public and commerce from terrorism will require measures to harden facilities from attack, improve emergency response capabilities, upgrade traffic management during crises, and enhance communications among the public, the military, law enforcement and rescue services. Federal, State and local transportation agencies have a joint responsibility to minimize vulnerability of critical transportation infrastructure assets and to prepare for the transportation role in emergency response and recovery.

Over the past year AASHTO's members examined the security issue, focusing on defense mobilization, asset protection, emergency response preparation and motor carrier security activities, including tracking and credentialing. The cost of enhancing highway and transit security is estimated at $2 billion annually in capital costs and at least $1.2 billion annually in operating costs.

The Cost of Interstate Interchanges. The Interstate is an aging system. Many of the nation's interchanges are coming due for renewal and reconstructing them can be very costly, in part because these projects often involve safety and efficiency im-

provements. There is a sense that these costs may be rising faster than other forms of highway costs.

Given the large number of interchange projects planned for the next 10 years, AASHTO in conjunction with TRB undertook an investigation of the cost of Interstate interchange projects and the portion of total Interstate spending they represent. Twelve States surveyed were chosen to provide diversity in terms of geography and Interstate system extent. The results indicate that over the past decade approximately 10 percent of national Interstate capital spending went to interchanges. Based on current programs, this percentage could double to 20 percent during this decade. In a few States, interchanges costs are consuming one-third to one-half of Interstate capital outlays.

Increasing Program Delivery Costs. The combination of environmental reviews and mitigation and right-of-way acquisition is adding time and cost to transportation projects. The increase nationally is conservatively estimated at $1 billion annually.

Transit Needs

The nation's extensive public transportation network provides access to jobs; mobility for the young, elderly or disabled and helps reduce congestion, conserve fuel, enhance the efficiency of highway transportation, reduce air pollution and support security and emergency preparedness activities. An efficient, safe and environmentally sound public transportation system is essential to moving people in both urban and rural areas.

Transit capital asset needs include:

- Replace of bus and rail vehicles;
- Major rehabilitation of bus and rail vehicles;
- Elimination of the backlog of vehicle need to bring the nation's fleet into a state of good repair;
- Replacement or rehabilitation of bus and rail maintenance and yard facilities, stations and tracks;
- Fleet expansion to accommodate increased ridership demands; and
- Expansion of new rail systems to meet demand

If the nation's urban and rural transit systems only maintain physical conditions and service performance at the levels that are being observed today, annual capital investment needs will be about $19 billion—assuming 1.6 percent annual ridership growth. If the decision is made to improve both the existing physical conditions and improve service performance at the current ridership growth rate of 3.5 percent, the annual transit capital need is about $44 billion.

Core Capacity Needs. In many of the nation's largest cities, transit ridership has significantly increased during the last 6 years. As a result, existing rail systems are operating near to, or in excess of, their physical capacity and above a level that provides acceptable passenger comfort and safety. To meet this demand, upgrades will be necessary, including for example, new signal systems to allow more throughput of rail vehicles, double tracking of existing rail lines to provide for additional system capacity and station platform extensions.

New Starts. Many areas across the country have recently completed or are seeking major rail transit capital improvements. Between 1996 and 2001, more than 350 miles of rail transit service were added in 20 cities. The demand for future rail projects continues to grow. Currently, 26 States and the District of Columbia have 78 New Start projects that have moved beyond the study phase and which carry a price tag of an estimated $47 billion. In addition, more than 150 studies are underway around the country.

Rural Public Transportation Needs. Mobility and access to meet the needs of the 60 million people living in rural areas must include the availability of safe and reliable public transit service, especially to meet the needs of the growing elderly population retiring to rural areas, the disabled and the young—all dependent on alternatives to the automobile. Rural transit needs consist of two major components—the maintenance of the existing system and the expansion of the system to address unmet needs.

The total estimated annual need for rural transit is:

- $191 million for replacement and rehabilitation of existing general public vehicles; and
- $194 million for replacement and rehabilitation of specialized vehicles
- $50 billion for replacement and rehabilitation of intercity vehicles
- $81 billion for replacement and expansion of rural general public and rural specialized maintenance and administrative facilities

• $495 billion expansion of rural general public, rural specialized and rural facilities to improve service

In total, rural public transportation needs are estimated at $0.5 billion annually for the maintain condition and performance scenario, and $1.0 billion for the improve service performance scenario.

Benefits of the Surface Transportation System

Transportation is vital to the national economy and to our quality of life. Its benefits extend from maintaining America's competitiveness in the global economy to providing access to jobs and education. Here is a sampling of the many ways transportation contributes value to every aspect of American life:

• Today, 11.3 million Americans—one in 11—are employed in transportation occupations.
• Every billion dollars of Federal highway investment generates 47,500 jobs; for every billion in transit investment, job generation is virtually the same.
• In 1997, the country's roads, railroads, airways, waterways and pipelines shipped 11 billion tons of freight valued at $7 trillion.
• The Federal-aid highway program creates 2.5 acres of wetlands for every acre it takes for road construction.
• Since 1970, States have built more than 1,600 miles of noise barriers at a cost of more than $1.9 billion.
• Over the past 11 years, $4.9 billion in enhancement projects—such as bike paths and the preservation of historic bridges and train stations—have been programmed for almost 15,000 communities.
• Today, 28 percent of U.S. production is based on just-in-time practices, which is dependent on a healthy transportation system.

Travel, Tourism and Recreation. Transportation and tourism are vital to our economy. In 2000, 51 million foreign visitors came to the United States, spending $100 billion, generating more than 1.1 million jobs and making tourism America's fourth-largest export. Travelers to the United States from outside North America spend an estimated $220 per visitor on transportation. Although many use transit or tour buses initially, significant numbers shift to private automobiles on second and third visits.

Domestic travel and tourism dwarf international visits. Americans touring America spent $481 billion and generated an additional 6.5 million jobs during 2000. According to the Travel Industry Association of America, 43.9 million adults in the U.S. took some 272 billion business trips during 1998.

Recreation is one of the fastest growing sectors in the U.S. economy, expanding at 5 percent a year. The American Recreation Coalition estimates that there are 8.6 million recreation vehicle-owning households now and 10.4 million expected by 2010. The recreation sector is also heavily dependent on federally owned lands that comprise 650 million acres, or about 29 percent of the total land area of the country. National Park Service areas get more than 273 million visitors annually, who bring more than $5.5 billion in spending a year to nearby communities. The use of Forest Service roads, which total over 380,000 miles, has increased 15fold over the past 20 years.

Business and leisure travelers, whether foreign visitors or next door neighbors, depend on our nation's infrastructure for access to a variety of activities and destinations. Transportation investment helps generate greater tourism earnings by making tourist destinations more accessible. Investments to relieve congestion, improve road conditions and signage and increase parking facilities and scenic turnouts help increase tourist volumes, lengths of stay and spending while reducing tourist transportation costs. Investments in transit in and around popular tourist destinations create a more attractive and accessible environment for visitors.

The Bottom Line Series of Needs Documentation

The Bottom Line Report, which is attached, presents AASHTO's assessment of the nation's current and projected highway and transit capital investment needs, and was prepared as one source of documentation to inform the coming debate on reauthorization of the Federal highway and transit programs. We recognize, however, that the all the modes comprising the nation's transportation system are inextricably linked and we need all parts to function well for the health of the entire system. Moreover, over the next year Congress may consider reauthorization of Amtrak, freight rail financing and reauthorization of the Federal airport program as well as reauthorization of the Federal highway and transit programs. Therefore, the Highway and Transit Bottom Line Report is the first in a series of Bottom Line Reports that are underway. Others that are recently completed or currently underway include AASHTO's Freight Rail Bottom Line Report; AASHTO's Intercity Rail Pas-

senger Report; and AASHTO's Aviation Bottom Line Report, being prepared with cooperation from the National Association of State Aviation Officials.

AASHTO's Freight Rail Bottom Line Report concludes that to simply keep up with freight rail's share of forecasted demand, the freight rail system needs substantial addition capital investment. Estimates include:

- $13.8 billion for rail safety, including warning systems, grade separations, grade crossing eliminations and track relocations for both freight and passenger systems.
- $11.8 for short-line improvements, including upgrading of tracks and bridges to handle the newer 286,000 pound and 315,00 railcars coming into service.
- $80 billion to $100 billion over 20 years for Class I infrastructure repair and maintenance.
- $70 billion over 20 years for Class I infrastructure improvements above and beyond repair.

The total cost to achieve this "base case" scenario is estimated at $175 billion to $195 billion over the next 20 years. A more aggressive investment strategy to capture a larger portion of the forecast growth in freight demand would require an additional $30 billion.

Intercity Passenger Rail. AASHTO believes that intercity passenger rail service is a basic element of the nation's multimodal transportation system. Passenger rail offers opportunities to supplement highway and airport capacity in congested and rapidly growing traffic corridors, offers an essential transportation alternative and contributes to a more dependable and resilient transportation system. At least 36 States are involved in the operation and/or planning of intercity passenger rail corridors. By their estimate, over the next 20 years, $60 billion in capital investment is needed for these rail corridors, which include the federally designated high speed rail corridors. This level of investment does not include additional capital resources needed for longer distance train routes nor does it include the costs of operations. Linked to air, bus and passenger car transportation, these corridors will expedite travel for short-to-mid-length trips in transportation corridors where highway travel is increasingly congested and air travel is increasingly difficult.

Mr. Chairman and members of the committee, AASHTO looks forward to working with you over the coming year as you begin your deliberations on reauthorization of the Federal highway and transit programs. I will be pleased to answer any questions now or that you may have for the record.

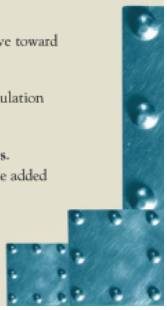

TRANSPORTATION
INVEST IN AMERICA
THE BOTTOM LINE
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS



AT A GLANCE

- An annual investment of **$92 billion** for highways and bridges, between 2004 and 2009, is necessary ***to maintain*** the physical condition and performance characteristics of the system.
- An annual investment of **$125.6 billion** for highways and bridges is necessary ***to improve*** the physical condition and performance characteristics of the system over 20 years.
- An annual capital investment of **$19 billion** is required, between 2004 and 2009, ***to maintain*** the physical condition and service performance of the nation's transit systems, if ridership only grows modestly at 1.6 percent per year.
- An annual capital investment of **$44 billion** is required ***to improve*** the physical condition and service performance of the nation's transit systems, if ridership continues to grow at 3.5 percent per year.
- In 2000, transit investment from all levels of government totaled **$33.8 billion**, with $9.5 billion going to capital investment.
- The 1999 FHWA Conditions and Performance Report placed the repair backlog at **$167 billion** for highways and **$87 billion** for bridges.
- In 2000, highway expenditures from all levels of government totaled **$127.5 billion**, with **$64.6 billion** going to capital investment.

- Highway vehicle miles traveled (VMT) increased 600 billion over the past decade from 2.15 to 2.75 trillion. VMT is expected to grow by another **600 billion** over the next 10 years, an annual VMT growth rate of 2.2 percent.
- At least **$18 billion** for highway infrastructure capital costs over six years and an additional **$1 billion** per year for operating costs will be needed to implement AASHTO's Strategic Highway Safety Plan, which has a goal of saving 5,000 to 7,000 lives each year.
- At least *$12 billion* in capital investment and **$1 billion** in annual operating assistance will be needed for highway and transit security over the next six years.
- Every billion dollars of federal highway investment generates **47,500 jobs**; for every billion dollars in transit investment, job generation is virtually the same.
- 11.3 million Americans — **one in 11** — are employed in transportation occupations.
- In 1997, the country's roads, railroads, airways, waterways and pipelines shipped 11 billion tons of freight valued at **$7 trillion**.
- International trade equivalent to a percentage of U.S. Gross Domestic Product increased from 13.4 percent in 1990 to **24.1 percent** in 2000.
- The federal-aid highway program creates **2.5 acres of wetlands** for every acre it takes for road construction.
- Since 1970, states have built more than **1,600 miles of noise barriers** at a cost of over **$1.9 billion**.
- Over the past 11 years, **$4.9 billion** in enhancement projects — such as bike paths and the preservation of historic bridges and train stations — have been built in more than 14,000 communities.
- Today, **28 percent** of U.S. production is already based on just-in-time practices. As more firms move toward such practices, the economy becomes more dependent on a healthy transportation system.
- At the millennium, the U.S. population stood at **281 million**, up 100 million since 1960. Our population is expected to grow by at least 100 million in the next 40 years.
- Between 1980 and 2000, average commutes lengthened by four minutes nationally, to **25.5 minutes**. The fact that this increase was limited to four minutes even though 35 million new commuters were added to the rolls, is in part a tribute to our transportation system's flexibility.





ACKNOWLEDGEMENTS

This report is the result of the efforts of many people. The Bottom Line Work Group, which is one of six work groups under the guidance of the AASHTO TEA-21 Reauthorization Steering Committee, prepared this report. A Bottom Line Advisory Committee, chaired by past AASHTO President E. Dean Carlson with members including several state department of transportation chief executive officers, provided oversight on behalf of the AASHTO Board of Directors. The work of the Bottom Line Work Group was supported by Alan E. Pisarski, who as a consultant to AASHTO provided valuable assistance in compiling and writing the document.

Nancy Ross of the New York Department of Transportation, who chaired the Bottom Line Work Group, was instrumental in working with AASHTO staff, FHWA staff, consultants, and other state DOT representatives to lead this important effort, which has resulted in this significant input into the TEA-21 reauthorization process.

Ron Epstein of New York DOT and his team are also to be recognized for their work, in cooperation with the American Public Transportation Association (APTA) and the Community Transportation Association of America (CTAA) in developing the transit component of the Bottom Line Report.

Susan Binder, Ross Crichton and their colleagues at the Federal Highway Administration provided technical advice on the nature of the modeling, the interpretation of past results, and alternative scenarios. Richard Steinmann of the Federal Transit Administration provided similar assistance with comparable transit information.

Some of the information in this report was developed through research conducted as part of AASHTO's National Cooperative Highway Research Program (NCHRP) projects 8-36, 20-7, and 20-24 and Transit Cooperative Research Program (TCRP) Project J-6. The NCHRP research was managed by Ronald D. McCready, NCHRP's senior program officer, and the TCRP research was managed by Christopher W. Jenks, TCRP manager.

AASHTO wishes to express its profound appreciation to all of those individuals who devoted long hours and shared their special knowledge to produce the Bottom Line Report. We believe it will be a key document as legislation reauthorizing TEA-21 is considered in the coming year.

The following is a list of specific individuals who provided important assistance in the development of this report.

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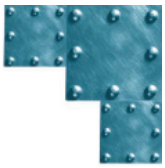
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KEY FINDINGS

As Congress approaches the reauthorization of federal highway and transit programs, AASHTO, with the assistance of the Federal Highway Administration, the Federal Transit Administration and the Transportation Research Board, has taken a comprehensive look at the investments needed from 2004 through 2009 to maintain or to improve our nation's transportation system.

Transportation is vital to the national economy and to our quality of life. Its benefits extend from maintaining America's competitiveness in the global economy to providing access to jobs and education. Likewise, the costs of an inadequate transportation system are severe, including congestion, highway fatalities, and the inability to access health care.

The following are key findings of this analysis.

HIGHWAY INVESTMENT REQUIREMENTS

A Scenarios Approach to Future Investment

To estimate highway and bridge investment needs, two goal-based scenarios were employed. The goals of the "Maintain Conditions and Performance" scenario were to hold user costs constant, assure no increase in delay, maintain system physical condition and prevent further degradation. The goals of the "Improve Conditions and Performance" scenario were to make economically justifiable investments that improve pavement condition, increase average speeds, and reduce delay and user cost. The performance of these scenarios was compared to 2004 baseline conditions that measured four factors: pavement roughness, delay, average speed, and user cost. The analysis shows the following.

Cost to Maintain

An annual investment of **$92.0 billion** by all levels of government for highways and bridges is necessary to maintain **both** physical condition and performance characteristics of the system over 20 years and explicitly during the next reauthorization cycle. This scenario includes cost estimation for roads on new rights-of-way as well as capacity expansions through lane additions within existing facilities. This level of investment holds users' costs at less than a one percent increase. Pavement roughness and delay are also held constant. Levels of system reliability remain about the same as well. In FY 2000, $64.5 billion from all levels of government was invested in highway and bridge capital improvements.

Cost to Improve

An annual investment of **$125.6 billion** by all levels of government for highways and bridges is necessary to improve **both** physical condition and performance characteristics of the system over 20 years and explicitly during the next reauthorization cycle. This scenario is analogous to the Maximum Economic Investment scenario in the FHWA Condition and Performance Reports of recent years. The FHWA approach identifies beneficial investments that are possible within the constraints the modeling process used, and describes resulting performance effects.

This level of investment substantially improves the system by the end of the reauthorization period. Pavement condition improves by almost 15 percent from the base period. Much of this improvement

occurs in urban areas, where pavements are currently much poorer in quality than in rural areas. This reduces but does not eliminate that disparity. Delay falls by almost 13 percent despite the expected VMT growth. Average speeds also improve considerably with gains in both rural and urban areas. User costs drop from $937 per 1000 miles of travel to $913. This equates to roughly a $60-billion-a-year saving.

TRANSIT INVESTMENT REQUIREMENTS

Cost to Maintain

An annual capital investment of **$19 billion** is required between 2004 and 2009 from all levels of government just to maintain the existing physical condition and service performance of the nation's transit systems, if ridership only grows modestly at 1.6 percent per year. In FY2000, about $9.5 billion was spent on transit capital infrastructure investments, about one-half of the minimum requirement based on the lowest range of transit ridership growth.

Cost to Improve

An annual capital investment of **$44 billion** is required to improve the current physical condition and service performance of the nation's transit systems, if ridership continues to grow at 3.5 percent and if a decision is made to improve conditions and service quality for all assets and services.

The magnitude of transit capital needs will depend in large part on ridership growth, and on policy decisions regarding the desired physical condition and service performance of the system. Significant increases in current transit infrastructure investment levels will be required from federal, state, and local governments to address state-of-good-repair and normal replacement needs, just to maintain the physical condition and performance of the existing system. Continued growth in ridership will also require substantial capital investment to accommodate increased demand. Similarly, if the physical conditions and service standards are to improve, capital needs will be much higher than if the system is maintained in a condition similar to today's.

	Maintain Conditions and Performance Scenario	Improve Conditions and Performance Scenario
Highways and Bridges	92.0 billion	125.6 billion
Transit	18.9 billion	44.0 billion

OTHER KEY FINDINGS

Today, 11.3 million Americans are employed in transportation occupations. The country's roads, railroads, airways, waterways and pipelines shipped 11 billion tons of freight valued at $7 trillion. International trade has grown from the equivalent of 13 percent of the GDP in 1990 to 24 percent today. Freight will double in the next 20 years, straining our highways, ports and border gateways. Just-in-time deliveries are vital to business productivity and overnight freight to customer convenience.

Meeting the transportation needs of metropolitan areas, which generate 84 percent of our GDP, will require improving community connectivity through investment in transportation, and making the movement of goods and people more efficient. Transportation connects rural residents to jobs, shopping and health care, and can mean the difference between isolation and opportunity.

Travel and tourism is the number-one industry in several states and in the top three in almost every state, generating $580 billion in 2000.

Each billion of highway investment generates 47,500 jobs, and each billion of transit investment generates a similar number. More than 54 percent of all public transportation trips in the nation are reported to be work-related, confirming transit's importance to the economy.

HIGHWAY NEEDS

Repair Backlog

Over time, weather, wear and age take their toll on roads and bridges. The repairs, replacements and upgrades needed to bring the existing system up to standard have created a huge backlog of needed investments. These investments are justified immediately to capture benefits (relieving congestion or saving lives) or to prevent further deterioration that leads to higher investment needs. The 1999 FHWA Conditions and Performance Report placed the backlog at $167 billion for highways and $87 billion for bridges.

Travel Trends

The forecasts of vehicle miles traveled (VMT) growth are derived from state and local predictions based on factors such as population, incomes, household composition, and freight trends. They indicate that growth from 2004 to 2009 will average 2.2 percent per year, or 50 percent over 20 years. To put this in perspective, VMT increased approximately 75 percent over the past 20 years to 2.75 trillion vehicle miles traveled by 2000. Even with projected growth rates lower than those of the past 20 years, highway VMT may reach 3.35 trillion by 2010.

Physical Condition

Although expanded funding under ISTEA and TEA-21 has improved the nation's highways in recent years, much remains to be done. More than 80 percent of roads are in the "very good/good/fair" range. Interstate pavement conditions in both rural and urban areas are improving. The condition of rural roads, which comprise the great majority of roads but a much smaller share of travel, has been able to hold relatively steady. However, urban roads, in poorer condition to begin with, have deteriorated further. In 1999, FHWA estimated that just to maintain the 47,000 mile Interstate Highway System in its current condition would require an investment of $10 billion annually, over and above current investment.

System Performance

Evidence and specialized studies make it clear that congestion and declining performance are common in our nation's highway systems. Commute times have increased; congestion is increasing in all sizes of metropolitan areas; and according to a 2000 FHWA customer survey, the single largest source of motorist dissatisfaction is "traffic flow."

TRANSIT NEEDS

The nation's extensive public transportation network provides access to jobs, mobility for the young, elderly and disabled and helps reduce congestion, conserve fuel, enhance the efficiency of highway transportation, reduce air pollution and support security and emergency preparedness activities. An efficient, safe and environmentally sound public transportation system is essential to moving people in both rural and urban areas and to the health of the national economy.

Public transportation services are currently available in 319 urbanized areas, and every state has some level of public transportation service available to its rural areas. There are:

- 556 public transportation operators in urban areas;
- 1,260 organizations that provide public transportation services in rural areas; and,
- 3,660 organizations that provide public transportation services to the elderly and disabled people.

Increased federal, state and local investment in transit has helped spur a 22 percent ridership increase during the past six years, with the 9.5 billion passenger trips during 2001 — the highest level in 40 years. Continued ridership growth at levels comparable to those actually observed over the last six years would result in an average increase in passenger trips of approximately 3.5 percent annually, or a 100 percent increase over the next two decades.

Today, 22 percent of the nation's buses, and 43 percent of its rail rolling stock, exceed their recommended service life. An additional 47 percent of buses and 11 percent of rail rolling stock will exceed their recommended service life within the next six years.

Sizable infrastructure investment is required to accommodate increased ridership demands, including the construction of new transit systems and expansion of existing fixed-guideway transit systems. Underinvestment in rural and specialized transit services has resulted in substantial unmet needs and under-served areas.

Significant infrastructure investment is required to address the replacement and rehabilitation needs of other transit assets, including, but not limited to: bus and rail maintenance and yard facilities; stations, track, signals, switching systems, power generation and distribution facilities, structures, fare collection and communication systems, and other associated capital equipment.

Technical Approach

In preparing this assessment, AASHTO incorporated the Federal Highway Administration's Condition and Performance (C&P) process and other analytical tools developed by federal agencies to assess the needs of the highway, bridge and transit systems, supplementing them with the knowledge and experience of state departments of transportation.

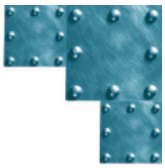
It should be recognized that these AASHTO statements of need are being prepared in parallel with FHWA's preparation of its forthcoming 2002 Conditions and Performance Report, so AASHTO will not have the benefit of the C&P findings in its analysis.

This analysis incorporates FHWA and FTA methods and assumptions, with two notable differences:

- The C&P report employs a 20-year time frame, while AASHTO's Bottom Line Report focuses on the six-year reauthorization period of 2004-2009.
- The C&P report starts from year 2001, while AASHTO's report starts from 2004.

Based on these differences, it would be expected that AASHTO's assessment of needs, starting from a base point in the future with higher traffic volumes, a more deteriorated system and a greater backlog of investments to be made, would show greater investment requirements than the FHWA report.

Cost estimates in this report are expressed in year-2000 dollars.



THE VALUE OF TRANSPORTATION INVESTMENTS

INTRODUCTION

Transportation is vital to the national economy and to our quality of life. Its benefits extend from maintaining America's competitiveness in the global economy to providing access to jobs and education. This section addresses many of the interactions between Americans and their transportation system, and how that system affects people's lives. It demonstrates the value of transportation and transportation investments to every aspect of American life.

EMPLOYMENT AND OPPORTUNITY

Transportation has long been a leading generator of jobs, both directly through the construction, operation and maintenance of the nation's transportation system and indirectly through its support of the broader economy by making the movement of people and goods possible.

Today, 11.3 million Americans — one in 11 — are employed in transportation occupations. More than eight million of these workers are in industries directly linked to surface transportation reauthorization.

Transportation Jobs, 1999 (Millions)

Type of Employment	Surface Transportation	Aviation, Maritime	Total
Transportation Operations	2.3	2.1	4.4
Vehicles and Equipment Manufacturing	1.1	.8	1.9
Related (Highway Construction, Auto Dealers, Gas Stations)	4.4	0	4.4
Government Employment (Aviation Operations, Public Transit)	0.4	0.2	0.6
Total	8.2	3.1	11.3

Source: National Transportation Statistics, 2000.

All these occupations depend on a viable transportation system. They will continue to thrive only as long as strong investment in transportation infrastructure is sustained.

Benefits of Transportation Investment

The direct benefits of transportation investment have been thoroughly quantified. Each billion dollars of federal highway investment generates 47,500 jobs: 26,500 as roads and bridges are built and an additional 21,000 as those who earn their money directly from transportation activity buy goods and services. For every billion dollars in transit investment, job generation is virtually the same as that for highways.

TRANSPORTATION AND ECONOMIC ACTIVITY

Transportation is a pillar of the American economy. The ability to move people and goods quickly, cheaply, and efficiently has enabled the U.S. to sustain the world's largest and most successful economy. To understand the importance of transport in a nation the size of the United States, we need only know that the *average* freight shipment length in the United States is 472 miles — more than the distance between London, England and Hamburg, Germany, two of Europe's largest seaports.

Freight Movement

Freight movement uniquely underscores the importance of efficient transport to the national economy. In 1997, the country's roads, railroads, airways, waterways, and pipelines shipped 11.1 billion tons of freight valued at nearly $7 trillion.

Although transportation costs have declined significantly throughout the nation's history, they still make up an important part of the total cost of certain goods. Almost 10 percent of the value of agricultural products is consumed by transportation costs. Other industries — such as motor vehicles, iron, steel, and food products — also rely heavily on efficient transport, with transportation costs ranging between 3.7 cents and 6.1 cents per dollar of output.

Adoption of just-in-time logistics and the blossoming of technology industries has caused smaller, more frequent shipments of high-value, low-weight goods to lead the growth in U.S. freight shipments. Although shipments of below 1,000 pounds accounted for only 18 percent of the value of all shipments in 1977, they accounted for 32 percent by 1997.

The importance of efficient transportation to our economy is clear.

Transportation Investments Decrease Transit Time

Sound transportation investments reduce transit time — the time it takes a motor carrier to make a delivery. Reduced transit time means lower labor costs and more efficient use of truck fleets, both of which help carriers cut expenses. Reduced transit times also can extend the reach of companies to new markets and new suppliers.

Transportation Investments Increase Reliability of Shipments

Increased transportation reliability lowers the costs of business. When reliability improves, companies can reduce their inventories, spare parts and storage of finished goods. They no longer need to keep extra material on hand to guard against late deliveries. In some areas, companies now can plan for delivery of products within a 15-minute window even on runs of 10 or more hours.

Transportation Investments Reduce Inventory Costs

Improvements in transportation reliability have created the possibility for service innovations such as just-in-time logistics systems. These processes use information technology to optimize production and transportation, enabling customers to keep inventories at low levels and improving supply chain management. Today, 28 percent of United States production is already based on just-in-time practices. As more firms move toward such practices, an efficient transportation system becomes even more critical to a healthy economy.

Transportation Investments Make Business More Efficient

The integration of transportation, logistics and production is not only reducing costs, opening up new markets and making businesses more competitive but also spurring what has been called "the business reorganization effect." As companies integrate logistical gains into their operations, they are able to restructure themselves to seek additional productivity gains. The resultant economies of scale and cost reductions enhance the competitive advantage of those businesses. None of this can occur, however, if the speed and reliability of the freight transportation system is perceived as deteriorating.

Transportation Investments Preserve Productivity Gains

Congestion, with its resulting delays, is especially problematic for freight transportation. Continued deterioration of the reliability of the highway system threatens the productivity gains of businesses and their employees. A recent study indicated that, on average, carriers value an hour of transport time saved at $168. However, avoiding an hour of non-scheduled delay was valued at $371. In other words, system reliability is nearly twice as valuable as system speed.

Rate of Return of Highway Investment

The economic benefits of highway investment are substantial. In recent years, economists have been refining how they measure the impact of transportation investment on the economy. In the years immediately following the construction of the Interstate Highway System, the rate of return on public investment was dramatic: for every dollar of investment, there was an annual rate of return of 54 cents, which meant that investments recovered their costs in two years. As the system matured and the benefits of initial connectivity decreased, the annual return on investment was reduced, but still averaged 22 cents on the dollar during the 1980s. During the 1990s, the rate of return was about 17 percent; it has been rising since 1993.

Over the past 30 years, investments in the Interstate Highway System have produced an average rate of return two times that of private capital and four times that of bank commercial interest rates.

Average Net Rates of Return Per Dollar Invested in Highways

	1960-69	1970-79	1980-91	1960-91 Average
Highway Capital	0.54	0.27	0.22	0.32
Private Capital	0.16	0.18	0.17	0.17
Interest Rate	0.05	0.08	0.10	0.08

INTERNATIONAL TRADE AND TRANSPORTATION

International Trade and the Economy

Transportation costs significantly affect the competitiveness of our products in foreign markets and the prices of foreign goods. Transportation investments that make the flow of goods across our borders more efficient help control these costs.

The importance of international trade as a factor in our economy continues to grow. The value of international imports and exports grew at an annual rate of 9.3 percent during the 1990s, from $891 billion to $2.152 trillion, nearly double the 5.5 percent rate of GDP during the same period. This growth has increased the significance of international trade to our economy — equaling 24.1 percent of GDP in 2000, compared to 13.4 percent in 1990.

The agricultural sector — deeply concerned with U.S. international trade — provides a clear example of the importance of transportation to the U.S. economy. The agricultural sector generates about 8 percent of the Gross Domestic Product. Factoring in farmers, production and processing, this sector employs over 10 million people (about 8 percent of the labor force). The agricultural sector is the largest user of freight transportation services. Taking into account the movements of raw commodities, processed products and production inputs such as fertilizer and machinery, agriculture accounts for nearly one-third of all freight transportation services provided in this country.

Efficient, economical and competitive transportation makes possible the specialization in agricultural production that gives all Americans access to a wide variety of high-quality, reasonably priced food products. All modes of transportation are important to agriculture. Trucks are the most important, moving 45 percent of all agricultural products (measured in ton- miles), railroads follow with 32 percent and inland waterways, with 12 percent. The shares vary greatly by product.

Agriculture is a critical contributor to U.S. competitiveness in the world economy, in large part because of the efficiency of the U.S. domestic transportation system. Despite relatively high production costs, the U.S. maintains a positive trade balance in the sector, exporting agricultural products with a value of more than $200 billion a year. In the domestic market, a dollar of agricultural product requires — on average — about 10 cents of transportation services. In many foreign markets, the cost of transportation services can be twice as high.

To take a single example, the total production cost of a bushel of soybeans in the U.S. is well over a dollar higher than some South American producers — $5.11 compared to the cost in Brazil. However, the U.S. internal transport and marketing cost is 43 cents compared to $1.34 in Brazil, leading to a final price that makes U.S. soybeans competitive in world markets, which would not be the case without transportation efficiency. Competitors, however, do not sit still. Brazil is making inland-waterway improvements that will significantly reduce internal transportation costs for soybeans. To remain competitive, the U.S. must maintain and improve the efficiency of its transportation system.

Overseas Inland Trade — Truck Traffic on U.S. Highway Network, in 2020



Source: "National Freight Movements: Trends/Issues/Forecasts/Policy Implication," Office of Freight Management and Operations, U.S. Department of Transportation, FHWA

Trade Corridors

Increased investment in maintaining and adding lanes to our trade corridors, and improving and replacing bridges on them, can speed the movement of international trade. Goods entering the United States in international trade move along highways, railroads or waterways toward their final destination. Inland trade corridors have traditionally followed the east-west development of our major population and industrial centers and reflected the importance of trade with Europe. With NAFTA, however, our north-south corridors have become increasingly significant. The future needs of these corridors are extensive, and their lack of capacity to accommodate future traffic is a major national challenge. Because these corridors involve multiple states, it is even more difficult to fully meet projected needs.

Other deficiencies in our trade transportation network include highway and rail access limits at ports, intermodal facility congestion, physical restrictions, and highway-railroad grade crossings.

Conclusion

International trade, expected to double by 2020, will strain highways, ports, and gateways. The level of investment required to meet projected needs is enormous. A recent study estimated that $92 billion would be required during the next 20 years just to meet desirable performance standards for highways, ports, and airports in 13 southeastern states and Puerto Rico. Studies in other regions of the country have identified a comparable level of investment needs to accommodate the projected growth in international trade.

Growing concern for these issues is reflected in the number of associations or alliances that have been formed to address the infrastructure needs of the future. The solution to these problems requires not only additional investment, but also public-private partnerships.

TRANSPORTATION AND SOCIETY

At the millennium, the U.S. population stood at 281 million, up 100 million since 1960.

The 1990s saw several surprising demographic trends, including higher-than-expected population increases. The South and West gained 77 percent of the nation's growth, down from 90 percent in the 1980s. Growth in major metropolitan areas was driven by immigration from abroad and a strong birthrate, rather than by migration from rural areas.

Today, 60 percent of Americans — 160 million people — live in the 50 metropolitan areas with populations of greater than one million; 20 percent live in smaller metropolitan areas with fewer than a million people; and the remaining 20 percent live in rural areas. Although most people live in the metropolises in which the greatest congestion occurs, the large numbers of people living in smaller cities and rural communities also have substantial, and growing, transportation needs as they exercise their choice of residential and work locations.

Suburban-Urban Balance

The long-term trend of the 20th century was toward the increasing number and size of metropolitan areas, and suburban growth within those metropolitan areas. Since 1950, metro areas have grown from 56 percent of national population to 80 percent. Suburban areas grew faster than their central cities.

Rural Challenges

Nearly 60 million Americans live in rural communities, and agriculture no longer dominates their economic life. Manufacturing, tourism and other services industries employ growing numbers in these areas, increasing the importance of effective transportation to link these dispersed communities. This will be problematic, because rural households already have by far the highest share of their spending going to transportation. However, lower housing costs more than compensate for these extra expenses.

Transitions

America over the past 30 years has experienced extraordinary growth in workers and in their travel. This era has been characterized by the baby boom generation's arrival in the work force, the surge of women into the workplace, sharp rises in driver licensing and auto ownership and a shift in lifestyles. There is immense time pressure in our society, perhaps best characterized by the fact that more than 40 percent of spending for food is for meals outside the home. In 1995, 24 percent of African American households and 12 percent of Hispanic households were without vehicles, compared to the average of 8 percent for all households. As minority incomes rise, it is expected that vehicle ownership and travel will increase as well.

An Aging Society

By the year 2030, the proportion of Americans over age 65 will increase from 12 percent to 20 percent. The number and kinds of trips made by, and for, the elderly will change dramatically. A healthier, more affluent elder populace accustomed to driving will add to vehicle trips. Already, retired citizens make almost as many non-work trips as the general population. Miles of travel by retired citizens have grown from less than half of that by all ages to about two-thirds of that.

An Immigrant Nation

As it was a century ago, America increasingly is once again a nation of immigrants. As many as 14 million people may have immigrated to the United States during the 1990s, generating about 40 percent of the decade's population growth. From a transportation standpoint, immigration often means immediate additions to the work force – and to the ranks of commuters. They have also concentrated in the areas of greatest growth – cities and the South and West.

TRAVEL PATTERNS

Although suburb-to-central city commutes were the primary concern of transportation planning for generations, two factors have changed. First, work trips have become more dispersed in time and geography, especially to suburban job sites, and therefore are more difficult to serve. Second, work trips account for no more than 20 percent of all trips, especially as women travel outside the house on family and personal business. Overall, travel has increased by over 160 percent since 1969.

Commuting

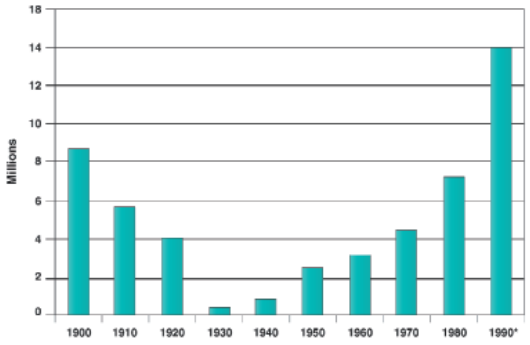
Over this past decade, commuters driving alone increased from 73 percent to 76 percent, carpooling and walking decreased, while transit's share remained at five percent. Over the six years since 1996, transit ridership surged by 22 percent, but its relative share of commuting held constant for the 1990s, because of an overall increase in workers of 11 percent.

Share of Commuting Travel — (percentages)

	1990	2000
Drive alone	73	76
Carpool	13	12
Transit	5	5
Taxi	0	0
Motorcycle	0	0
Bicycle	0	0
Other	1	1
Walked only	4	3
Worked at home	3	3

Source: 2000 U.S. Census, Journey to Work Statistics.

Immigration to the U.S. — 1900-1990



Between 1980 and 2000, average commutes lengthened by four minutes nationally, to 25.5 minutes. The fact that this increase was limited to four minutes, even though 35 million new commuters were added, is a tribute to our transportation system's flexibility. However, it is also evidence that we are reaching the upper limits of what the present system is capable of absorbing. While household size declined during this period, all major household related growth measures — vehicles, drivers, and workers — continued to grow.

America in the coming decades will be an aging society operating in a global economy. This will be a world in which skilled workers will have strong leverage in the marketplace. It will be a challenged affluent society in which mobility will be central to meeting our social and economic goals. Transportation investment must recognize these patterns and trends.

TRANSPORTATION AND COMMUNITY

In a nation as vast as the United States in area, population and economic productivity, "community" is defined in many ways. But whether we speak of the national community of American citizens, or the neighborhood communities in which we live and work, transportation helps define them and enables our participation.

Metropolitan Communities

Metropolitan areas are the economic engines of the nation with an even greater share of jobs and GDP, at 84 percent, than even their share of the population. Continuing to improve community connectivity in metropolitan areas means making public transportation a more convenient and affordable alternative. It also means making automobile use in metropolitan areas more efficient. Efforts to do so include intelligent transportation system investments such as "511" telephone-access traveler information systems, high-occupancy vehicle lanes and policies encouraging ride-sharing, bicycle use, and walking.

Rural Communities

For many rural regions, access to transportation networks can mean the difference between isolation and inclusion. Highways connect rural residents to jobs, shopping, health care and educational opportunities. For example, the Appalachian Development Highway System, a six-decade project now under construction, is providing rural portions of 13 southern and mid-Atlantic states with improved links between communities and access to other regions. These highways are more than roads — they are lifelines.

Environmental Stewardship Role for State DOTs

ISTEA forged the link between transportation and the environment. That linkage was sustained in TEA-21. Both laws have facilitated the evolution of a new role for state DOTs as environmental stewards. Such stewardship is an agency-wide commitment to integrating environmental values into all transportation work as a core business value. It means improving environmental conditions when possible, not just to comply with regulations.

The states — including their transportation departments — are proud of the progress made over the past three decades in clearing America's air of pollutants. Over that period, emissions from motor vehicles have dropped considerably, FHWA notes, including volatile organic compounds (down 59 percent) and carbon monoxide emissions (down 43 percent) despite a 143 percent growth over the same period in vehicle miles traveled.[1] Cleaner vehicles, clearance of traffic-congestion bottlenecks and other operations steps, and strong emissions inspection and enforcement — often administered through state DOTs — have had a positive impact.

Many state DOTs go beyond merely securing the necessary permits from federal environmental resource agencies to partnering with communities and environmental stakeholders to achieve multiple objectives. In addition to solving a transportation problem, a transportation project may also address environmental issues through wetland restoration or address social issues by including features such as historic-style streetlights, boulevards, and plantings to create a park-like gateway to an historic neighborhood.

Transportation Investment can yield Environmental Benefits

While the ribbon cuttings of new transportation projects generally focus on mobility, reliability and safety benefits, we often overlook the 5 percent to 20 percent of project cost that is invested in environmental factors. Examples of environmental benefits are as follows:

- The federal-aid highway program is creating 2.5 acres of wetlands for every acre it takes for road construction.
- Since 1970, 44 states and Puerto Rico have constructed over 1,600 miles of noise barriers at a cost of over $1.9 billion, in 1998 dollars.
- Highways are among the biggest recyclers in America, through re-milling pavements, use of fly ash in concrete, and the use of crumb rubber as a component of road surfaces.
- Over the past 11 years, $4.9 billion in enhancement projects — such as bike paths and the preservation of historic bridges and train stations — have been built in more than 14,000 communities.

[1] **U.S. Department of Transportation, Federal Highway Administration, "Transportation Air Quality – Selected Facts and Figures," January 2002, page 8.**



Community Compatibility and Transportation

Integrating transportation and land-use planning can result in less traffic and more livable communities. Such programs as the Transportation and Community and System Preservation Pilot Program, established under TEA-21, identify pedestrian and traffic linkages, urban-design strategies and zoning changes that will better integrate planned transportation improvements with existing neighborhoods and new developments.

Transportation and Healthy Communities

Many casual observers of transportation are surprised to learn that trips to non-work destinations comprise the largest segment of travel today. Trips for medical care, while comparatively few in number, are significant because of their impact on health. However, affordable alternatives to driving are often limited. In areas of urban poverty, public transportation is often unreliable, inconvenient and underfunded. In many rural areas, public transportation is non-existent.

As a result of these constraints, 9 percent of children in American families with incomes under $50,000 are unable to access routine medical care because of a lack of transportation resources. For children in families with incomes at or below the poverty level, one in five misses routine visits to the doctor because of transportation problems.

TOURISM

The Power of Tourism

Travel and tourism are vital to our economy. In 2000, 51 million foreign visitors came to the United States, spending $100 billion, generating more than 1.1 million jobs and making tourism America's fourth largest export. But domestic travel and tourism dwarf international visits. Americans touring America spent $481 billion and generated an additional 6.5 million jobs during 2000.

However, the United States saw six million fewer international visitors in 2001, a 12 percent decrease from the previous year as tourists were deterred by the September 11 terrorist attacks in New York and Washington. The long-term impacts of these attacks on tourism are only now becoming apparent, and could include lower-than-expected tourist visits for the next several years.

International Travel and Tourism and Transportation

Travelers to the United States from outside North America spend an estimated $220 per visitor on transportation. Although many use transit or tour buses initially, significant numbers shift to private cars on second and third visits. This is especially true of Canadians and Mexicans, who dominate travel to the United States.

Federal Transportation Programs Supporting Tourism

Several federal transportation programs support tourism, including:

Roads that have outstanding scenic, historic, cultural, natural, recreational, or archaeological qualities can be designated as All-American Roads or National Scenic Byways and receive federal funding for projects to enhance the travel experience.

- The Appalachian Development Highway System has opened up that region for the development of tourism.
- The National Historic Covered Bridge Preservation program assists states in rehabilitating or repairing and preserving historic covered bridges.
- The Federal Land Highways program is a major source of support for travel on public lands such as national parks and national forests.
- The Recreational Trails Program helps develop and maintain recreational trails.

Transportation and Recreation

Recreation is one of the fastest-growing sectors in the U.S. economy, expanding at 5 percent a year. The American Recreation Coalition notes that there are 8.6 million recreation vehicle-owning households now and 10.4 million expected by 2010. In addition, there are some 9 million towable boats, 1.7 million snowmobiles, nearly 3 million recreational horses, and 5 million all-terrain vehicles. The recreation sector is heavily dependent on federally owned lands that comprise 650 million acres, or about 29 percent of the total land area of the U.S. National Park Service areas get more than 273 million visitors annually, who bring more than $5.5 billion in spending a year to



nearby communities. U.S. Forest Service lands and campgrounds see even more visitors. The use of forest-service roads, which total over 400,000 miles, has increased 15-fold over the past 20 years. Their use now is 90 percent recreation-related. Recreation industries such as skiing have now become one of the prime economic drivers in rural communities previously dependent on timber, mining and agriculture.

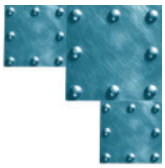
TRANSPORTATION AND NATIONAL DEFENSE

The U.S. highway system plays a critical role in the movement of military equipment and personnel, particularly in wartime. In the event of a national military or security emergency, heavy military equipment, including oversized cargo vehicles and personnel must be deployed expeditiously with personnel from military installations to various seaports and airports. The ability to rapidly get to embarkation ports is critical to our nation's defense. The strategic routes used for these movements are defined as Strategic Highway Network (STRAHNET) routes and connectors.

STRAHNET is a system of public highways identified as crucial to U.S. strategic defense policy. The 61,000-mile system, designated by the Federal Highway Administration in partnership with the Department of Defense, comprises about 45,400 miles of Interstate and defense highways and 15,600 miles of other public highways. STRAHNET is complemented by about 1,700 miles of connectors — additional highway routes linking more than 200 military installations and ports to the network.

Transportation and Emergency Evacuation

The capability of the highway system to manage massive amounts of traffic in major emergency evacuations is critical to the safety and survival of threatened populations. Our national highway system — coupled with a coordinated roadway-information system to manage traffic and provide traveler information — is essential to rapid, efficient, and safe evacuation.



NATIONAL SURFACE TRANSPORTATION INVESTMENT REQUIREMENTS

HIGHWAYS



INTRODUCTION

In preparing a rigorous, quantitative evaluation of the nation's surface transportation needs, AASHTO worked in cooperation with the Federal Highway Administration, the Federal Transit Administration and the Transportation Research Board to address prior information gaps and expand existing capabilities.

This effort incorporated the FHWA/FTA Condition and Performance process and other analytical tools developed by federal agencies to assess the needs of the highway, bridge and transit systems, supplementing them with the knowledge and experience of state transportation agencies. This analysis incorporates methods and assumptions used by federal transportation agencies, with at least two notable differences:

- The federal Condition and Performance process employs a 20-year time frame divided into four five-year periods. Because this analysis is focused on reauthorization, it uses a six-year time frame, set in a 20-year context.
- The Condition and Performance process takes its time frame starting from an historical base. Therefore, the next Condition and Performance report, to be issued in 2002, will take a 20-year perspective starting from the year 2001. This report is focused on the next reauthorization time frame, beginning in 2004 and ending in 2009.

Based on these differences, it would be expected that AASHTO's assessment of needs, starting from a base point in the future with higher traffic volumes, a more deteriorated system and a greater backlog of investments to be made, would show greater investment requirements than the FHWA report.

Cost estimates in this report are expressed in year-2000 dollars.

The Backlog

Much of the growth in investment needs results from the aging of the transportation system. Over time, weather, wear and age take their toll on roads, bridges and transit facilities. The repairs, replacements and upgrades needed to bring the existing system up to standard have created a huge backlog of needed investment. These investments are justified immediately to capture benefits (relieving congestion, saving lives) or to prevent further deterioration that results in greater future investment needs.

Travel Trends

The forecasts of vehicle miles traveled growth used here are derived from state and local predictions. In addition to the traditional forces of change in travel, such as population, incomes, household composition, freight trends, etc., the changes in vehicle miles of travel employed are designed to be sensitive to the changes in the services provided by the system. The estimates employed here indicate that the annual growth in the six-year period from 2004 to 2009 will average between two percent and 2.2 percent, 50 percent over 20 years. Freight movement will be an increasingly significant factor because of growing NAFTA and other international trade, and the importance of just-in-time delivery to business productivity.

THE BASELINE FOR FUTURE SCENARIOS

System Physical Condition

Expanded funding under ISTEA and TEA-21 has improved the nation's highways in recent years, but much remains to be done. The percentage of roads rated "good" and "fair" has grown, but largely seems to be the result of roads rated "very good" deteriorating. More important is that more than 80 percent of all roads are in the "very good/good/fair" range.

Rural roads, which comprise the great majority of roads, but a much smaller share of travel, have been able to hold their condition relatively steady. Urban roads, in poorer condition to begin with, have deteriorated further. There is continuing improvement in the condition of Interstate pavements, both rural and urban.

System Performance

Although statistical monitoring of highway system performance is lacking, anecdotal evidence and specialized studies make it clear that congestion and declining performance is common.

- Average commute times, after a 40-second increase in the 1980s, jumped by more than three minutes during the 1990s to a national average of 25.5 minutes.
- Congestion is increasing not only in the major cities but in all sizes of metropolitan areas. The cost per peak period traveler is estimated at over $1,100 annually.
- 5.7 billion gallons of fuel are consumed by congestion annually, not only wasting money but adding to air pollution.



A Scenarios Approach to Future Investment

Two scenarios were designed to provide a comprehensive sense of the scale of investment needs and to help evaluate investments needed to support goals for the system.

The scenarios are:

Maintain Condition and Performance Scenario

- Hold user costs constant as travel demands grow.
- Assure that travelers experience no new delays.
- Maintain system physical condition and prevent further degradation.

Improve Condition and Performance Scenario

Make all economically justifiable investments that:

- Improve pavement condition;
- Increase average speeds;
- Reduce delay; and
- Reduce user cost.

SCENARIO ASSUMPTIONS

- The scenarios have 20-year perspectives, but focus on a six-year timeframe with a 14 percent travel growth.
- Reflect total capital program estimates by all levels of government for all highways and bridges.
- Both scenarios incorporate the costs for roads on new rights of way, as well as capacity expansions that are accomplished by lane additions within existing facilities.
- Only projects with benefits exceeding costs are included.

Condition and Performance in 2004

To set a baseline to measure performance of alternative investment scenarios, highway conditions in 2000 were projected to 2004 using FHWA's Highway Economic Requirements System model, applying actual and projected spending.

2004 Baseline Conditions

Measure	2004 Value	Notes
Physical Condition:		
Average International Roughness Index	125	A range of 95 to 170 is "fair."
Performance:		
Total Hours of Delay per 1,000 VMT	4.3	VMT = Vehicle Miles of Travel
Average Speed	40.6	Miles per hour
Costs:		
Total User Costs $/1,000 VMT	$937	Includes operating, safety and travel time costs for both passenger vehicles and trucks.

The scenario seeks to maintain conditions and performance for the reauthorization period, 2004-2009, and then considers the effects of the scenario out to 2023. The table above shows that this funding level succeeds broadly as defined by our measures and generates improvements in all of the measures in the year 2023.

The investments hold user costs at less than a 1 percent increase in the reauthorization period. Both rural and urban areas increase less than 1 percent in user costs, with rural areas rising somewhat faster in VMT growth. Pavement roughness and delay are also held relatively constant. Levels of systems reliability remain about the same as well.

An Improve Conditions and Performance Scenario

An annual investment of **$125.6 billion** by all levels of government for highways and bridges is necessary to improve both physical condition and performance characteristics of the system over 20 years and explicitly during the next reauthorization cycle. This scenario, analogous to the Maximum Economic Investment scenario in the FHWA Condition and Performance Reports of recent years, identifies investments with a benefit-to-cost ratio greater than 1 that can be made within the strictures of the modeling process, and describes the resulting performance characteristics.

This level of investment substantially improves the system by the end of the reauthorization period. Pavement condition improves by almost 15 percent from the base period. Much of this improvement occurs in urban areas, which are currently much poorer in quality than rural areas, reducing, but not eliminating, the disparity between urban pavement conditions and rural.

Improve Conditions and Performance Scenario Effects and Costs — 20-year Perspective

	2004	2009	2023
Measure	Base Value	Maintain Conditions and Performance	
Average International Roughness Index	125	109	98
Average Speed	40.6	42.02	44.74
Total hours of Delay /1000 VMT	4.3	3.89	3.58
Total User Costs $/1000 Vehicle Miles	937	913	882

The investments reduce delay by almost 13 percent despite the expected VMT growth. The investments focus heavily on reducing delays in urban systems, where most of the delay exists, although they also reduce, but not eliminate, delay in rural areas. Urban delays remain five times that of rural areas per mile of travel.

Average speeds also improve considerably with gains in both rural and urban areas.

There is a significant improvement in user costs, generating impressive benefits. The drop from $937 per 1000 miles of travel to $913 represents a 3.5 percent reduction. While this percentage seems small, when applied to 3 trillion miles of travel per year, a $20 per 1000 miles saving equates to roughly a $60 billion a year saving for users, more than compensating for the incremental costs of this scenario. The user savings result in increased productivity and job growth.

The expanded levels of investment have even a greater impact over a full 20-year span including:

- A more than 20 percent improvement in pavement conditions
- A greater than 10 percent improvement in average speeds
- A greater than 16 percent improvement in delay
- An almost 6 percent improvement in user costs, saving over $200 billion per year in user costs by 2009

All of this is attained despite at least 50 percent growth in travel over the 20-year period.

The Price of Inaction

To put the effects of these two scenarios in perspective, their benefits must be measured on a scale against current spending and what the future effects of that level of spending would be. The following measures express the state of the system at the end of the next reauthorization period if spending has been maintained at the current levels. By every measure, the quality of the current system will deteriorate, resulting in poorer pavement, slower speeds, increased driver delay and increased costs to the user.

FHWA reports that as of 2000, highway capital outlays by all levels of government were $64.6 billion.

Scenario Effects — Current Spending

Measure	Base Value 2004	New Value 2009	Change 2004-2009
Average International Roughness Index	125	147	18% degradation
Average Speed	40.6	35.9	12% degradation
Total hours of Delay /1000 VMT	4.3	4.64	8% degradation
Total User Costs $/1000 Vehicle Miles	937	1014	8% degradation

Factors Not Included in the Cost Estimates Produced through HERS Modeling

In addition to the needs estimates produced by the HERS modeling analysis, which included costs for highways, bridges and transit, there are other cost factors that must be considered. These include cost estimates for Safety, Security, Interstate Interchanges, and Increasing Program Delivery Costs, which together may equal as much as $11 billion annually:

Safety
Implementing AASHTO's Strategic Highway Safety Plan to save 5,000 to 7,000 lives annually is estimated at $3 billion annually in capital costs and $1 billion annually for operating costs.

Security
Enhancing highway and transit security is estimate to cost $2 billion annually in capital costs and $1 billion annually in operating costs.

Interstate Interchanges
If future Interstate interchanges constitute 20 percent of project costs in the next six years, rather than 10 percent as at present, this is estimated to increase capital costs by $3 billion annually.

Increasing Program Delivery Costs
The combination of environmental reviews, mitigation and right of way acquisition is adding time and cost to transportation projects. The increase nationally is conservatively estimated at $1 billion annually.

THE INTERSTATE HIGHWAY SYSTEM

The 46,677-mile Dwight D. Eisenhower System of Interstate and Defense Highways is the crown jewel of America's roads. From its inception in 1956, it has been transformational, connecting our nation as never before, opening up communities to new opportunities and truly nationalizing our economy.

The importance of the Interstate highways to transportation and the economy cannot be exaggerated. Comprising only a little more than one percent of our nation's roads, they carry more than 24 percent of travel, including 41 percent of total truck miles traveled. As the following table makes clear, the Interstates have value far out of proportion to their modest size.

Interstate Highway System — Key Statistics

	Interstate System	Total Highway System	Interstate System Share (%)
Interstates			
Road Miles	46,677	3,951,098	1.2
Lane Miles	209,655	8,328,856	2.5
VMT (billions)	667	2,767	24.1

Although the Interstates have always played a key role in intercity connectivity, military support and efficient long-distance travel, they increasingly are seen as also supporting local economic growth, moving freight within metropolitan areas, providing access to airports and speeding other metropolitan travel. Reflecting the evolving expectations that state and local officials have for the Interstates, growth in travel on their urban segments has been greater than on the rural portions, with a 41 percent overall increase during the 1990s.

Travel per lane mile in urban areas – perhaps the best indicator of potential congestion – has grown by roughly 25 percent during the same period. Urban Interstate congestion is currently high in nearly half of the states, and 41 states in a recent General Accounting Office survey predicted that it would be high or very high a decade from now.

Pavement Quality

While total travel on the rural system increased by about 35 percent during the 1990s, axle loadings increased by more than 88 percent, indicating the ever-growing importance of the Interstates for freight movement. Given a projected doubling of freight movement over the next 20 years, this indicates the potential for significant wear and tear on the system.

Despite this increasing load, the condition of pavement has actually improved in recent years, reflecting both greater federal funding and state commitment to maintaining these vital roads. In spite of the progress, 18 percent of Interstate pavements are in poor or mediocre condition, requiring immediate investment. The remainder of the system, because of increasingly heavy use, requires substantial routine maintenance to ensure that it remains in acceptable condition.

Safety

Investment in the Interstate system buys not only better performance but also superior safety. Safety-related improvements have dropped the fatality rate on the Interstates by half during the past 20 years, to 0.85 per 100 million VMT. The Interstates typically carry 26 times the traffic per mile as the rest of the system and so, even with a fatality rate roughly half that of other roads, sheer traffic volume means that the Interstates still see too many deaths.

Federal Rules Prevent Documentation of Actual Interstate Needs

At the request of the House Transportation and Infrastructure Committee the General Accounting Office completed a report in May, 2002, on the *Status of the Interstate Highway System*. GAO noted that because of the fiscal constraint restrictions imposed by current federal planning statutes, "states' plans might not identify the funding needed to address all of the pressures states expect on their Interstate highways." Those states, which found a way to report their true needs in spite of these restrictions, "showed a gap between expected revenue and what states would like to invest."

The Special Case of Interstate Interchanges

Many Interstate highway interchanges are coming due for renewal. Rebuilding them can be very costly, in part because interchanges often involve major safety and efficiency improvements. This is particularly true where Interstate facilities meet, where HOV lanes are operating, where substantial traffic growth has occurred or where there is heavy truck traffic.



Historically, interchanges have consumed about 10 percent of capital spending on Interstate highways. After seeing evidence that costs actually are higher, AASHTO and the National Cooperative Highway Research Program collaborated on a study to determine whether traditional budgeting for interchange improvements was still valid. Analysis showed that complex new interchanges are costing far more than in the past, and are consuming about 20 percent of Interstate capital spending. This is true even without the impact of megaprojects that are expected to cost well over a billion dollars.

A survey of the 12 states included in the analysis showed that the number of interchange megaprojects planned for the next 10 years is substantial and clearly more than in the '90s.

These findings have enormous implications for interchange project planning. States will need to allocate larger portions of their budgets to interchanges, which means that more funding will be needed overall to complete projects.

The survey showed that the 12 states planned to spend an average of 20 percent of total Interstate capital investment on interchanges in the next decade. But in some cases, the survey shows such needs may run as high as 30 percent. Past spending on interchanges has averaged about 10 percent of Interstate capital investment, but has rapidly risen in recent years. As a result, current models may understate such needs by as much as $3 billion annually.

BRIDGES

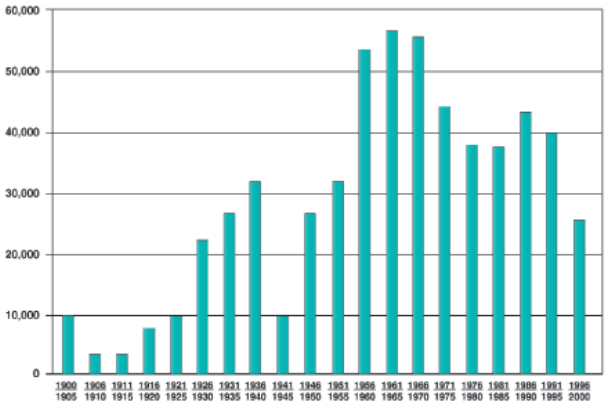
Progress to Date

The success of recent investments in our nation's highway bridges is clear. Increased investment has improved the structural condition of our bridges, making them safer and increasing their value and lifespan. A decade ago, 200,000 of America's 575,000 bridges were deficient. Of the 200,000 deficient bridges, about 120,000 were structurally deficient and 80,000 were functionally obsolete. In the years since, the nation has added fewer than 15,000 bridges. Instead of new construction, additional investment made possible through ISTEA and TEA-21 has been focused on rehabilitating bridges to meet safety and functional standards.

Investments made possible by ISTEA and TEA-21 have permitted great progress in reducing the number of deficient bridges from 35 percent of the total inventory down to about 28 percent. Today, the number of deficient bridges is down to 163,000 out of a total inventory of 590,000.

However, about half of the nation's 590,000 bridges were built before 1965, and a quarter are more than 50 years old. While properly cared-for bridges can be considered to be virtually permanent, their age at the very least means they need significant maintenance and may be functionally obsolete.

Highway Bridges by Year Built



Condition of Bridges

	1992	2002
Structurally Deficient	120,000	83,000
Functionally Deficient	80,000	80,000
Acceptable	375,000	427,000
Total	575,000	590,000

Addressing the Backlog of Bridge Needs

The investment costs needed to address the backlog of bridges needing repair has fallen in tandem with the reduction in bridge deficiencies. The bridge backlog now stands at $52 billion, based on an evaluation employing the new National Bridge Investment Analysis System.

No Name for this Table

Type of Investment	Costs (Billions)
Bridge Replacement Needs	$37.2
Bridge Improvement Needs (widening, raising, strengthening)	$3.1
Maintenance, Rehabilitation and Reconstruction Needs	$11.6
Total	$51.6

The $52 billion represents a considerable reduction from past assessments of the bridge investment backlog — in part because of progress made possible by the increased funding levels under ISTEA and TEA-21; partly due to priorities set at the state and other levels; and partly due to the reduced levels of investment needs that meet economic analysis criteria.

Examining the investment alternatives through the National Bridge Investment Analysis System indicates that an investment of **$48 billion** ($7.9 billion per year) can reduce the backlog by close to half by the conclusion of the next reauthorization cycle in 2009.

Alternatively, a base investment of **$43 billion** ($7.2 billion per year) would be sufficient to maintain the backlog at present levels. Investments below that level actually begin to create an increase in the backlog over time.

LOCAL ROADS AND BRIDGES

Road Networks

The 160,000-mile National Highway System, which includes the Interstates and principal state arterials, carries 40 percent of traffic nationally. A significant portion of the remaining traffic is carried on the three million mile network of arterials, collectors and local roads owned and operated by counties, cities and townships. These roads link rural and urban areas, carry freight, food, healthcare and other goods and services to our citizens, and provide access to the homes and communities in which we live. Seventy-eight percent of this national road network is in rural areas, and the remaining 22 percent is in urban areas.

Travel Volumes

Local roads and streets are the beginning and ending links for most trips, but these trips generally shift to the collector roads and, eventually, concentrate at the arterial system that carries over 72 percent of the total urban and rural traffic. Even though there are more rural miles of road, the urban roads carry approximately 61 percent of the traffic.

Safety on Local Roads

The General Accounting Office recently reported that, "Although only about 40 percent of all vehicle miles are traveled on rural roads, about 60 percent of the traffic accident fatalities that occurred in 1999 occurred on rural roads." This is even more pronounced on two-lane rural roads, which have fatality rates six times greater than those of urban Interstate highways. There are approximately twice as many fatal accidents on state rural roads than local rural roads, largely because of the higher traffic volumes on state highways.

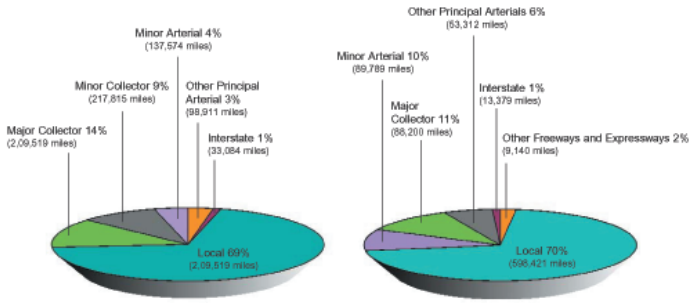
Bridges

Most of the 590,066 bridges in the United States are under local jurisdiction. Local bridges comprise 51 percent of the total, and counties own 78 percent of local bridges. Of the county bridges, 22 percent are structurally deficient and 11 percent are functionally obsolete. Cities have 13 percent of bridges structurally deficient and 20 percent that are functionally obsolete.

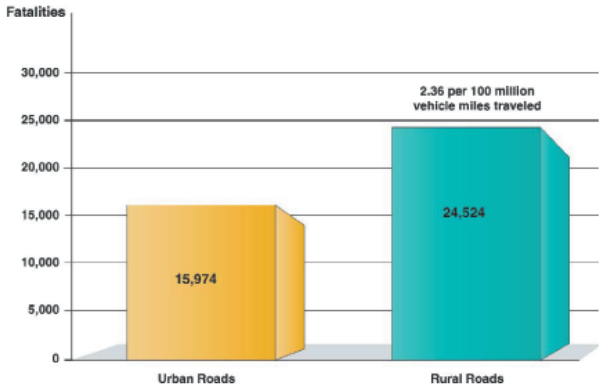
Expenditures on Local Roads

Across the country, states spend almost 60 percent of their federal funds on urban roads and bridges and the remainder on rural facilities. Roads under local jurisdiction often receive a share of federal road funds, but a significant portion of local funding comes from state and local taxes, not federal aid. Approximately 32 percent of all disbursements for highways are spent on locally owned roads.

Miles by Functional System



Fatalities



Sources: FARS, 2001, NHTSA, *Highway Statistics*, 2001, FHWA.

PRESERVATION AND ASSET MANAGEMENT

The Importance of Preserving Transportation Assets

Previous generations have made a tremendous investment in our transportation system. The total value of our roads and bridges has been estimated by U.S. DOT at $1.4 trillion, and transit assets are estimated to be at least $300 billion. This includes 8.2 million lane miles of highway, 590,000 bridges, approximately 150,000 transit vehicles, 10,000 miles of track, and 2,900 transit stations. If these facilities are to serve future generations, they must be preserved and modernized.

Expenditures for highway maintenance in 2000, after accounting for inflation, were 47.6 percent above the 1970 level, while capital expenditures were 33.7 percent above the 1970 level. GAO's May, 2002, Report on Highway Infrastructure, states with regard to Interstate Pavement Projects from 1992 through 2000, "the kinds of projects undertaken after 1991 show a shift from construction to maintenance … 93 percent was for projects to reconstruct, relocate, restore and rehabilitate, or resurface pavement." According to the analysis done by the FHWA in 1999, the cost to preserve just the 47,000 mile U.S. Interstate Highway System is $10 billion annually beyond current funding.

The timing of preservation investments over the life cycle of an asset is also critical. The right maintenance treatment at the right time can sustain the system in satisfactory condition. If funds are not made available for preventive maintenance, the facility will continue to deteriorate and ultimately fail. Replacement costs are often five to ten times greater than the amount required for timely preservation.

Asset Management

To help make more systematic management decisions in this area, state DOTs are partnering with industry to advance the concept of "Asset Management." Asset management is a systematic process for maintaining physical assets cost-effectively. Most states and local governments already use a series of management systems to support investment decisions for bridges, pavements, maintenance, congestion, transit and safety. Asset management takes concepts inherent in those individual management systems and raises them to a new level that integrates them and evaluates tradeoffs among asset classes.

The results include the preparation of budgets for state legislatures, counties, cities, and transit authorities which systematically explain what needs to be done, where, on what schedule, how much it will cost, and what the benefits will be. Better decisions are made which channel more resources to asset preservation. The useful life of many transportation assets can be extended at a lower cost.



INCREASING PROGRAM DELIVERY COSTS

Project Costs

The combination of environmental reviews and mitigation and the need to be responsive to community concerns is adding time and cost to transportation projects. The costs of preliminary engineering, to move a project from the planning stage through the environmental analysis process, including the associated public involvement, to the record of decision are not well-documented.* However, there are already indications of the challenges transportation officials face.

The best evidence: Only 16 percent of transportation projects required to complete an environmental impact statement completed the environmental review process in fewer than three years while 32 percent of projects took seven or more years.

The Environmental Review Process

In order to move from the planning phase to final design, all federally funded highway projects must go through one of three environmental review processes under the National Environmental Protection Act (NEPA): categorical exclusions, environmental assessments, or environmental impact statements. Until the process is complete, final design cannot begin, rights-of-way cannot be acquired and construction materials and transit rolling stock cannot be purchased. Once the NEPA process is complete, permits may also be required from federal agencies, such as Section 404 wetlands permits from EPA and the U.S. Army Corps of Engineers. These add additional time to the project-approval process.

An October, 2000, AASHTO National Cooperative Highway Research Program (NCHRP) study showed that 91 percent of federally-funded highway projects qualify for categorical exclusions, 7 percent qualify for environmental assessments and 2 percent require full-blown environmental impact statements. For those requiring an impact statement, an FHWA analysis prepared in 2001 by the Louis Berger Group shows that the average time to complete an EIS takes over five years, and for projects involving an EIS, the time from the inception of planning to the completion of construction averages 13 years.

For the 7 percent of projects requiring environmental assessments, AASHTO's NCHRP study of 30 state DOTs showed the review time to average 14 months. However, when delayed by Section 4(f) or 106 historical reviews, for example, the average processing time increased to 42 months.

And contrary to the assumption that the 91 percent of projects which qualify for categorical exclusions require little to no review, the NCHRP study found that the review time for these projects — bike paths, intersection improvements, bridge replacements, and the like – averaged eight months. For the 40 percent subject to delays due to historical and other reviews, project approvals averaged 22 months.

Public Involvement

All federally funded highway and transit projects must coordinate an extensive public- involvement process. It must provide early and continuing opportunities for the public to be involved in the

***NCHRP Study 20-24 (Task 25), currently underway, is attempting to document the costs associated with the preliminary design phase of highway projects. Its results should be instructive. Other analysis is being done on right-of-way acquisition and the costs of environmental mitigation.**

identification of social, economic, and environmental impacts and relocation issues. Through an emerging field called "context-sensitive design," state DOTs are attempting to be more responsive to a broader range of community concerns including those for preserving historic values, neighborhood character, and aesthetics.

The sheer complexity of the process by itself requires substantially more resources than it did 20 years ago. But states have found that it is better to commit the resources necessary to do the job well, than to skimp and be told by the courts to start over again. The point to be made is that the time and resources this extensive review requires has added substantially to project delivery costs. This must be factored into any comprehensive needs estimate.

Mitigation and Right-of-Way Costs

Wetland mitigation is among many types of mitigation that may be required for a project to proceed. Others include the construction of noise walls and replacement of wildlife habitat. A systematic study is required to update estimates of the costs mitigation typically adds to a project.

MANAGING THE SYSTEM

Over the past 20 years, growth in travel on the nation's highways has far exceeded growth in highway capacity. As a result, congestion is a critical problem for metro areas nationwide. Cities of all sizes are experiencing more severe congestion for longer periods of the day. Between 1982 and 1999, the average delay per person due to congestion jumped from 11 hours to 36 hours per year. As a result, traffic flow is the aspect of the nation's highway system that the public is least satisfied with, according to the FHWA Traveler's Satisfaction Survey.

More than 60 percent of all delays are the result of non-recurring congestion caused by crashes, weather, or other incidents. Such congestion is especially disruptive because drivers cannot fully anticipate or plan for it. Efficient management and operation strategies can reduce delays and improve reliability, while also providing such benefits as quicker response by emergency vehicles.

A Systems Management and Operation Approach

System management and operations covers a wide array of strategies including: incident detection and response; snow and ice management; emergency and disaster response; planned construction disruption; traffic and transit operations and management; and traveler/shipper information. Both capital and operating investments are needed to achieve the benefits of system management. Such investments are eligible for TEA-21 funding, and are an important element for reauthorization.

Benefits of Management/Operations Strategies

Investments in systems management and operations can be low cost and yield high benefits for travelers in reduced congestion, increased safety and improved quality of the travel experience. For example, improvement in routine traffic operations can efficiently improve travel time and reduce delays: signal improvements can reduce travel time eight to 25 percent; and ramp metering in Minnesota has increased travel speeds 16 percent, with fewer crashes.

Incident management strategies to identify and clear crashes more quickly can significantly reduce non-recurring congestion, as well as help prevent additional crashes. Evidence suggests that delays

due to crashes and other incidents can be reduced by up to 50 percent with active detection and response techniques, and may be the most effective stand-alone strategy for improving traffic flow.

Managing the transportation system at peak performance cannot eliminate congestion, but it can reduce delay, improve reliability, reduce injuries and fatalities and restore a sense of control to travelers.



TRANSIT

The nation's extensive public transportation network provides access to jobs; mobility for the young, elderly or disabled and helps reduce congestion, conserve fuel, enhance the efficiency of highway transportation, reduce air pollution and support security and emergency preparedness activities. An efficient, safe and environmentally sound public transportation system is essential to moving people in both rural and urban areas.

SYSTEM OVERVIEW

Public transportation services are currently available in 319 urbanized areas, and every state has some level of public transportation service available to its rural areas. There are:

- 556 public transportation operators in urban areas;
- 1,260 organizations that provide public transportation services in rural areas; and,
- 3,660 organizations that provide public transportation services to the elderly and people with disabilities.

Ridership

Increased federal, state and local investment in transit has helped spur a 22 percent ridership increase during the past six years, with the 9.5 billion passenger trips during 2001 being the highest level in 40 years. Continued ridership growth at levels comparable to those actually observed over the last six years would result in an average increase in passenger trips of approximately 3.5 percent annually, or a 100 percent increase over the next two decades.



CURRENT SYSTEM PHYSICAL CONDITION AND PERFORMANCE

Today, 22 percent of the nation's buses and 43 percent of its rail rolling stock exceed their recommended service life. An additional 47 percent of buses, and 11 percent of rail rolling stock, will exceed their recommended service life within the next six years.

Sizable infrastructure investment is required to accommodate increased ridership demands, including the construction of new transit systems and expansion of existing fixed-guideway transit systems. Underinvestment in rural and specialized transit services has resulted in substantial unmet needs and under-served areas.

More than 54 percent of all public transportation trips in the nation are reported to be work- related, confirming transit's importance to the economy.

Transit Trips by Purpose

Type of Trip	Percent of Total
Employment/Work	54
School	15
Shopping	9
Recreation/Social	9
Medical	6
Other	8

Average Weekday Transit Ridership by Mode (2000)

Mode	Average Weekday Unlinked Trips	Percentage of All Transit Trips
Bus	19,788,000	61.8
Heavy Rail	8,686,000	27.1
Commuter Rail	1,445,000	4.5
Light Rail	1,034,000	3.2
Trolleybus	388,000	1.2
Demand Response	372,000	1.2
Ferryboat	164,000	0.5
Other Rail	78,000	0.2
Vanpool	50,000	0.2
Totals	32,005,000	100.0

Urban Bus Systems

The nation's public transportation bus fleet now exceeds 80,000 vehicles, 69 percent of which are currently over-age or which will exceed their federally recommended replacement age during the next six years. Continuing to use over-age buses will affect passenger comfort, service reliability and maintenance costs. Most, if not all, of the remaining fleet will require a mid-life rehabilitation to maintain a proper and safe condition. Replacement of the entire fleet, at today's prices, would cost $20 billion.

Rail Systems

In many larger and even mid-sized cities across the country, fixed-guideway rail operations play a significant role in providing public transportation service. Today, 75 urban public rail systems are in place in 26 states and the District of Columbia.

The transit rail system has more than 10,000 track miles, almost 3,000 stations and more than 17,000 vehicles in revenue service.

Existing Public Transportation Rail Systems, by Mode

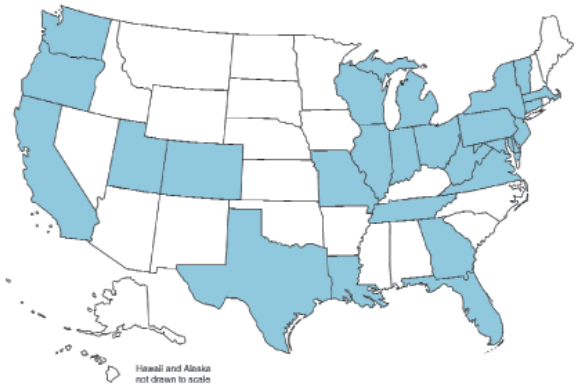
	Number of Systems	One-Way Track Miles	Number of Stations
Heavy Rail	14	2,177.8	1,009
Light Rail	26	1,015.6	651
Commuter Rail	20	7,294.4	1,153
Other Rail	15	43.2	71
Total	75	10,531.0	2,884

Just as with the nation's bus fleet, the average age and percentage of aging rail rolling stock indicates that transit systems have not been able to keep pace with the federally recommended replacement cycle. Fifty-four percent of all of the rail vehicles currently being operated in revenue service have exceeded their service life or will do so in the next six years. Almost all rail vehicle categories have an average age that exceeds the midpoint of their scheduled replacement cycle. Again as with buses, the continued use of over-age vehicles can be associated with passenger discomfort, less reliability and higher operating and maintenance costs.

Rural Public Transportation Systems

Rural public transportation assistance programs can receive direct federal assistance, and currently 1,260 programs using 49,500 vehicles provide such services in rural America. An estimated 55 percent of the existing fleet has already exceeded the federally rated service life. Within the next reauthorization period, almost all of the nation's rural transit vehicles will need to be replaced.

States with Existing Transit Rail Service



About 9,200 vehicles per year will need replacement on an ongoing basis.

Rural Transit Fleet

System Expansion Needs

Meeting public transportation needs associated with projected ridership growth will require significant investment in system expansion beyond what will be needed for replacement. Much of the need for new service will be the result of continuing increased use of existing systems

Fleet Segment	Estimated Fleet
Rural General Public	19,000
Rural Specialized Operators	28,800
Rural Intercity	1,700
Total Fleet	49,500

throughout the country. Systems will be required to add vehicles, stations, maintenance facilities, and numerous supporting elements to meet this increasing demand.

Core Capacity of Existing Systems

In many of the nation's largest cities, transit ridership has significantly increased during the last six years. As a result, existing rail systems are operating near to or in excess of their physical capacity and above a level that provides acceptable passenger comfort and safety. Without significant capital investment to expand the core capacity of these systems, many of them will be unable to meet this demand. Among the kinds of upgrades that will be necessary are: new signal systems to allow more throughput of rail vehicles, double tracking of existing rail lines to provide for additional system capacity, and station platform extensions.

New Starts

Many metropolitan areas across the country have recently completed or are pursuing major rail transit capital improvements under the federal "New Starts" program. Between 1996 and 2001 alone, more than 350 miles of rail transit service were added in 20 cities, including Atlanta, Baltimore, Chicago, Dallas, Denver, Jacksonville, Los Angeles, Memphis, New York, New Jersey, Pittsburgh, Portland (Oregon), Sacramento, Salt Lake City, San Francisco, San Jose, Stockton, Seattle, St. Louis and Washington, D.C.

Currently, the New Starts program includes more than 78 projects in 26 states and the District of Columbia that have moved beyond initial stages of study, at an estimated $47 billion cost. In addition, more than 150 studies are underway around the country.

Many additional communities are exploring the possibility of meeting their transit needs through "bus rapid transit."

Rural Public Transportation Needs

Although limited data are available to estimate unmet rural transit needs, states that have studied the issue have identified substantial unmet needs. The proportional increase in capital costs needed is high — ranging from about 80 percent in Minnesota to nearly 300 percent in Montana. This suggests that approximately a doubling is needed of the existing level of investment in the rural public transportation system.

Rural Transit Estimates

Rural transit needs consist of two major components — the maintenance of the existing system and the expansion of the system to address unmet needs. The total estimated annual need for rural transit is:

- Replacement/rehabilitation of existing general public vehicles — $191 million.
- Replacement/rehabilitation of specialized vehicles — $194 million.

New Starts Projects



- Replacement/rehabilitation of intercity vehicles — $50 million.
- Replacement/expansion of Rural General Public and Rural Specialized Maintenance and Administrative Facilities — $81 million.
- Expansion of Rural General Public, Rural Specialized, and Rural Facilities to improve service — $495 million.

In total, rural public transportation needs are estimated at $0.5 billion annually for the maintain conditions and performance scenarios and $1.0 billion annually for the improve service performance scenario.

TRANSIT NEEDS ASSESSMENT

Types of Transit Capital Needs

- Replacement of bus and rail vehicles (at the end of federally determined useful life).
- Major rehabilitation of bus and rail vehicles (mid-life rebuilds).
- Eliminate the backlog of vehicle needs to bring the nation's fleet into a state-of-good-repair.
- Replacement or rehabilitation of bus and rail maintenance and yard facilities, stations and tracks.
- Fleet expansion to accommodate increased ridership demands.
- Expansion of new rail systems to meet demand.

TRANSIT INVESTMENT SCENARIOS

Urban area capital investment needs were calculated using several alternative investment scenarios, then narrowed to two:

Maintain Physical Conditions and Performance, Constrained Rate of Growth

Assumes that transit capital assets will continue to be replaced as they are today, often later than is recommended; that service will be provided at existing levels with increases in service only to accommodate new riders and not to reduce crowding; Constrained rate of growth 1.6 percent Annual Ridership Increase (40 percent over 20 years); and

Improve Physical Conditions and Service Performance, Current Rate of Growth

Assumes that transit capital assets will be replaced according to recommended cycles, resulting in an overall improvement in conditions; that improvements are made to both reduce passenger densities on the most crowded systems and to improve the speed of service for systems where the average speed falls well below the national average; 3.5 percent annual ridership increase (100 percent over 20 years); based on growth rates since 1995; assumes 12.5 billion passengers by 2009.

TRANSIT CAPITAL INVESTMENT SCENARIOS

Alternative investment scenarios were identified by applying combinations of system physical conditions and performance. If the nation's urban and rural transit systems only maintain physical

Scenario 1: Average Annual Capital Cost — Maintain Physical Conditions, Maintain Service Performance, Constrained Rate of Growth

Transit Needs Component	Annual Cost (Billions)
Replacement/rehabilitation of existing vehicle fleet	$3.8
Replacement/rehabilitation of other transit assets	$4.8
Expansion of vehicle fleet and other transit assets to accommodate ridership growth	$9.8
Rural/small urban	$0.5
Total Need	$18.9

conditions and service performance at the levels that are being observed today, annual capital investment needs will be about **$19 billion** — assuming 1.6 percent annual ridership growth. If the decision is made to improve both the existing physical conditions and improve service performance at the current ridership growth rate of 3.5 percent, the annual transit capital need is about **$44 billion**.

The needs estimates imply a growing gap between historic levels of transit capital expenditures and required investment needs. Much of this increased need is a result of substantial and continuing transit ridership gains across the country.

Transit operating and capital expenditures from all sources totaled $33.8 billion in 2000, a 30 percent increase from 1995. Capital expenditures totaled $9.5 billion in 2000, representing half of the projected annual needs associated with the cost-to-maintain scenario and 20 percent of the projected annual needs associated with the cost-to-improve scenario. Federal transit assistance reached $7.2 billion in FY 2002.

State and local governments have already shouldered much of the burden for financing transit operations and many are reaching their limits, especially with budget shortfalls. Without increased levels of federal, state or local funding or new and innovative approaches to finance, the only way to pay for future transit costs is the fare box and other system revenue. However, without an increase in government assistance, transit fares would have to nearly double over the next five years alone to address projected currently unfunded operating deficits — much less additional capital needs. This does not appear to be viable.

Scenario 2: Average Annual Capital Cost — Improve Physical Conditions, Improve Service Performance, Current Rate of Growth

Transit Needs Component	Annual Cost (Billions)
Replacement/rehabilitation of existing vehicle fleet	$5.6
Replacement/rehabilitation of other transit assets	$5.1
Expansion of vehicle fleet and other transit assets to accommodate ridership growth	$32.2
Rural/small urban	$1.0
Total Need	$43.9

TRANSPORTATION AND SAFETY

TRENDS

During the past decade, the highway fatality rate per 100 million vehicle miles traveled has been reduced from 2.1 fatalities to 1.5. Unfortunately, the fact that more people traveled more miles — 2.75 trillion in 2000 versus 2.15 trillion in 1990 — means that, overall, fatalities remain high. About 42,000 Americans die on our highways each year.

Highway fatalities are not limited to the occupants of cars and trucks. There were 299 transit fatalities in 1999, the most recent year for which data are available. In 2000, 4,739 pedestrians, 2,862 motorcycle riders, and 690 bicyclists were killed on the nation's roads.

Young adults, ages 16 to 24, represented 24 percent of all traffic fatalities in 2000, and drivers under 25 had the highest rate of involvement in fatal crashes of any age group. The highest intoxication rates were for drivers 21 to 24 years old. Passenger vehicle occupants 10 to 24 years old involved in fatal crashes had the lowest seatbelt use — just 49 percent.

From 1990 to 2000, the population over age 70 grew twice as fast as the rest of the population. Based on current levels of licensing, the population of older drivers is expected to quadruple in coming decades. Older drivers have a higher crash risk than other drivers because of vision problems, cognitive limitations, medication side effects, slower reaction time, muscular difficulties, and disease.

It is likely that older drivers will "age in place," meaning that they will generally remain in their pre-retirement housing. With the suburbanization of America, this means that older Americans will drive more. Between 1983 and 1995, older Americans had the largest increase in travel of any age group, and even drivers aged 85 or older continue to prefer driving their own vehicles. Unless alternatives, such as demand/response transit, are made available, this trend will continue.

The AASHTO Strategic Highway Safety Plan

The AASHTO Strategic Highway Safety Plan sets an ambitious goal: save 5,000 to 7,000 lives each year and substantially reduce health-care costs due to vehicle-related injuries. The plan identifies 22 key emphasis areas targeted at drivers, vehicles, highways, enforcement, emergency medical services, and management. Implementing AASHTO's Strategic Highway Safety Plan would cost at least $18 billion in capital costs over six years, and require an additional $1 billion per year for operating costs.*

Strategies aimed at reducing impaired driving, encouraging use of seatbelts and child restraints, requiring or encouraging the use of helmets by motorcyclists and bicyclists and improving licensing procedures and reviews could save thousands of lives annually if legislation and policy actions are applied across the nation and effective public information and enforcement campaigns are implemented.

AASHTO believes each state should develop a goal-oriented, performance-based comprehensive highway safety component incorporating education and enforcement as part of their long-range

***$18 billion is required for highway infrastructure aspects of just six of the 22 goal areas. Capital costs for the various enforcement, medical services, driver and pedestrian areas have not been estimated, and are not included.**



transportation planning process and be given the flexibility to invest resources where the most lives can be saved. To do this, the overall federal-aid highway program must be increased. Each comprehensive state highway safety plan should reflect the conditions that exist in the state and could include:

- Programs aimed at changing driver behavior;
- Reducing crashes involving running off the road, hazards from trees and utility poles and dangerous intersections;
- Roadway-safety improvements such as rumble strips, brighter pavement markings, safer work zones and ITS technologies.

HIGHWAY AND TRANSIT SECURITY



The terrorist attacks of September 11, 2001 have compelled us to consider how to secure America's highway and transit assets from such acts. Since then highway and transit agencies have mobilized to improve their abilities to protect the traveling public. They have done so in partnership with FHWA, FTA, and RSPA, and through the resources of TRB. They have built upon current work in operations technologies and natural disaster emergency planning, with added concern for the physical protection of key facilities.

States and local governments have conducted vulnerability assessments to define critical infrastructure in need of priority attention, such as bridges, tunnels, highway interchange structures and transit stations.

HIGHWAY SYSTEM SECURITY

System redundancy has proven to be a key planning factor. Current military and engineering judgment indicates that the complete protection of key facilities from destruction is not feasible or cost effective. In protecting assets states have been encouraged to follow the Department of Defense "4-D" approach: "deter, detect, defend and design." The overall practical objective of the counter-terrorism measures being pursued is not to provide full protection, but to reduce exposure through techniques such as:

- Denial of access to key structures through barriers and fencing;
- Minimizing time-on-target through surveillance cameras and patrolling;
- Hardening key facilities through blast shielding and strengthening of structures; and
- Reducing access to tunnel vents to protect them from biological/chemical attack.

Of the close to 600,000 bridges and tunnels nationwide, some 500 have been identified as critical based on facility size, traffic volume, and strategic importance.

ENHANCEMENT OF HIGHWAY EVACUATION AND EMERGENCY RESPONSE CAPABILITIES

The proposed overall security program has focused on the protection of threatened populations as well as assets. Improving the evacuation and emergency response capabilities of the urban roadway system is a key component of the national highway-related security program.

An evacuation network has been defined for the 78 largest metropolitan areas of the United States. This network incorporates about 10,500 miles of freeway and approximately 16,000 miles of arterials. An additional 600 miles of key higher volume Strategic Highway Network (STRAHNET) urban and rural routes identified by the Department of Defense would also be covered.

States and local governments managing these routes must be given the ability to track system use, performance, and incidents through accelerated deployment of vehicle detection technology,

including closed circuit TV surveillance. Variable message sign installation will improve communication with the traveling public as will deployment of "511" traveler information systems.

The September 11 experience has indicated the need to update "all-hazard" statewide emergency response plans to include terrorism, and to train officials in their use. Interoperable and reliable communications capabilities need to be funded to link transportation agencies with the military, law enforcement, rescue services and the public.

The capital cost of upgrading highway security, for both hardening as well as emergency response capabilities is estimated at $6.1billion for the next six years, with $578 million required annually for operating expenses.

Annual and Six Year Total Costs Summary for Highway-Related Security Program

		Capital Costs (in millions)						Total 6 Year Capital Costs (in millions)	Total; Operating Costs (in millions)	Average Annual O & M Costs (in millions)
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6			
Strategy	Elements									
Protection of Critical Mobility Assets	Retrofit Bridges	$245	$245	$245	$245			$980	$665	$110 per year
	New Bridge Security-related Costs	$70	$70	$70	$70	$70	$70	$420	$210	$35 per year
	Tunnels		$30	$30				$60		No cost attributable directly to security
	TMCs		$25	$25				$50		No cost attributable directly to security
Enhancement of Emergency Management Systems	Detection, Surveillance, VMS & Dynamic Routing	$609	$609	$609	$609	$609	$609	$3,654	$955	$160 per year attributable to security
Improvement of Emergency Response	Planning, Training, O & M, Communications	$156	$156	$156	$156	$156	$156	$936	$1,641	$273 per year
TOTAL		$1135	$1135	$1080	$1080	$835	$835	$6,100	$3,471 over six years	$578 per year

TRANSIT SYSTEM SECURITY

In both New York and Washington, transit played a crucial role in the safe evacuation of millions of people directly affected by the terrorist attacks on September 11. In New York City, emergency ferry service provided a critical link to replace access that was cut when the PATH station at the World Trade Center was destroyed and the Holland, Lincoln, and Brooklyn-Battery Tunnels were closed for several days after the attack. The availability of transit service allowed New York City officials to impose a ban on single occupancy vehicles in midtown and downtown Manhattan for several months, greatly facilitating the recovery effort in lower Manhattan.

Transit systems are also particularly vulnerable to terrorist attacks. Especially in large urban transit systems, large numbers of people are concentrated in relatively small spaces. Transit systems have been an inviting target for terrorists in other countries, such as the chemical attacks in the Tokyo subway in the early 1990s and the recent rash of bus-bombings in the Middle East.

PROTECTION OF CRITICAL TRANSIT ASSETS AND IMPROVED EMERGENCY RESPONSE

The needs for critical transit bridges and elevated structures and critical transit tunnels are similar in nature to highway needs. Capital costs, for both asset protection and emergency response capabilities, include detection and surveillance systems, such as closed-circuit TV in stations, and traveler information systems. The ongoing operations costs include staffing for increased security planning, surveillance, patrols, and response to alerts. Transit agencies must also improve their ability to respond in the event of a terrorist attack. Plans need to be developed, training provided, personal protective and detection equipment secured, and communications capabilities upgraded.

The capital cost of upgrading transit security is estimated at $6.2 billion for the next six years, with $500 million required annually for operating expenses.

Annual and Six-Year Total Costs Summary for Transit-Related Security Program

		Capital Costs (in millions)						Total 6 Year Capital Costs (in millions)	Average Annual O & M Costs (in millions)
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
Strategy	Elements								
Protection of Critical Mobility Assets*	Infrastructure and Rolling Stock Security	$1,700	$1,700	$900	$900			$5200	$ per year
Enhancement of Evacuation Capabilities	Detection, Surveillance, Traveler Information Systems	$250	$250					$500	$ 500 per year
Improvement of Emergency Response*	Planning, Training, O & M, Communications	$150	$150	$50	$50	$50	$50	$500	$ per year
TOTAL		$2100	$2100	$950	$950	$50	$50	$6,200	$500 per year or $3,000 over six years

LINKAGE TO OTHER MODES

Highways and transit do not exist and operate in isolation from each other or other modes of transportation. Passenger trips and freight deliveries frequently involve more than one mode and often there are choices of modes for both passenger and freight trips between two points.

Most transit commuter trips start with a trip on the highway by either car or bus. Virtually all passenger trips by rail or air require connections involving car, cab, transit or rail. For many travelers, congestion on the runways is preceded by congestion on the highways.

Merchandise manufactured and packed in a container in China may be imported to the U.S. through the Port of Long Beach, trucked to the nearby Intermodal Container Transfer Facility (or moved by rail through the Alameda Corridor), loaded onto a double-stack unit-train, moved by rail to Chicago, transferred across town by truck from a Western railroad to an Eastern railroad, moved by rail to New Jersey, transferred to a truck, taken to a nearby distribution center where the contents are transferred to smaller trucks, and finally delivered by van to a customer in Brooklyn. At every point in this chain delays and disruptions create costs for producers, transporters, sellers and consumers and the volume of freight movement may, in turn, cause delays and disruptions for passenger travel.

PASSENGER TRANSPORTATION LINKAGES

In the implementation of transportation programs, modal linkages are being developed in a much more systematic manner than was the case in the past, as illustrated by the following examples:

Intermodal Facility, Huntington, West Virginia

Huntington, West Virginia's TEA-21-funded Intermodal Transportation Facility will be in the center of the city, as a transfer point for local and interstate buses, taxis, private cars and bicycles. A new shuttle service will link the center with Marshall University. Financed with $26 million in federal funding, the facility will reduce traffic and increase economic development in the downtown.

J.F.K. AirTrain, New York

AirTrain, a light-rail system being built by the Port Authority of New York and New Jersey using funding from passenger facility charges, will provide fast, convenient and dependable surface access to and within John F. Kennedy International Airport. The 8.1-mile system will link J.F.K.'s airline terminals, car rental agencies and parking with commuter rail and subways.

California Capital Corridor

The passenger-rail corridor running from San Jose, California, to Auburn, California, through Sacramento, which has had a five-fold increase in ridership over one decade, benefits significantly from a feeder-bus network, which 29 percent of passengers utilize on one or both ends of their train ride.

The events of September 11 highlighted the importance of multiple modes of transportation and the need for a resilient system with built-in redundancy critical in times of emergency and necessary in the "new normal" era. While the airlines were out of operation, intercity passenger rail picked up

the slack. When evacuation from lower Manhattan was impossible by car or transit, the passenger ferry system moved more people than anyone could have predicted.

FREIGHT INTERMODAL LINKAGES

Intermodal terminals for freight modes may be highly specialized depending on the commodities being moved, or their packaging, e.g. containers, bulk grain, petroleum, vehicles, whereas on the passenger side the constant is that the commodity shipped is people and only small variations exist in their handling, typically a function of length of stay at the terminal, baggage requirements, border formalities, etc.

In 2001 the Intermodal Association of North America, IANA, reported detailed intermodal linkages that involved containerization, a rapidly growing and increasingly significant component of truck-rail linkages. In a down year in the aftermath of September 11 they measured over 10 million container moves in rail intermodal flows, up dramatically over 20 years from about 3 million containers in 1980. Of these, slightly more than half involved international container movements; the remaining half involved domestic movements, divided almost equally between containers and truck trailers on flat cars. The Association of American Railroads (AAR) has stated that intermodal flows are their industry's fastest-growing segment, constituting 20 percent of industry revenues. The AAR reported further that in the year ending in July, intermodal traffic has risen over 10 percent.

It is clear that the intermodal flows of goods over road, rail and other modes are increasingly central to key parts of the US and world economies and a major component of U.S. road activity.

Intermodal connectors, often called "the last mile," are a critical element of the freight transportation system. As part of the National Highway System designation process stemming from ISTEA,

Passenger and Freight Intermodal Connectors

Connector Type	Number
Passenger only	
Public Transit Stations	389
Intercity Bus Stations	99
Amtrak Stations	71
Ferry Terminals	59
Multimodal Passenger Sites[1]	42
Joint Terminals[2]	
Maritime Facilities	247
Airports	228
Freight Only	
Truck/Rail Terminals	211
Pipeline/Truck Terminals	61

criteria were developed in 1995 to identify key freight hubs terminals and their NHS intermodal connector routes, those segments of road that connect the hub to the core highway system. Over 1,400 connectors to terminals were identified and provided to the Congress in 1996 as summarized below, for both passenger and freight connectors.

In the category of freight connectors, the FHWA identified 616 freight terminals served by 1,222 miles of highway connectors as shown in the following table.

Freight Intermodal Connectors

Connector Type	Terminals	Miles
Ports (ocean and river)	253	532
Airports	99	221
Truck/Rail Terminals	203	354
Pipeline/Truck Terminals	61	115
Total Number of NHS Freight Terminals	616	1222

The FHWA survey found that pavement conditions on these connectors were more likely to be poor or very poor than were the full NHS system, particularly at ports and at truck rail/facilities and that relatively modest investment would yield substantial returns in terms of safety, freight movement speed and reliability, and reduced traffic disruptions for passenger cars, trucks and rail.

Rail-Highway Grade Crossings

The many intersection points between the rail and highway networks generate a special case of intermodal interaction. These points of intersection have been a serious concern for many years in regard to their potential threat to safety. As both rail and highway traffic increases rail-highway crossings become important barriers to the smooth flow of freight and passengers and the fuller utilization of available capacity. The Institute for Transportation Research and Education at North Carolina State University surveyed rail-safety needs in 2002, focusing on highway-rail at-grade crossings and identified needs covering freight- and passenger-rail lines totaling $13.8 billion. The needs ranged from new installations and upgrades of existing warning systems to grade separations and track relocations.

Modal Interactions

Congestion and capacity problems in other modes have direct impacts on highway congestion and capacity. To the degree that other modes — passenger and freight rail and the marine transportation system — can carry their weight, the burden on highways will be lessened. AASHTO's Freight Rail Bottom Line Report, for example, estimates that minimal investment and no growth in the freight rail industry between now and 2020 would "shift almost 900 million tons of freight and 31 billion truck miles of travel to the highways. The business cost to shippers is estimated at



$326 billion; the cost in travel time, operating, and accident costs to highway users is pegged at $492 billion, and the costs in added highway maintenance is $21 billion over the 20-year period.

In one state — Kansas — changes over the last 10 years, such as the construction of unit-train loading facilities on Class I main lines, the introduction of 286,000 pound (heavy axle load) grain hopper cars, the emergence of fewer and larger farms with increased scale of operations, and the increased farmer ownership of semi-tractor trailer trucks, have resulted in a shift from transporting grain via short-line railroads serving country elevators to increased trucking of grain.

While there has been a modal shift in the transportation of grain in Kansas, and Kansas short line railroads have abandoned non-profitable line segments within the system, the remaining Kansas short line infrastructure continues to play a vital role in the state's freight transportation infrastructure. According to *Impact of Kansas Grain Transportation on Kansas Highway Damage Costs (2002)* for the area studied, "the short-line rail system saves the state of Kansas $49.5 million in pavement damage costs annually, with the average damage cost of incremental truck traffic costing approximately $0.17 cents per truck mile."

Similarly, AASHTO's analysis of intercity passenger rail service shows benefits in reduced congestion for both highway and air transportation from increases in passenger rail ridership.

AASHTO PREPARING OTHER MODAL INVESTMENT REPORTS

- To address the investment needs of other transportation modes, AASHTO is preparing the following reports.
- Intercity Passenger Rail Report documents investment needs for existing and planned intercity passenger rail corridors.
- Freight Rail Bottom Line Report estimates freight rail investment needs.
- Aviation Bottom Line Report estimates future investment needs to maintain and expand the air transportation system.
- Ports and Waterways Bottom Line Report documents the investment needs for the nation's ports and waterways,



FUNDING ISSUES

FEDERAL, STATE AND LOCAL FUNDING ROLES:

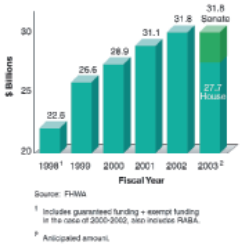
Total highway expenditures by all units of government reached $127.5 billion in 2000 — $64.6 billion in capital outlays. Federal assistance was $30.8 billion in FY 2000, and in FY 2003, will wind up somewhere between the figure of $27.7 billion pending in the U.S. House of Representatives, and $31.8 billion currently before the U.S. Senate.

In 2000, states, at 51.7 percent, provided the largest share of funding. Local governments were second at 24.3 percent and the federal government a close third, at 24 percent. Total funding of the highway program rose by 70 percent between 1990 and 2000, an increase of $53.1 billion to reach a level of $127.5 billion. As a result of enhanced ISTEA and TEA-21 funding, federal funding grew the fastest in percentage terms in the period, producing an increase in the federal share. However, the states grew the fastest in dollar terms, supplying half the increase in the period, with local governments providing 30 percent of the increase and the federal government, the remaining 20 percent.

With 46 out of 50 states facing a severe fiscal crisis in 2002, it is not clear what their abilities will be to increase funding for transportation over the next six years. There are some hopeful signs, however. In 2002, Maine joined 11 other states by indexing its fuel taxes to the Consumer Price Index. Kansas raised its gas tax by two cents. Indiana increased its fuel tax by three cents. Finally, transportation funding referendums will be voted on in Virginia and Washington State this year.

Total transit expenditures from all sources reached $33.8 billion in 2000 - $9.5 billion in capital outlays. Federal transit assistance increased from $5.8 billion in FY2000 to $7.2 billion in FY2003. FTA reports that $1.6 billion in federal highway funds were flexed to transit in FY2000. Cumulatively from FY1992 to FY2001, $7.7 billion was flexed from highways to transit. In addition to flexing federal funds to transit, many states provide a substantial amount of state funds to public transportation. State transit funding increased from $6 billion in 1999 to more than $6.6 billion in 2000. For example, last year, at the request of Governor Gray Davis, the California Legislature approved a $6.8 billion "Congestion Relief" program that channeled $3.5 billion to transit and transit-related activities.

Federal Aid Highway Obligations 1998-2003



Source: FHWA

[1] Includes guaranteed funding + exempt funding in the case of 2000-2002, also includes RABA.

[2] Anticipated amount.

Guaranteed Transit Obligations 1998-2003



Source: FHWA

[1] There is actually no firewall amount for 1998. The amount shown reflects the amount available either as contract authority or appropriated budget authority

[2] Anticipated amount.

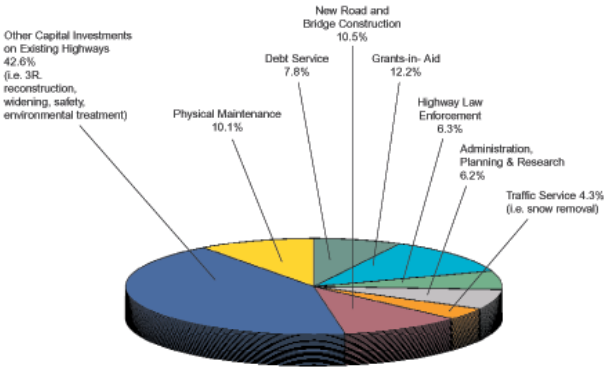
FY2000 Federal Highway Trust Fund receipts were $34.9 billion: $4.6 billion of this went to the Mass Transit Account and the remaining $30.3 billion to highways.

Federal Highway Trust Fund Net Receipts — FY2000

Source	Receipts ($1,000,000)	Percent of Total
Motor Fuel Gasoline Gasohol Diesel and Other	$30,288[1] 20,802 1,609 7,877	86.6
Trucks and Trailers	3,321	9.5
Heavy Vehicle Use	921	2.6
Tires	442	1.3
Total Tax Receipts	34,972	100.0
Interest Income	0[2]	
Total Receipts	$34,972	

[1]Includes transfers of $4625,403,000 to the Mass Transit Account.
[2]Includes no funds credited to the mass Transit Account.

State Disbursements for Highways 2000



Financing Opportunities

The tradition in American highway finance has been heavy reliance on pay-as-you-go, tying the rate of highway improvement to the rate of revenue generation from users. In the 1990s this expanded. New public toll roads were built. Public/private ventures were initiated such as the 15-mile Dulles Greenway, in northern Virginia and the Orange County, California Transportation Corridor Authority Projects. The use of federal funds to pay debt service costs was permitted. GARVEE bonds, state infrastructure banks, and TIFIA were authorized. As a result states, counties and cities have made use of these and other forms of highway debt finance on an increasing basis.

To get a better handle on developments in this area, a National Cooperative Highway Research Program (NCHRP) study was conducted among 38 states to review how state DOTs were using debt finance to better meet their needs. Some of the results are displayed in the following table:

Among the survey findings: general-obligation bond issues declined, as did toll revenue and sales tax revenue bonds. On the other hand, bonding activity backed by highway revenues increased by 16 percent annually.

1990s Federal Program Changes Expanded Debt Financing Options

In 1994, FHWA spearheaded an initiative to introduce new flexibility into financing the Federal-aid Highway Program. The test and evaluation research initiative TE-045 allowed states to submit proposals for alternatives to conventional pay-as-you-go, grant-based funding strategies.[4] As of fall 2001, 102 projects had been approved in 42 states.[5] More than 60 of these projects ultimately advanced to construction using various innovative tools later approved for general use under the federal-aid highway program. The combined value of these 60 projects is approximately $4 billion.[6]

Further diversification of debt financing in the 1990s was due to enactment of the National Highway System Designation Act (NHS) (1995) and TEA-21 (1998). The NHS Act authorized the use of federal funds to pay debt service costs and the establishment of the State Infrastructure Bank Program. TEA-21 gave states the opportunity to access federal loans and credit enhancements for projects meeting specific criteria.

SIBs are revolving fund mechanisms designed to finance a wide variety of highway and transit projects through loans and credit enhancements. Since 1996, 32 states have financed over 245 highway and transit projects with project costs of $2.9 billion.[7]

GARVEE Bonds

Grant Anticipation Revenue Vehicles - can be used for any Federal-aid highway or transit project. From 1998 to present, six states have issued over $2 billion in GARVEE bonds directly repaid by Federal funds.[8]

TIFIA

The Transportation Infrastructure Finance and Innovation Act, authorized loans and credit enhancements for major projects at a low cost to the government. Total program activity from TIFIA's inception includes five highway and bridge projects and six other projects with capital costs totaling more than $15 billion.[9]

Transportation Bond Activity Summary — 1998-2001 in millions

Bond Type	1998	1999	2000	2001	Total
Advancing Funds					
General Obligation Bond	978	809	697	239	2723
Highway Revenue Bond	1648	1611	2060	2719	8039
Federal Grant Anticipation Bond	614	20	1691	1253	3578
Lease Payment Bond	298	0	334	304	935
SUB-TOTAL	3538	2440	4782	4515	15275
New Funds					
Private/Public Partnership	554	75	752	466	1847
Toll Revenue Bond	3100	2089	1982	1393	8564
Fuel Tax Revenue Bond	903	1523	890	1110	4426
Sales Tax Revenue Bond	146	120	114	66	446
State Infrastructure Bank	293	309	269	370	1241
SUB-TOTAL	4996	4116	4007	3405	16524
TOTAL	8534	6556	8789	7920	31799
Issues Under $10 Million	507	445	462	513	1927
GRAND TOTAL[1]	9041	7001	9251	8433	33726

[1]Does not include refundings of $4131 for the four year period.

Future Opportunities

Expansion of these financing techniques and development of new approaches will depend on three factors: resources, tools and institutional readiness. First, there is no free lunch with innovative financing — revenue sources, be they tolls, dedicated sales, fuel or property taxes, must be available to meet debt service requirements. Second, the transportation community must continue to push the envelope and stretch available resources through the development new financial tools.

Finally, institutional readiness needs to be improved. Some states have statutory limitations on the use of debt financing. In many other states, there are few in DOT management with the skills and experience in debt financing needed. AASHTO and FHWA, in partnership with the University of Southern California (USC) Graduate School of Finance, have created a Project Finance Institute. It will provide state and local transportation agencies the special training and technical assistance needed to improve their ability to master and implement the growing array of financial tools now available.

Private Sector Roles

There are at least two ways the private sector plays a significant role in adding to the stock of the nation's highways.

The first is in the development of toll roads and bridges. According to the International Bridge, Tunnel and Turnpike Association (IBTTA), there are currently 102 toll road and bridge authorities in the U.S. generating annual receipts of $11 billion. They manage 4,600 miles of roadways and 308 bridges. In 1999, total capital outlays for toll roads, bridges and tunnels were $3.9 billion.

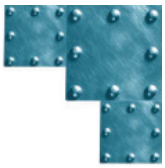
The second is the construction of roads by developers of homes and commercial facilities. These improvements are divided into two classes:

- **On-site** — consisting of streets produced as part of a housing complex or commercial site to serve their buildings.
- **Off-site** — consisting of roads produced or improved to offset the transportation impacts of new developments.

These roads are typically built according to specifications provided and then turned over to local or state governments.

With 1.6 million units of new housing being produced per year, it is estimated that $5 billion annually is being invested by developers constructing almost 12,000 lane miles of road. With regard to commercial developments, it is estimated that $7 billion annually is being invested, accounting for 11,000 lane-miles.

It is clear that the private sector plays a major role in road development in America.



Appendix A

COMPARISON OF AASHTO'S NEEDS ASSESSMENT WITH FHWA'S CONDITION AND PERFORMANCE REPORTS

All U.S assessments of national highway need draw their fundamental understanding from the Condition and Performance Reports of the FHWA, and the data and modeling systems that support it. Typically conducted every two years, those studies provide the fundamental grounding in the state of the system and the state of travel that guides all such efforts. The FHWA is to be commended for the comprehensiveness and responsibility with which it approaches this undertaking. All those who are interested in a rational and quantified approach to investment analysis are in its debt.

The statements of investment needs that appear here are strongly grounded in the methods and information context of the C&P process. They utilize the same data and models as made available by FHWA and their research activities. Many of the improvements and extensions in analytical capabilities utilized here are products of FHWA/AASHTO/TRB joint research.

It should be recognized that these AASHTO statements of need are being prepared in parallel with FHWA's preparation of its forthcoming 2002 Condition and Performance Report, and will not have the benefit of that report in our efforts.

In that the AASHTO and FHWA statements of investment needs utilize the same data sets and models they should have similar results. There are significant differences between what is being reported by the two agencies that must be noted:

- The C&P takes its timeframe starting from an historical base, e.g. the 1999 report began from 1997 and looked out 20 years into the future. Their coming report will take a 20- year perspective starting from the year 2000. The Bottom Line Report is focused on the next reauthorization time frame, beginning in 2004 and ending in 2009, but embeds that near-term focus in the context of a 20-year view as well
- The C&P will describe its results in terms of an average value over 20 years; the AASHTO results are described in terms of an average over the six years of the next reauthorization.
- If it is accepted, as both the AASHTO and the C&P will show, that present investment levels fall short of meeting needs to maintain conditions, then it is to be expected that the AASHTO starting point of four years later would start its analysis with the need to address a more-deteriorated system, a greater backlog of investment requirements with greater traffic volumes and therefore needs levels that would have become greater over the period.
- Recognizing all these factors we would expect that the AASHTO levels of investment needs would be greater than those identified by FHWA in its report.

In order to compare the highway needs estimates contained in this report with estimates made in prior years by the Federal Highway Administration, the following factors must be considered.

Cost to Maintain.

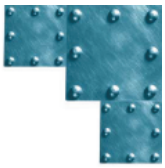
In 1999, FHWA chose to feature a "cost to maintain" figure of **$56.6 billion** per year, in 1997 dollars which maintained physical condition, but not performance." It also showed a value of **$60.7 billion** for maintaining user costs which is more analogous to their present approach. In addition its report stated that, "turning on the high cost lane feature," of the HERS model as had been done, "in previous C&P reports … to add additional lanes in congested areas … would increase the cost to maintain highways and bridges by 28.7 percent" (or **$77 billion** per year).

When those values are brought forward to 2000 using appropriate inflation adjustments, and then extrapolated to 2004 using HERS model cost factors recognizing continued annual increases in travel and levels of funding below that needed to meet needs, this figure would be highly comparable to AASHTO's "cost to maintain" estimate of **$92 billion**.

Because of widespread concern over congestion, AASHTO found it necessary for 2004-2009, to use a scenario which addressed preserving *both condition and performance*, rather than just condition as FHWA chose to do in 1999. FHWA's customer survey in 2001, found "traffic flow" to be the biggest source of dissatisfaction nationally, and the Texas Transportation Institute's 2002 report on congestion shows it increasing in nearly every region.

Cost to Improve

FHWA's 1999, "cost to improve" figure was **$94 billion**. Its report stated that, "Turning on the high-cost lane feature would increase the cost to improve highways and bridges by 38 percent. This feature allows HERS to add additional lanes in areas where existing right of way is constrained. While these lanes are expensive, the model would consider them to be cost-beneficial in many situations." This change would increase FHWA's 1999 "cost to improve" figure to **$129.7 billion**. This is comparable in structure and in the same range as AASHTO's 2004-2009 cost to improve estimate of **$125.6 billion**.



Appendix B

NCHRP/TCRP RESEARCH ACTIVITIES IN SUPPORT OF AASHTO REAUTHORIZATION INITIATIVES

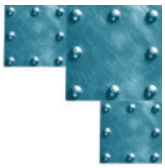
1. **NCHRP 20-7 (140)**, *TEA-21 Stewardship Report* — Cambridge Systematics, Inc.
2. **NCHRP 20-24(15)A**, *Scoping Study for Reauthorization Support* — Alan Pisarski
3. **NCHRP 20-24(15)B**, *Review of the FHWA Conditions & Performance Report and Process* — Alan Pisarski, Michael Bronzini, Kevin Heanue, Henry Peyrebrune, and Ronald Tweedie, Cambridge Systematics, Inc.
4. **NCHRP 20-24(26 A & B)**, *Finance Trends — Trends in Non-Federal Funding and Debt* — PB Consult & Urban Land Institute
5. **NCHRP 20-24(27)**, *Expanded State and National Investment Analysis Capability — Highway* — Cambridge Systematics, Inc.
6. **NCHRP 8-36(18)A**, *The Impact of Changing Demographics on Highway Safety* — AECOM Consulting
7. **NCHRP 8-36(22)**, *Demonstrating the Positive Impacts of Transportation Investments on Economic, Social, Environmental, Community, and Quality of Life Issues* — Cambridge Systematics, Inc., Benefits of Reductions in Fuel Use and Pollution-related Effects Associated with Highway Investment — Cambridge Systematics, Inc.
8. **NCHRP 8-36(23)**, *Review of the Potential Feasibility of Using Alternative Revenue Sources to Fund Future State Transportation Needs* — Cambridge Systematics, Inc.
9. **NCHRP 8-36(24)**, *Conditions & Performance Report Investment Requirements Scenario Development* — Alan Pisarski
10. **NCHRP 8-36(25)**, *Improved Geographic Clarity in Reporting of Road System Extent* — ICF, Inc
11. **NCHRP 8-36(26)**, *Surface Transportation Safety and Investment* — CH2M HILL
12. **NCHRP 8-36(27)**, *Interstate Interchange Review* — ICF, Inc.
13. **NCHRP 20-24(25)**, *Improving Project Costing and Incorporation of New Attributes — Highways and Transit* — AECOM Consulting
14. **NCHRP 20-24(26)**, *Finance Trends in Non-Federal Funding and Debt-$100,000* — PB Consult, Inc.; — Urban Land Institute

15. **NCHRP 20-24(27)**, *Expanded State and National Investment Analysis Capabilities — Highways* — Cambridge Systematics, Inc.

16. **TCRP J-6**, *Expanded State and National Investment Analysis Capability — Transit* — Cambridge Systematics, Inc.

17. Pending Tasks

    - **NCHRP 20-24(23)**, *Assessing the Importance of Transportation for Major Industries and Sectors of the U.S. Economy*
    - **NCHRP 20-24(24)**, *Transportation Mobility, Access, and Safety for an Aging Population — NCHRP (28), Rate of Return from Highway Investment*



Appendix C

ENDNOTES

i U.S. Department of Transportation (USDOT). *State of the Nation's Highways, Bridges, and Transit: Condition and Performance*. (Washington, D.C.: USDOT, 1999.)

ii USDOT. *State of the Nation's Highways,Bridges, and Transit: Condition and Performance.*

iii For further information, please refer to the USDOT's Federal Highway Administration (FHWA) 2001 report *Moving Ahead: The American Public Speaks on Roadways and Transportation in Communities.*

iv USDOT. 1997 Status of the Nation's Transportation Systems: Condition and Performance (Washington, D.C.: USDOT, 1997.); USDOT. State of the Nation's Highways, Bridges, and Transit: Condition and Performance.

v USDOT. *State of the Nation's Highways, Bridges, and Transit: Condition and Performance*, 10-5.

vi USDOT. *State of the Nation's Highways, Bridges, and Transit: Condition and Performance.*

vii The HERS model, employing the Highway Performance Monitoring System (HPMS) data base, provided to FHWA by the states, performs analyses on 160,000 sample road segments and determines current needs and future requirements based on evaluations of each segment's present and future condition and performance. All prospective improvements on each sample segment are subjected to cost-benefit analysis and only those demonstrating a positive return are accepted.

viii Cambridge Systematics, Inc. *Expanded State and National Transit Investment Analysis.* (Cambridge, MA: Cambridge Systematics, Inc., 2002): ES-1

ix Cambridge Systematics, Inc. *Expanded State and National Transit Investment Analysis*, ES-1, ES-2

x Cambridge Systematics, Inc. *Expanded State and National Transit Investment Analysis*, ES-2

xi Cambridge Systematics, Inc. *Expanded State and National Transit Investment Analysis*, ES-3, 2-5, 2-6

xii Cambridge Systematics, Inc. *National Transportation Needs.* (Cambridge, MA: Cambridge Systematics, Inc., 2002): ES-3, 2-5, 2-6

xiii The American Association of State Highway and Transportation Officials (AASHTO). *AASHTO Strategic Highway Safety Plan: A Comprehensive Plan to Substantially Reduce Vehicle-Related Fatalities and Inuries on the Nation's Highways.* (Washington, D.C.: AASHTO, 1998): 1

xiv USDOT, National Highway Traffic Safety Administration (NHTSA). *Traffic Safety Facts 2000: Overview.* (Washington, D.C.: USDOT, 2000): 2

xv USDOT, NHTSA. *Traffic Safety Facts 2000.* (Washington, D.C.: USDOT, 2000), 15.

xvi USDOT, FHWA, Office of Highway Policy Information. *Annual Vehicle — Miles of Travel.* **http://www.fhwa.dot.gov/ohim/onh00/graph1.htm**

xvii USDOT, NHTSA. *Traffic Safety Facts 2000*, 15.

xviii USDOT, Bureau of Transportation Statistics. *National Transportation Statistics 2000*. (USDOT: Washington, D.C., 2001): 147.

xix USDOT, NHTSA. *Traffic Safety Facts 2000*, 18.

xx USDOT, NHTSA. *Traffic Safety Facts 2000*, 86, 98, 112, 119.

xxi $18 billion is required for the highway infrastructure aspects of just six of the 22 goal areas. Capital costs for the various enforcement, medical services, driver and pedestrian areas have not been estimated and are not included.

xxii Further information about transportation employment facts and figures can be found at the web sites for FHWA, **http://www.fhwa.dot.gov/policy/empl.htm**, and the U.S. Department of Labor's Bureau of Labor Statistics, **http://www.bls.gov**.

xxiii Cambridge Systematics, Inc. *Public Transportation and the Nation's Economy: A Quantitative Analysis of Public Transportation's Economic Impact*. (Cambridge, MA: Cambridge Systematics, Inc., 1999): E-1.

xxiv U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau. *1997 Economic Census — Transportation: 1997 Commodity Flow Survey*. (Washington, D.C.: U.S. Department of Commerce, 1999), **http://www.census.gov/econ/www/cfsmain.html**.

xxv Unpublished findings from the National Cooperative Highway Research Program (NCHRP) Project 8-36, Task 22 (Demonstrating the Positive Impacts of Transportation Investments on Economic, Social, Environmental, Community, and Quality of Life Issues).

xxvi U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau. 199 7 *Economic Census — Transportation: 1997 Commodity Flow Survey*, **http://www.census.gov/econ/www/cfsmain.html**.

xxvii ICF Consulting and HLB Decision-Economics. *Economic Effects of Transportation: The Freight Story*. (Fairfax, VA: ICF Consulting, 2002): 16.

xxviii For additional information, please refer to the FHWA web site at **http://www.fhwa.dot.gov/policy/empl.htm**.

xxix For additional information, please refer to the web site link for the U.S. Department of Commerce's Bureau of Economic Analysis at **http://www.bea.doc.gov/**.

xxx For more information on these statistics and others, please refer to the web site for the U.S. Census Bureau at **http://www.census.gov**.

xxxi USDOT, FHWA. *Highway Statistics 2000*. (Washington, DC: USDOT, 2001), IV-16.

xxxii The findings of this study, conducted under the aegis of NCHRP Project 8-36, Task 27 (Interstate Interchange Review) , have not been published yet.

xxxiii For further information on this topic, please consult the web site link for FHWA's Office of Bridge Technology at *http://www.fhwa.dot.gov/bridge*.

xxxiv U.S. General Accounting Office (USGAO). *Federal Highway Funding by Program and Type of Roadway, With Related Safety Data*. (Washington, D.C.: USGAO, 2001): 8.

STATEMENT OF JAYETTA HECKER, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUE, GENERAL ACCOUNTING OFFICE

Mr. Chairman and members of the committee: We appreciate the opportunity to testify on the challenges faced by the surface and maritime transportation systems in maintaining and improving mobility. Your hearing today focuses on important issues about the physical condition, performance, and future investment requirements of the nation's roadways and bridges.[1] Our remarks will focus on the performance of the transportation systems. More specifically, we will discuss the ulti-

[1]We have not had an opportunity to review the Department of Transportation's Conditions and Performance Report that is expected to be released at today's hearing.

mate desired outcome of transportation infrastructure improvements—enhanced mobility-and the possible strategies for achieving that outcome.[2]

The scope of the U.S. surface and maritime transportation systems-which primarily includes roads, mass transit systems, railroads, and ports and waterways[3]—is vast. One of the major goals of these systems is to provide and enhance mobility. Mobility provides people with access to goods, services, recreation, and jobs; provides businesses with access to materials, markets, and people; and promotes the movement of personnel and material to meet national defense needs. However, the U.S. surface and maritime transportation systems have become congested and concerns have been raised about the burden they impose on the nation's quality of life through wasted energy, time, and money; increased pollution; and threats to public safety. Barriers to transportation accessibility for certain population groups and the level of financial resources available to address transportation problems are also major concerns. Balancing the goal of improving mobility with other social goals, such as environmental preservation, will present challenges.

Our statement is based on a report that we are releasing today on surface and maritime transportation mobility.[4] We will discuss (1) key challenges in maintaining and improving mobility and (2) key strategies for addressing the challenges. Our report is primarily based on expert opinion drawn from two panels of surface and maritime transportation experts that we convened in April 2002. Our work also included a review of reports prepared by Federal agencies, academics, and industry groups. Appendix I provides further information on our scope and methodology and appendix II contains a list of relevant GAO products.

In summary:

• With increasing passenger and freight travel, the surface and maritime transportation systems face a number of challenges in ensuring continued mobility. These challenges include:

• Preventing congestion from overwhelming the transportation system. Increasing passenger and freight travel has already led to increasing levels of congestion at bottlenecks and peak travel times in some areas. For example, the amount of traffic experiencing congestion during peak travel periods doubled from 33 percent in 1982 to 66 percent in 2000 in 75 metropolitan areas studied by the Texas Transportation Institute.[5] Freight mobility is also affected by increasing congestion within specific heavily used corridors and at specific bottlenecks that tend to involve intermodal connections, such as border crossings, and road and rail connections at major seaports within metropolitan areas. Furthermore, congestion is increasing at aging and increasing unreliable locks on the inland waterways.

• Ensuring access to transportation for certain underserved populations (including some elderly, poor, and rural populations that have restricted mobility) and achieving a balance between enhancing mobility and giving due regard to environmental and other social goals. Policies and patterns of development that encourage automobile dependence and favor provision of transit services with inflexible routes and schedules-such as subway or bus-may disadvantage some groups by limiting their access to needed services or jobs. The surface and maritime transportation systems also face the challenge of effectively addressing pollution problems caused by increased travel levels. Emissions from passenger and freight vehicles, shipping waste disposal practices, and excessive noise levels have contributed to the degradation of air quality, disruption of ecosystems, and other problems.

There is no one solution for the mobility challenges facing the Nation, and our expert panelists indicated that numerous approaches are needed to address these

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[2]In a July 2001 testimony before the former Subcommittee on Transportation and Infrastructure, Senate Committee on Environment and Public Works, we reviewed the infrastructure investment estimates of seven Federal agencies and found that they focus mostly on the condition of the infrastructure rather than the desired outcomes (e.g., less traffic congestion) that can be expected from additional infrastructure investments. We cautioned against relying mainly on measures of need based primarily on the condition of existing infrastructure and instead suggested comparing the costs and benefits of alternative approaches for reaching outcomes, including noncapital alternatives (such as strategies to manage demand rather than build new infrastructure). See U.S. General Accounting Office, U.S. Infrastructure: Funding Trends and Federal Agencies' Investment Estimates, GAO–01–986T (Washington, DC.: July 23, 2001).

[3]In this testimony, we define the surface transportation modes to include highways, mass transit systems, and railroads; and the maritime transportation modes to include ports, inland waterways, and the intermodal connections leading to them. Pipelines were not part of our review.

[4]U.S. General Accounting Office, Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge, GAO–02–775 (Washington, DC.: Aug. 30, 2002).

[5]David Shrank and Tim Lomax, 2002 Urban Mobility Report (College Station, Tex.: Texas Transportation Institute, June 2002).

challenges. From these discussions, we believe that the wide range of approaches can be clustered into three key strategies that may help transportation decision-makers at all levels of government address mobility challenges. These strategies include the following:

- Focus on the entire surface and maritime transportation system rather than on specific modes or types of travel to achieve desired mobility outcomes. Transportation agencies at the Federal, State, and local level might shift focus from their current emphasis on single modes to consider performance outcomes of all modes in addressing mobility challenges, and to recognize interactions across modes between passenger and freight traffic, and between public and private interests. This is important because addressing the mobility challenges outlined above can involve a scope beyond a local jurisdiction or a State line, and may require coordination across multiple modes, types of travel, or types of transportation providers and planners.
- Use a full range of techniques to achieve desired mobility outcomes. Using various techniques-such as new construction, corrective and preventive maintenance, rehabilitation, operations and system management, and pricing-to address complex mobility challenges, may be more effective than placing emphasis on any one technique.
- Provide more options for financing mobility improvements and consider additional sources of revenue. This strategy-which involves providing more flexibility in funding across modes, expanding financial support for alternative financing mechanisms (e.g., credit assistance to State and local governments), and considering various revenue-raising methods-may offer promise for addressing key mobility problems.

Background

The U.S. surface and maritime transportation systems facilitate mobility through an extensive network of infrastructure and operators, as well as through the vehicles and vessels that permit passengers and freight to move within the systems. The systems include 3.9 million miles of public roads, 121,000 miles of major private railroad networks, and 25,000 miles of commercially navigable waterways. They also include over 500 major urban public transit operators in addition to numerous private transit operators, and more than 300 ports on the coasts, Great Lakes, and inland waterways.

Maintaining transportation systems is critical to sustaining America's economic growth. Efficient mobility systems significantly affect economic development: cities could not exist and global trade could not occur without systems to transport people and goods. The pressures on the existing transportation system are mounting, however, as both passenger and freight travel are expected to increase over the next 10 years, according to Department of Transportation (DOT) projections. Passenger vehicle travel on public roads is expected to grow by 24.7 percent from 2000 to 2010. Passenger travel on transit systems is expected to increase by 17.2 percent over the same period. Amtrak has estimated that intercity passenger rail ridership will increase by 25.9 percent from 2001 to 2010. Preliminary estimates by DOT indicate that tons of freight moved on all surface and maritime modes-truck, rail, and water-are expected to increase by 43 percent from 1998 through 2010, with the largest increase expected to be in the truck sector. The key factors behind increases in passenger travel, and the modes travelers choose, are expected to be population growth, the aging of the population, and rising affluence. For freight movements, economic growth, increasing international trade, and the increasing value of cargo shipped may affect future travel levels and the modes used to move freight.

The relative roles of each sector involved in surface and maritime transportation activities-including the Federal Government, other levels of government, and the private sector-vary across modes. For public roads, the Federal Government owns few roads but has played a major role in funding the nation's highways. With the completion of the interstate highway system in the 1980's-and continuing with passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)[6] and its successor legislation, the Transportation Equity Act for the 21st Century (TEA–21)[7], in 1998-the Federal Government shifted its focus toward preserving and enhancing the capacity of the system. While the Federal Government's primary role has been to provide capital funding for the interstate system and other highway projects, State and local governments provide the bulk of the funding for public

[6]P.L. 102–240 (Dec. 18, 1991).
[7]P.L. 105–178 (June 9, 1998).

roads in the United States and are responsible for operating and maintaining all nonFederal roads, including the interstate system.

For transit systems—which include a variety of multiple-occupancy vehicle services designed to transport passengers on local and regional routes-the Federal Government provides financial assistance to State and local transit operators to develop new transit systems and improve, maintain, and operate existing systems. The largest portion of capital funding for transit comes from the Federal Government, while the primary source for operating funds comes from passenger fares.

The respective roles of the public and private sector and the revenue sources vary for passenger as compared with freight railroads. For passenger railroads, the Rail Passenger Service Act of 1970 created Amtrak to provide intercity passenger rail service because existing railroads found such service unprofitable. Since its founding, Amtrak has rebuilt rail equipment and benefited from significant public investment in track and stations, especially in the Northeast corridor, which runs between Boston and Washington, DC. The role of the Federal Government in providing financial support to Amtrak is currently under review amid concerns about the corporation's financial viability and discussions about the future direction of Federal policy toward intercity rail service. For freight railroads, the private sector owns, operates, and provides almost all of the financing for freight railroads. Currently, the Federal Government plays a relatively small role in financing freight railroad infrastructure by offering some credit assistance to State and local governments and railroads for capital improvements.

The U.S. maritime transportation system primarily consists of waterways, ports, the intermodal connections (e.g., inland rail and roadways) that permit passengers and cargo to reach marine facilities, and the vessels and vehicles that move cargo and people within the system. The maritime infrastructure is owned and operated by an aggregation of State and local agencies and private companies, with some Federal funding provided by the Corps of Engineers, the U.S. Coast Guard, and DOT's Maritime Administration.

Funding authorization for several key Federal surface transportation programs will expire soon. For example, TEA–21's authorization of appropriations expires in fiscal year 2003 and the Amtrak Reform and Accountability Act of 1997[8] authorized Federal appropriations for Amtrak through the end of fiscal year 2002. In addition, the Federal funding processes and mechanisms for the maritime transportation system are currently under review by two interagency groups.[9]

Key Mobility Challenges Include Growing Congestion and Other Problems

There are several challenges to mobility. Three of the most significant are growing congestion, ensuring access to transportation for certain underserved populations, and addressing the transportation system's negative effects on the environment and communities.

Congestion

Ensuring continued mobility involves preventing congestion from overwhelming the transportation system. Congestion is growing at localized bottlenecks (places where the capacity of the transportation system is most limited) and at peak travel times on public roads, transit systems, freight rail lines, and at freight hubs such as ports and borders where freight is transferred from one mode to another. In particular:

- For local urban travel, a study by the Texas Transportation Institute[10] showed that the amount of traffic experiencing congestion during peak travel periods doubled from 33 percent in 1982 to 66 percent in 2000 in the 75 metropolitan areas studied. In addition, the average time per day that roads were congested increased over this period, from about 4.5 hours in 1982 to about 7 hours in 2000. Increased road congestion can also affect public bus and other transit systems that operate on roads. Some transit systems are also experiencing increasing rail congestion at peak travel times.[11] In addition, concerns have been raised about how intercity and tourist travel interacts with local traffic in metropolitan areas and in smaller towns and rural areas, and how this interaction will evolve in the future. According to a

[8]P.L. 105–134 (Dec. 2, 1997).

[9]The two groups are the Interagency Committee on the Marine Transportation System and the Marine Transportation System National Advisory Council.

[10]Shrank and Lomax, 2002 Urban Mobility Report.

[11]For example, the Washington Metropolitan Area Transit Authority's studies on crowding found that, of the more than 200 peak morning rail trips observed over a recent 6-month period, on average, 23 percent were considered "uncomfortably crowded or crush loads." See U.S. General Accounting Office, Mass Transit: Many Management Successes at WMATA, but Capital Planning Could Be Enhanced, GAO–01–744 (Washington, DC.: July 2, 2001).

report sponsored by the World Business Council for Sustainable Development, Mobility 2001,[12] capacity problems for intercity travelers are severe in certain heavily traveled corridors, such as the Northeast corridor, which links Washington, DC, New York, and Boston. In addition, the study said that intercity travel may constitute a substantial proportion of total traffic passing through smaller towns and rural areas.

- Congestion is expected to increase on major freight transportation networks at specific bottlenecks, particularly where intermodal connections occur, and at peak travel times. This expectation raises concerns about how interactions between freight and passenger travel and how increases in both types of travel will affect mobility in the future. Trucks contribute to congestion in metropolitan and other areas where they generally move on the same roads and highways as personal vehicles, particularly during peak periods of travel. In addition, high demand for freight, particularly freight moved on trucks, exists in metropolitan areas where overall congestion tends to be the worst.
- With international trade an increasing part of the economy and with larger containerships being built, some panelists indicated that more pressure will be placed on the already congested road and rail connections to major U.S. seaports and at the border crossings with Canada and Mexico. According to a DOT report,[13] more than one-half of the ports responding to a 1997 survey of port access issues identified traffic impediments on local truck routes as the major infrastructure problem. This congestion has considerable implications for our economy given that 95 percent of our overseas trade tonnage moves by water, and the cargo moving through the U.S. marine transportation system contributes billions of dollars to the U.S. gross domestic product.[14]
- Railroads are beginning to experience more severe capacity constraints in particular heavily used corridors, such as the Northeast corridor, and within major metropolitan areas, especially where commuter and intercity passenger rail services share tracks with freight railroads. Capacity constraints at these bottlenecks are expected to worsen in the future.
- On the inland waterways, congestion is increasing at aging and increasingly unreliable locks. According to the Corps of Engineers, the number of hours that locks were unavailable due to lock failures increased in recent years, from about 35,000 hours in 1991 to 55,000 hours in 1999, occurring primarily on the upper Mississippi and Illinois rivers. Also according to the Corps of Engineers, with expected growth in freight travel, 15 of 26 locks that they studied are expected to exceed 80 percent of their capacity by 2020, as compared to 4 that had reached that level in 1999.

Some of the systemic factors that contribute to congestion include (1) barriers to building enough capacity to accommodate growing levels of travel; (2) challenges to effectively managing and operating transportation systems; and (3) barriers to effectively managing how, and the extent to which, transportation systems are used. First, there is insufficient capacity at bottlenecks and during peak travel times to accommodate traffic levels for a variety of reasons. For example, transportation infrastructure (which is generally provided by the public sector, except for freight railroads) takes a long time to plan and build, is often costly, and can conflict with other social goals such as environmental preservation and community maintenance. Furthermore, funding and planning rigidities in the public institutions responsible for providing transportation infrastructure tend to promote one mode of transportation, rather than a combination of balanced transportation choices, making it more difficult to deal effectively with congestion. In addition, some bottlenecks occur where modes connect, and because funding is generally mode-specific, dealing with congestion at these intermodal connections is not easily addressed.

Second, many factors related to the management and operation of transportation systems can contribute to increasing congestion. Congestion on highways is in part due to poor management of traffic flows on the connectors between highways and poor management in clearing roads that are blocked due to accidents, inclement weather, or construction. For example, in the 75 metropolitan areas studied by the Texas Transportation Institute, 54 percent of annual vehicle delays in 2000 were due to incidents such as breakdowns or crashes. In addition, the Oak Ridge Na-

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[12]Massachusetts Institute of Technology and Charles River Associates, Inc., Mobility 2001: World Mobility at the End of the Twentieth Century and Its Sustainability (World Business Council for Sustainable Development, Aug. 2001).

[13]An Assessment of the U.S. Marine Transportation System (Washington, DC.: U.S. Department of Transportation, Sept. 1999).

[14]U.S. General Accounting Office, Marine Transportation: Federal Financing and a Framework for Infrastructure Investments, GAO–02–1033 (Washington, DC.: Sept. 9, 2002).

tional Laboratory reported that, nationwide, significant delays are caused by work zones on highways; poorly timed traffic signals; and snow, ice, and fog.[15]

Third, some panelists said that congestion on transportation systems is also due in part to inefficient pricing of the infrastructure because users-whether they are drivers on a highway or barge operators moving through a lock-do not pay the full costs they impose on the system and on other users for their use of the system. If travelers and freight carriers had to pay a higher cost for using transportation systems during peak periods to reflect the full costs they impose, they might have an incentive to avoid or reschedule some trips and to load vehicles more fully, possibly resulting in less congestion.

Panelists also noted that the types of congestion problems that are expected to worsen involve interactions between long-distance and local traffic and between passengers and freight. Existing institutions may not have the capacity or the authority to address them. For example, some local bottlenecks may hinder traffic that has regional or national significance, such as national freight flows from major coastal ports, or can affect the economies and traffic in more than one State. Current State and local planning organizations may have difficulty considering all the costs and benefits related to national or international traffic flows that affect other jurisdictions as well as their own. Furthermore, in our recent survey of States, most States reported that the increasing volume of both car and truck traffic over the next decade would negatively affect the physical condition of pavement and bridges and the safety of their interstate highways.[16]

Other Mobility Challenges

Besides dealing with the challenge of congestion, ensuring mobility also involves ensuring access to transportation for certain underserved populations. Settlement patterns and dependence automobiles limit access to transportation systems for some elderly people and low-income households, and in rural areas where populations are expected to expand.

The elderly have different mobility challenges than other populations because they are less likely to have drivers' licenses, have more serious health problems, and may require special services and facilities, according to the Department of Transportation's 1999 Conditions and Performance report.[17] People who cannot drive themselves tend to rely on family, others caregivers, or friends to drive them, or find alternative means of transportation. Many of the elderly also may have difficulty using public transportation due to physical ailments. As a result, according to the 1999 Conditions and Performance report and a 1998 report about mobility for older drivers,[18] they experience increased waiting times, uncertainty, and inconvenience, and they are required to do more advance trip planning. These factors can lead to fewer trips taken for necessary business and for recreation, as well as restrictions on times and places that healthcare can be obtained. As the population of elderly individuals increases over the next 10 years, issues pertaining to access are expected to become more prominent in society.

Lower income levels can also be a significant barrier to transportation access. The cost of purchasing, insuring, and maintaining a car is prohibitive to some households, and 26 percent of low-income households do not own a car, compared with 4 percent of other households, according to the 1999 Conditions and Performance report. Among all low-income households, about 8 percent of trips are made in cars that are owned by others as compared to 1 percent for other income groups. Furthermore, similar uncertainties and inconveniences apply to this group as to the elderly regarding relying on others for transportation. In addition, in case studies of access to jobs for low-income populations, Federal Transit Administration (FTA) researchers found that transportation barriers to job access included gaps in transit

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[15]S.M. Chin, O. Franzese, D.L. Greene, H.L. Hwang, and R. Gibson, Temporary Losses of Capacity Study and Impacts on Performance, Report No. ORNL/TM–2002/3 (Oak Ridge, Tenn.: Oak Ridge National Laboratory, May 2002).

[16]U.S. General Accounting Office, Highway Infrastructure: Interstate Physical Conditions Have Improved, but Congestion and Other Pressures Continue, GAO–02–571 (Washington, DC.: May 31, 2002).

[17]Federal Highway Administration and Federal Transit Administration, 1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance (Washington, DC.: U.S. Department of Transportation, 2000).

[18]Jon E. Burkhardt, Arlene M. Berger, Michael Creedon, and Adam T. McGavock, Mobility and Independence: Changes and Challenges for Older Drivers (July 1998). This report was developed under a cooperative agreement with the U.S. Department of Health and Human Services (DHHS), under the auspices of the Joint DHHS/DOT Coordinating Council on Access and Mobility.

service, lack of knowledge of where transit services are provided, and high transportation costs resulting from multiple transfers and long distances traveled.[19]

Rural populations, which according to the 2000 Census grew by 10 percent over the last 10 years, also face access problems. Access to some form of transportation is necessary to connect rural populations to jobs and other amenities in city centers or, increasingly, in the suburbs. Trips by rural residents tend to be longer due to lower population densities and the relative isolation of small communities. Therefore, transportation can be a challenge to provide in rural areas, especially for persons without access to private automobiles. A report prepared for the FTA in 2001[20] found that 1 in 13 rural residents lives in a household without a personal vehicle. In addition, according to a report by the Coordinating Council on Access and Mobility,[21] while almost 60 percent of all nonmetropolitan counties had some public transportation services in 2000, many of these operations were small and offered services only to limited geographic areas during limited times.

Finally, transportation can also negatively affect the environment and communities by increasing the levels of air and water pollution. As a result of the negative consequences of transportation, tradeoffs must be made between facilitating increased mobility and giving due regard to environmental and other social goals. For example, transportation vehicles are major sources of local, urban, and regional air pollution because they depend on fossil fuels to operate. Emissions from vehicles include sulfur dioxide, lead, carbon monoxide, volatile organic compounds, particulate matter, and nitrous oxides. Vehicle emissions in congested areas can trigger respiratory and other illnesses, and runoff from impervious surfaces, such as highways, can carry pollutants into lakes, streams, and rivers, thus threatening aquatic environments.[22]

Freight transportation also has significant environmental effects. Trucks are significant contributors to air pollution. According to the American Trucking Association, trucks were responsible for 18.5 percent of nitrous oxide emissions and 27.5 percent of other particulate emissions from mobile sources in the United States. The Mobility 2001 report states that freight trains also contribute to emissions of hydrocarbons, carbon monoxide, and nitrous oxide, although generally at levels considerably lower than trucks. In addition, while large shipping vessels are more energy efficient than trucks or trains, they are also major sources of nitrogen, sulfur dioxide, and diesel particulate emissions. According to the International Maritime Organization, ocean shipping is responsible for 22 percent of the wastes dumped into the sea on an annual basis.

Three Strategies for Addressing Mobility Challenges Include Focusing on Systemwide Outcomes, Using a Full Range of Techniques, and Providing Options for Financing Surface and Maritime Transportation

The experts we consulted presented numerous approaches for addressing the types of challenges discussed throughout this statement, but they emphasized that no single strategy would be sufficient. From these discussions and our literature review, we have identified three key strategies that may help transportation decisionmakers at all levels of government address mobility challenges and the institutional barriers that contribute to them.

Focus on the Entire Surface and Maritime Transportation System Rather Than on Specific Modes or Types of Travel to Achieve Desired Mobility Outcomes.

Shifting the focus of government transportation agencies at the Federal, State, and local levels to consider all modes and types of travel in addressing mobility challenges-as opposed to focusing on a specific mode or type of travel in planning and implementing mobility improvements-could help achieve enhanced mobility. Addressing the types of mobility challenges discussed earlier in this statement can require a scope beyond a local jurisdiction, State line, or one mode or type of travel. For example, congestion challenges often occur where modes connect or should connect-such as ports or freight hubs where freight is transferred from one mode to another, or airports that passengers need to access by car, bus, or rail. These connec-

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[19]Federal Transit Administration, Access to Jobs: Planning Case Studies (Washington, D.C: U.S. Department of Transportation, Sept. 2001).

[20]Community Transportation Association of America, Status of Rural Public Transportation–2000 (April 2001).

[21]Coordinating Council on Access and Mobility, Planning Guidelines for Coordinated State and Local Specialized Transportation Services (Washington, D.C: U.S. Department of Transportation, Dec. 20, 2000).

[22]See U.S. General Accounting Office, Environmental Protection: Federal Incentives Could Help Promote Land Use That Protects Air and Water Quality, GAO–02–12 (Washington, DC, Oct. 31, 2001).

tions require coordination of more than one mode of transportation and cooperation among multiple transportation providers and planners, such as port authorities, metropolitan planning organizations (MPO),[23] and private freight railroads. Therefore, a systemwide approach to transportation planning and funding, as opposed to focus on a single mode or type of travel, could improve focus on outcomes related to user or community needs. The experts we consulted provided a number of examples of alternative transportation planning and funding systems that might better focus on outcomes that users and communities desire, including the following:

- Performance-oriented funding system. The Federal Government would first define certain national interests of the transportation system-such as maintaining the entire interstate highway system or identifying freight corridors of importance to the national economy-then set national performance standards for those systems that States and localities must meet. Federal funds would be distributed to those entities that address national interests and meeting the established standards. Any Federal funds remaining after meeting the performance standards could then be used for whatever transportation purpose the State or locality deems most appropriate to achieve State or local mobility goals.
- Federal financial reward-based system. Federal support would reward those States or localities that apply Federal money to gain efficiencies in their transportation systems, or tie transportation projects to land use and other local policies to achieve community and environmental goals, as well as mobility goals.
- System with different Federal matching criteria for different types of expenditures that might reflect Federal priorities. For example, if infrastructure preservation became a higher national priority than building new capacity, matching requirements could be changed to a 50 percent Federal share for building new physical capacity and an 80 percent Federal share for preservation.
- System in which State and local governments pay for a larger share of transportation projects, which might provide them with incentives to invest in more cost-effective projects. Reducing the Federal match for projects in all modes may give States and localities more fiscal responsibility for projects they are planning. If cost savings resulted, these entities might have more funds available to address other mobility challenges. Making Federal matching requirements equal for all modes may avoid creating incentives to pursue projects in one mode that might be less effective than projects in other modes.

In addition, we recently reported on the need to view various transportation modes, and freight movement in particular, from an integrated standpoint, particularly for the purposes of developing a Federal investment strategy and considering alternative funding approaches.[24] We identified four key components of a systematic framework to guide transportation investment decisions including (1) establishing national goals for the system, (2) clearly defining the Federal role relative to other stakeholders, (3) determining the funding tools and other approaches that will maximize the impact of any Federal investment, and (4) ensuring that a process is in place for evaluating performance and accountability.

Use a Full Range of Techniques to Address Mobility Challenges

Using a range of techniques to address mobility challenges may help control congestion and improve access. This approach involves a strategic mix of construction, corrective and preventive maintenance, rehabilitation, operations and system management, and managing system use through pricing or other techniques. No one type of technique would be sufficient to address mobility challenges. Although these techniques are currently in use, the experts we consulted indicated that planners should more consistently consider a full range of techniques, as follows:

- Build new infrastructure. Building additional infrastructure is perhaps the most familiar technique for addressing congestion and improving access to surface and maritime transportation. Although there is a lot of unused capacity in the transportation system, certain bottlenecks and key corridors require new infrastructure.
- Increase infrastructure maintenance and rehabilitation. An emphasis on enhancing capacity from existing infrastructure through increased corrective and preventive maintenance and rehabilitation is an important supplement to, and sometimes a substitute for, building new infrastructure. Maintaining and rehabilitating transportation systems can improve the speed and reliability of passenger and freight travel, thereby optimizing capital investments.

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[23]MPOs are organizations of city, county, State, and Federal officials that provide a regional forum for transportation planning.

[24]GAO–02–1033.

• Improve management and operations. Better management and operation of existing surface and maritime transportation infrastructure is another technique for enhancing mobility because it may allow the existing transportation system to accommodate additional travel without having to add new infrastructure. For example, the Texas Transportation Institute reported that coordinating traffic signal timing with changing traffic conditions could improve flow on congested roadways. One panelist noted that shifting the focus of transportation planning from building capital facilities to an "operations mindset" will require a cultural shift in many transportation institutions, particularly in the public sector, so that the organizational structure, hierarchy, and rewards and incentives are all focused on improving transportation management and operations.[25]

• Increase investment in technology. Increasing public sector investment in Intelligent Transportation System (ITS) technologies that are designed to enhance the safety, efficiency, and effectiveness of the transportation network, can serve as a way of increasing capacity and mobility without making major capital investments. ITS includes technologies that improve traffic flow by adjusting signals, facilitating traffic flow at toll plazas, alerting emergency management services to the locations of crashes, increasing the efficiency of transit fare payment systems, and other actions. Other technological improvements include increasing information available to users of the transportation system to help people avoid congested areas and to improve customer satisfaction with the system.

• Use demand management techniques. Another approach to reducing congestion without making major capital investments is to use demand management techniques to reduce the number of vehicles traveling at the most congested times and on the most congested routes. One type of demand management for travel on public roads is to make greater use of pricing incentives. In particular, some economists have proposed using congestion pricing that involves charging surcharges or tolls to drivers who choose to travel during peak periods when their use of the roads increases congestion. These surcharges might help reduce congestion by providing incentives for travelers to share rides, use transit, travel at less congested (generally off-peak) times and on less congested routes, or make other adjustments-and at the same time, generate more revenues that can be targeted to alleviating congestion in those specific corridors.

In addition to pricing incentives, other demand management techniques that encourage ride-sharing may be useful in reducing congestion. Ride-sharing can be encouraged by establishing carpool and vanpool staging areas, providing free or preferred parking for carpools and vanpools, subsidizing transit fares, and designating certain highway lanes as high occupancy vehicle (HOV) lanes that can only be used by vehicles with a specified number of people in them (i.e., two or more).

Demand management techniques on roads, particularly those involving pricing, often provoke strong political opposition. The panelists cited a number of concerns about pricing strategies including (1) the difficulty in instituting charges to use roads that previously had been available "free", (2) the equity issues that arise from the potentially regressive nature of these charges (i.e., the surcharges constitute a larger portion of the earnings of lower income households and therefore impose a greater financial burden on them), and (3) the concern that restricting lanes or roads to people who pay to use them is elitist because that approach allows people who can afford to pay the tolls to avoid congestion that others must endure.

Provide Options for Financing Mobility Improvements and Consider Additional Sources of Revenue

More options for financing surface and maritime transportation projects and more sources of revenue may be needed to achieve desired mobility outcomes and address those segments of transportation systems that are most congested. Our panelists suggested three financing strategies:

• Increase funding flexibility. The current system of financing surface and maritime transportation projects limits options for addressing mobility challenges. For example, separate funding for each mode at the Federal, State, and local level can make it difficult to consider possible efficient and effective ways for enhancing mobility. Providing more flexibility in funding across modes could help address this limitation.

• Expand support for alternative financing mechanisms. The public sector could also expand its financial support for alternative financing mechanisms to access new sources of capital and stimulate additional investment in surface and maritime

[25]Joseph M. Sussman, "Transitions in the World of Transportation: A Systems View," Transportation Quarterly 56 (2002): 21–22.

transportation infrastructure. These mechanisms include both newly emerging and existing financing techniques such as providing credit assistance to State and local governments for capital projects and using tax policy to provide incentives to the private sector for investing in surface and maritime transportation infrastructure. These mechanisms currently provide a small portion of the total funding that is needed for capital investment and some of them could create future funding difficulties for State and local agencies because they involve greater borrowing from the private sector.[26]

• Consider new revenue sources. A possible future shortage of revenues may limit efforts to address mobility challenges, according to many of the panelists. For example, some panelists said that because of the increasing use of alternative fuels, revenues from the gas tax are expected to decrease, possibly limiting funds available to finance future transportation projects.

One method of raising revenue is for counties and other regional authorities to impose sales taxes for funding transportation projects. A number of counties have already passed such taxes and more are being considered nationwide. However, several panelists expressed concerns that this method might not be the best option for addressing mobility challenges because (1) moving away from transportation user charges to sales taxes that are not directly tied to the use of transportation systems weakens the ties between transportation planning and finance and (2) counties and other taxing authorities may be able to bypass traditional State and metropolitan planning processes because sales taxes provide them with their owns funding sources for transportation.

New or increased taxes or other fees imposed on the freight sector could also help fund mobility improvements, for example, by increasing taxes on freight trucking. The Joint Committee on Taxation estimated that raising the ceiling on the tax paid by heavy vehicles to $1,900 could generate about $100 million per year.[27] Another revenue raising method would be to dedicate more of the revenues from taxes on alternative fuels, such as gasohol, to the Highway Trust Fund rather than to Treasury's general fund, as currently happens. However, this would decrease the amount of funds available for other Federal programs. Finally, pricing strategies, mentioned earlier in this statement as a technique to reduce congestion, are also possible additional sources of revenue for transportation purposes.

In summary, the Nation faces significant challenges in maintaining and enhancing mobility on its surface and maritime transportation systems, particularly with the growing congestion that accompanies increased passenger and freight travel. However, as the Congress considers reauthorizing surface transportation legislation-and weighs the structure, nature, and level of Federal investment it will provide in future years to support surface and other transportation activities-it has an opportunity to consider new strategies for dealing with congestion and promoting enhanced mobility. While no single approach is sufficient, the key strategies that we have outlined today may help transportation decisionmakers at all levels of government address mobility challenges and the institutional barriers that contribute to them.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions you or other members of the committee may have at this time.

Contacts and Acknowledgments

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APPENDIX I

Scope and Methodology

Our work covered major modes of surface and maritime transportation for passengers and freight, including public roads, public transit, railways, and ports and inland waterways. To identify mobility challenges and strategies for addressing those challenges, we primarily relied upon expert opinion, as well as a review of pertinent literature. In particular, we convened two panels of surface and maritime transportation experts to identify mobility issues and gather views about alternative

[26]See U.S. General Accounting Office, Transportation Infrastructure: Alternative Financing Mechanisms for Surface Transportation, GAO–02–1126T (Washington, DC.: Sept. 25, 2002).

[27]See U.S. General Accounting Office, Highway Financing: Factors Affecting Highway Trust Fund Revenues, GAO–02–667T (Washington, DC, May 9, 2002).

strategies for addressing the issues and challenges to implementing those strategies. We contracted with the National Academy of Sciences (NAS) and its Transportation Research Board (TRB) to provide technical assistance in identifying and scheduling the two panels that were held on April 1 and 3, 2002. TRB officials selected a total of 22 panelists with input from us, including a cross-section of representatives from all surface and maritime modes and from various occupations involved in transportation planning. In keeping with NAS policy, the panelists were invited to provide their individual views and the panels were not designed to build consensus on any of the issues discussed. We analyzed the content of all of the comments made by the panelists to identify common themes about key mobility challenges and strategies for addressing those challenges. Where applicable, we also identified the opposing points of view about the strategies.

The names and affiliations of the panelists are as follows. We also note that two of the panelists served as moderators for the sessions, Dr. Joseph M. Sussman of the Massachusetts Institute of Technology and Dr. Damian J. Kulash of the Eno Foundation, Inc.

- Benjamin J. Allen is Interim Vice President for External Affairs and Distinguished Professor of Business at Iowa State University.
- Daniel Brand is Vice President of Charles River Associates, Inc., in Boston, Mass.
- Jon E. Burkhardt is the Senior Study Director at Westat, Inc., in Rockville, Md.
- Sarah C. Campbell is the President of TransManagement, Inc., in Washington, DC.
- Christina S. Casgar is the Executive Director of the Foundation for Intermodal Research and Education in Greenbelt, Md.
- Anthony Downs is a Senior Fellow at the Brookings Institution.
- Thomas R. Hickey served until recently as the General Manager of the Port Authority Transit Corporation in Lindenwold, N.J.
- Ronald F. Kirby is the Director of Transportation Planning at the Metropolitan Washington Council of Governments.
- Damian J. Kulash is the President and Chief Executive Officer of the Eno Transportation Foundation, Inc., in Washington, DC.
- Charles A. Lave is a Professor of Economics (Emeritus) at the University of California, Irvine where he served as Chair of the Economics Department.
- Stephen Lockwood is Vice President of Parsons Corporation, an international firm that provides transportation planning, design, construction, engineering, and project management services.
- Timothy J. Lomax is a Research Engineer at the Texas Transportation Institute at Texas A&M University.
- James R. McCarville is the Executive Director of the Port of Pittsburgh Commission.
- James W. McClellan is Senior Vice President for Strategic Planning at the Norfolk Southern Corporation in Norfolk, Va.
- Michael D. Meyer is a Professor in the School of Civil and Environmental Engineering at the Georgia Institute of Technology and was the Chair of the school from 1995 to 2000.
- William W. Millar is President of the American Public Transportation Association (APTA).
- Alan E. Pisarski is an independent transportation consultant in Falls Church, Va., providing services to public and private sector clients in the United States and abroad in the areas of transport policy, travel behavior, and data analysis and development.
- Craig E. Philip is President and Chief Executive Officer of the Ingram Barge Company in Nashville, Tenn.
- Arlee T. Reno is a consultant with Cambridge Systematics in Washington, DC.
- Joseph M. Sussman is the JR East Professor in the Department of Civil and Environmental Engineering and the Engineering Systems Division at the Massachusetts Institute of Technology.
- Louis S. Thompson is a Railways Advisor for the World Bank where he consults on all of the Bank's railway lending activities.
- Martin Wachs is the Director of the Institute of Transportation Studies at the University of California, Berkeley and he holds faculty appointments in the departments of City and Regional Planning and Civil and Environmental Engineering at the university.

APPENDIX II

Related GAO Products

Transportation Infrastructure: Alternative Financing Mechanisms for Surface Transportation. GAO–02–1126T. Washington, DC.: September 25, 2002.

Highway Infrastructure: Preliminary Information on the Timely Completion of Highway Construction Projects. GAO–02–1067T. Washington, DC.: September 19, 2002.

Marine Transportation: Federal Financing and a Framework for Infrastructure Investments. GAO–02–1033. Washington, DC.: September 9, 2002.

Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge. GAO–02–775. Washington, DC.: August 30, 2002.

Highway Infrastructure: Interstate Physical Conditions Have Improved, but Congestion and Other Pressures Continue. GAO–02–571. Washington, DC.: May 31, 2002.

Highway Financing: Factors Affecting Highway Trust Fund Revenues. GAO–02–667T. Washington, DC.: May 9, 2002.

Transportation Infrastructure: Cost and Oversight Issues on Major Highway and Bridge Projects. GAO–02–702T. Washington, DC.: May 1, 2002.

Intercity Passenger Rail: Congress Faces Critical Decisions in Developing National Policy. GAO–02–522T. Washington, DC.: April 11, 2002.

Environmental Protection: Federal Incentives Could Help Promote Land Use That Protects Air and Water Quality. GAO–02–12. Washington, DC.: October 31, 2001.

Intercity Passenger Rail: The Congress Faces Critical Decisions About the Role of and Funding for Intercity Passenger Rail Systems. GAO–01–820T. Washington, DC.: July 25, 2001.

U.S. Infrastructure: Funding Trends and Federal Agencies' Investment Estimates. GAO–01–986T. Washington, DC.: July 23, 2001.

Mass Transit: Many Management Successes at WMATA, but Capital Planning Could Be Enhanced. GAO–01–744. Washington, DC.: July 3, 2001.

Intercity Passenger Rail: Assessing the Benefits of Increased Federal Funding for Amtrak and High-Speed Passenger Rail Systems. GAO–01–480T. Washington, DC.: March 21, 2001.

Performance and Accountability: Challenges Facing the Department of Transportation. GAO–01–443T. Washington, DC.: September 19, 2002.

Highway Funding: Problems With Highway Trust Fund Information Can Affect State Highway Funds. RCED/AIMD–00–148. Washington, DC.: June 29, 2000.

Highway Infrastructure: FHWA's Model for Estimating Highway Needs Is Generally Reasonable, Despite Limitations. RCED–00–133. Washington, DC.: June 5, 2000.

Mass Transit: 'Mobility Improvements' Is One of Many Factors Used to Evaluate Mass Transit Projects. RCED–00–6R. Washington, DC.: October 15, 1999.

RESPONSES OF JAYETTA HECKER TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. In your testimony, you stated that shifting the focus of government transportation agencies to consider all modes and types of travel in addressing mobility challenges could help achieve enhanced mobility. What stands in the way of transportation agencies looking comprehensively at all modes and types of transportation to address their mobility issues? What mode or type of transportation is most often considered at the expense of other modes and why? What mode or type of transportation is least often considered and why?

Response. In our report and testimony on surface and transportation mobility[1], we describe a number of barriers that stand in the way of transportation agencies looking comprehensively at all modes and types of transportation, including:

- Mode-Specific Funding: Provisions of the Transportation Equity Act for the 21st Century (TEA–21) have broadened the flexibility of Federal funds to be used across modes, such as the flexibility to use highway funds for transit or pedestrian projects afforded by the Surface Transportation Program. However, according to the experts we consulted and the Transportation Research Board's Critical Issues in

[1]See U.S. General Accounting Office, Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge, GAO–02–775 (Washington, DC.: Aug. 30, 2002) and U.S. General Accounting Office, Surface and Maritime Transportation: Challenges and Strategies for Enhancing Mobility, GAO–02–1132T (Washington, DC.: Sept. 30, 2002).

Transportation 2002,[2] the broad array of agencies responsible for various portions of the transportation network remain uncoordinated and unconnected. No single agency or funding mechanism has authority over the system as a whole (i.e., freight and passenger travel on all modes), making it difficult for the various public agencies and the private sector to plan and coordinate mobility improvements that affect more than one mode. For example, a channel improvement at a port may necessitate improvements to connecting road and rail networks and will affect freight and passenger travel on those systems. However, channel improvements go through a Corps of Engineers planning process for approval and then a congressional appropriation process for funding, whereas road improvements would go through the appropriate State and Metropolitan Planning Organization's (MPO) process for approval, and rail improvements would most likely be financed privately by the railroad. These different processes administered by various agencies with differing priorities, time lines, and access to resources are one type of barrier that make it difficult for agencies to look comprehensively at all modes and types of travel.

- Incentives in Project Selection Processes: According to the expert panelists we consulted and our other work, existing Federal matching requirements and increasing designation by the Congress of Federal funds create incentives for states and MPOs to pursue particular types of projects, thereby distorting the planning process. The non-Federal matching shares for public transit capital projects have effectively approached 50 percent of the total project cost, although Federal legislation requires only 10 or 20 percent. This is because projects that propose higher non-Federal matches are scored higher and are more likely to receive the limited Federal funds than projects that propose lower non-Federal matches. In contrast, the effective non-Federal matching shares for highway projects are closer to the 20 percent required under most highway programs. This imbalance between the Federal support for transit and highway programs can create incentives for transportation agencies to get "more bang for their buck" by pursuing projects that provide high Federal contributions rather than those projects that make a significant improvement to mobility. Some of our panelists also pointed out that designation of transportation funds for particular projects could result in bypassing the traditional planning processes, which may lead to logical connections or interconnections between projects being overlooked.
- Shortage of Personnel with Intermodal Expertise: A number of our panelists said that many State and local transportation agencies have a shortage of personnel with expertise in and across some modes and types of travel, resulting in barriers to identifying and planning projects across modes and types of travel. One panelist explained that there is a particular shortage of expertise in freight mobility within transportation agencies.

With regard to the relative consideration of one mode over another, while our report contained information on funding levels for each mode, it did not address how funding levels compare to estimated investment needs in each mode. The Federal funding approaches differ across the modes in that the funding for the highway and aviation systems relies almost exclusively on dedicated trust funds that are financed with collections from users of those systems while the funding for the maritime and rail systems relies heavily on general fund revenues. Total funding for each mode varied widely—during fiscal years 1999 through 2001, Federal agencies expended an average of $25 billion each year on the highway system, $10 billion each year on the aviation system, and $3.9 billion each year on the maritime system. Our work has shown that there is growing awareness of the need to view various transportation modes, and freight movement in particular, from an integrated standpoint, particularly for the purposes of developing and implementing a Federal investment strategy and considering alternative funding approaches.

Question 2. Based on your work, what is the greatest challenge we face in enhancing mobility? What strategy (or strategies) is most often suggested to help address mobility challenges nationwide?

Response. With increasing passenger and freight travel, the surface and maritime transportation systems face a number of challenges in ensuring continued mobility. These challenges include preventing congestion from overwhelming the transportation system, ensuring access to transportation for certain underserved populations (including some elderly, poor, and rural populations that have restricted mobility), and achieving a balance between enhancing mobility and giving due regard to environmental and other social goals.

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[2]Transportation Research Board, Critical Issues in Transportation 2002 (Washington, DC.: The National Academies, November 2001).

There is no one solution for the mobility challenges facing the Nation, and our expert panelists indicated that numerous approaches are needed to address these challenges. We believe that the wide range of approaches can be clustered into three key strategies that may help transportation decisionmakers at all levels of government address mobility challenges. These strategies include the following:

- Focus on the entire surface and maritime transportation system rather than on specific modes or types of travel to achieve desired mobility outcomes. Transportation agencies at the Federal, State, and local level might shift focus from their current emphasis on single modes to consider performance outcomes of all modes in addressing mobility challenges, and to recognize interactions across modes between passenger and freight traffic, and between public and private interests. This is important because addressing the mobility challenges outlined above can involve a scope beyond a local jurisdiction or a State line, and can require coordination across multiple modes, types of travel, or types of transportation providers and planners.
- Use a full range of techniques to achieve desired mobility outcomes. Using various techniques-such as new construction, corrective and preventive maintenance, rehabilitation, operations and system management, and pricing-to address complex mobility challenges, may be more effective than placing emphasis on any one technique.
- Provide more options for financing mobility improvements and consider additional sources of revenue. This strategy-which involves providing more flexibility in funding across modes, expanding financial support for alternative financing mechanisms (e.g., credit assistance to State and local governments), and considering various revenue-raising methods-may offer promise for addressing key mobility problems.

RESPONSES OF JAYETTA HECKER TO ADDITIONAL QUESTIONS FROM SENATOR JEFFORDS

Question 1. In your testimony you mention there is a growing consensus that the modal funding mechanisms distort public decisionmaking. You also mentioned that these modal funding programs are an impediment for the best investment and the best decisionmaking in infrastructure and meeting mobility needs. What changes can be made to the current funding program structure to improve investment decisions and eliminate these "modal stovepipes"?

Response. An intermodal approach is vital in order to match the nation's infrastructure with its diverse mobility needs. However, the current system of financing surface and maritime transportation projects limits options for addressing mobility challenges. Congestion often occurs where modes connect or should connect-such as ports or freight hubs where freight is transferred from one mode to another, or airports that passengers need to access by car, bus, or rail. These connections require coordination of more than one mode of transportation and cooperation among multiple transportation providers and planners. In addition, according to the panelists we consulted, designation by the Congress of Federal funds for particular transportation projects bypasses traditional planning processes used to identify the highest priority projects, thus potentially limiting transportation agencies' options for addressing the most severe mobility challenges.

Overcoming such limitations involves taking a systemwide, rather than mode-specific, approach to transportation planning and funding. Transportation agencies at the Federal, State, and local level might shift focus from their current emphasis on single modes to consider performance outcomes of all modes in addressing mobility challenges, and to recognize interactions across modes between passenger and freight traffic, and between public and private interests.

The experts we consulted suggested several options for encouraging the development of transportation planning and funding systems that focus on the entire surface and maritime transportation system to achieve desired mobility outcomes. We have not evaluated these options, but we would be pleased to work with the committee if you wish to request a GAO study in this area. The options that panelists provided for alternative planning and funding systems include:

- Link funding to performance-based outcomes. This option focuses on mobility outcomes that users-both freight and passengers, for both intercity and local travel-desire from the transportation system. The Federal Government would first define certain national interests of the transportation system-such as increasing the reliability of commute times on all modes-then set national performance standards for those systems that States and localities must meet. Federal funds would be distributed to those entities that are addressing national interests and meeting the estab-

lished standards. Any Federal funds remaining after meeting the performance standards could then be used for whatever transportation purpose the State or locality deems most appropriate to achieve State or local mobility goals.

- Provide financial rewards for increasing efficiency or meeting other goals. Federal support would reward those States or localities that apply Federal money to gain efficiencies in their transportation systems, or tie transportation projects to land use and other local policies to achieve community and environmental goals, as well as mobility goals.
- Revise Federal matching requirements. There are several variations on this option, including the following:

- Align Federal matching requirements with Federal priorities. In this case, Federal matching criteria would reflect priorities based on the type of project rather than the mode. For example, if infrastructure preservation became a higher national priority than building new capacity, matching requirements could be changed to a 50 percent Federal share for building new physical capacity and an 80 percent Federal share for preservation.
- Equalize Federal matching requirements across modes. Making Federal matching requirements equal for all modes may avoid creating incentives to pursue projects in one mode that might be less effective than projects in other modes.
- Reduce the Federal match for projects in all modes. This might give States and localities more fiscal responsibility for projects they are planning and provide them with incentives to invest in more cost-effective projects independent of Federal support for various modes. If cost savings resulted, these entities might have more funds available to address other mobility challenges.

RESPONSES OF JAYETTA HECKER TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. While DOT's Conditions and Performance report finds that the conditions of our highway system have improved somewhat, the operational performance of our highway system continues to deteriorate. This comes as no surprise to anyone who drives regularly. Each of you recommends an increased emphasis on operations, which is a theme that this subcommittee has addressed twice in the past year with a hearing on Intelligent Transportation Systems and a symposium on operational issues. I intend to address this issue in next year's transportation bill and would appreciate your thoughts on how we can encourage States and metropolitan areas to focus more attention to the operations and management of road systems.

Response. Better operations and management of existing transportation infrastructure is an important technique for enhancing mobility because it may allow the existing transportation system to accommodate additional travel without having to add new infrastructure. One of our expert panelists noted, however, that shifting the focus of transportation from building capital facilities to an "operations mindset" would require a cultural shift in many transportation institutions, particularly in the public sector, so that the organizational structure, hierarchy, and rewards and incentives are all focused on improving transportation management and operations.[3] As noted above, the expert panelists we consulted provided a number of ways in which the planning and funding systems can be modified to eliminate modal "stovepipes" and focus more attention on the operations and management of transportation systems, including the following:

- Performance-oriented funding system. The Federal Government would first define certain performance goals for the transportation system, such as improving commute times or improving on-time performance of transit systems. By linking funding to performance outcomes, transportation agencies would have a greater incentive to compare operations and management strategies with other strategies in determining how to best improve mobility.
- Federal financial reward-based system. Federal support would reward those States or localities that apply Federal money to gain efficiencies in their transportation systems. This could provide transportation agencies with an incentive to invest in operations and management to improve system efficiency.
- Different Federal matching criteria for different types of expenditures that might reflect Federal priorities. For example, if operations and management became a higher national priority than building new capacity, matching requirements could be changed to give State and local agencies more fiscal responsibility for building new capacity. This would provide an incentive to invest in operations and management improvements.

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[3]Joseph M. Sussman, "Transitions in the World of Transportation: A Systems View," Transportation Quarterly 56 (2002): 21–22.

Question 2. In your testimony, you recommended that policymakers focus on the entire transportation system rather than on individual modes of transportation. I agree that we need to employ the full range of potential solutions if we are to improve the performance of our system. What can we do in the next transportation bill to encourage States and metropolitan areas to take an intermodal and broad-based view of solutions to transportation problems?

Response. In our report, we describe a number of barriers that stand in the way of transportation agencies looking comprehensively at all modes and types of transportation, including such things as mode-specific funding mechanisms, incentives in project selection processes, and a shortage of expertise in any one transportation agency for effectively identifying and implementing mobility improvements across multiple modes or types of travel. Our expert panelists discussed potential methods for modifying existing programs to shift the focus of States and Metropolitan Planning Organizations toward intermodal solutions to transportation problems, and there may be an opportunity in the next transportation bill to provide incentives to achieve this desired outcome. The methods included (1) focusing on system performance and outcomes related to customer service; (2) considering and using a full range of tools to address mobility challenges, and (3) providing more options for financing transportation improvements and considering additional sources of revenue.

- Performance and Customer Service: Our panelists described various types of systems that could focus on outcomes and customer service. All of these systems were focused on determining national performance goals based on customer service and mobility, regardless of mode. One panelist suggested a system where Federal support would reward those States or localities that apply Federal money to gain efficiencies or meet performance goals across the entire transportation system. For example, if the performance goal is to achieve a particular level of freight mobility in the area, the appropriate transportation agencies would then have an incentive to look at freight mobility across the entire system and determine improvements that would best meet that goal, regardless of mode. The improvements might focus on road connections to major ports of freight hubs, or on increasing throughput within the port or intermodal facility, or on rail capacity improvements such as eliminating grade crossings. Any Federal funds remaining could then be used to pursue local priorities.
- Full Range of Tools: Many panelists emphasized that transportation agencies need to consistently consider the full range of tools to address transportation problems and improve customer service and mobility. These tools range from investing in new capital, where appropriate, to infrastructure preservation, improving the management and operation of transportation systems, and employing various demand management techniques. Our panelists said that States and metropolitan areas experience some difficulties in using the full range of tools. For example, some of these techniques are politically contentious, such as demand management techniques that involve pricing or major capital projects that could have environmental impacts. Another factor is that the Federal Government's role as an investment partner in transportation systems is more focused on providing assistance for capital investments as opposed to providing funding for some of these other tools, although our panelists did not agree on whether the Federal Government should shift to providing more operating or other type of assistance. One panelist said that the appropriate Federal role was as a capital investment partner and that the operation of transportation systems is a local responsibility. Other panelists said that the Federal Government may be somewhat over invested in capital-intensive projects, and that the need for more balanced investment in management, maintenance, and operations calls for reevaluating the role of the Federal Government as an investment partner.
- Additional Revenue and Financing Options: While our panelists noted the need for funding flexibility, they stated that the possibility of a shortage of revenues in the future presents a fundamental limitation to addressing mobility challenges in all modes. Panelists said that due to such things as increasing use of alternative fuels, revenues from the gas tax are expected to decrease in the future. To combat the reduction of revenues available for transportation, panelists discussed various options for new sources of revenue and different ways to finance transportation projects. These options include the following:

- Raising additional revenues from users of the systems, such as raising the gas tax, raising fees on freight carriers, dedicating more revenues from taxes on alternative fuels, and expanding the use of pricing principles.
- Raising revenues from general taxes and dedicating a portion to transportation. Many local governments have passed or are considering passing such taxes, but this could result in local authorities bypassing traditional planning processes.

- Expanding alternative financing mechanisms and public/private partnerships. Alternative financing mechanisms, such as Grant Anticipation Revenue Vehicles (GARVEE) or State infrastructure banks (SIB), can help speed the completion of transportation projects and may stimulate additional investment in infrastructure. However, these mechanisms can pose difficulties for transportation agencies in the future because they rely on future Federal revenues. Many of our panelists also advocated providing incentives or opportunities for private sector investment in transportation systems.

Question 3. Your written testimony and AASHTO's Bottom Line Report both repeatedly refer to the Texas Transportation Institute's Mobility Study. Is this the only authoritative study available on system performance? Given the importance of having a reliable measurement of system performance how can we do a better job of ensuring that the relevant data is available?

Response. The Federal Highway Administration (FHWA) has expanded its traditional measures of tracking highway operational performance-how highways accommodate travel demand-in recent years. While still including measures of traffic density and volume during peak travel times, FHWA's 1999 Conditions and Performance report[4] also included measures of delay and several congestion measures developed by the Texas Transportation Institute (TTI).[5] In its most recent report, FHWA has added three additional TTI measures of congestion: percent of additional travel time, annual hours of delay, and percent of travel under congested conditions.[6]

Likewise, in its Performance Plan for Fiscal Year 2001, the Department of Transportation moved away from density-based measures in assessing progress toward the goal of reducing highway congestion. The Department replaced its goal of reducing hours of delay per 1,000 vehicle miles traveled with three new performance goals-reducing congested travel time, peak period travel time, and traveler delay. The Department made this change because it believed the original measure did not reflect the actual performance of the highway system in places where congestion regularly happens (e.g., congested, urban areas). The added measures, developed by TTI using FHWA data, reflect changing travel conditions more comprehensively by focusing on the different aspects of inefficient road performance in areas where congestion regularly occurs.[7] The Department continues to use these measures in its Performance Plan for Fiscal Year 2003 and Performance Report for Fiscal Year 2001.

GAO has not evaluated the congestion measures produced by TTI. However, in its 1999 Conditions and Performance report, FHWA called TTI's ongoing work on congestion "the most significant continuing study being done on congestion in the United States." FHWA commended TTI for its contribution to the knowledge base of congestion and said that the results of TTI's studies were useful measures of congestion's trends and costs in metropolitan areas. However, FHWA also noted that measuring congestion is difficult and that additional research is needed to determine optimal measures and data collection methods. Likewise, the Department of Transportation noted in its latest Performance Plan and Performance Report that the "proportion of congested travel" figures on which TTI's measures are based are computed rather than measured values, possibly resulting in an understatement of the level of congestion. The Department is working toward the development of an additional measure of traffic congestion reliability based on minute-by-minute data gathered through traffic monitoring systems, including those funded by the Intelligent Transportation Systems program.

Question 4. GAO has done some work reviewing the methodology DOT uses in compiling its Conditions and Performance Report. What were your conclusions on the reliability of the data provided?

Response. We reviewed the model FHWA uses to estimate investment requirements for the nation's highways, including the estimates FHWA presented in its 1999 Conditions and Performance report, and found it reasonable. FHWA used the same model, with some modifications, to arrive at its 2002 highway investment requirement estimates. In June 2000, we reported that the model's strengths included:

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[4]Federal Highway Administration and Federal Transit Administration, 1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance (Washington, DC.: U.S. Department of Transportation, 2000).

[5]David Shrank and Tim Lomax, 2002 Urban Mobility Report (College Station, TX: Texas Transportation Institute, June 2002).

[6]Federal Highway Administration and Federal Transit Administration, 2002 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance (forthcoming).

[7]U.S. General Accounting Office, Department of Transportation: Status of Achieving Key Outcomes and Addressing Major Management Challenges, GAO–01–834, (Washington, DC.: June 2001).

(1) its contribution to a comprehensive assessment of investment needs to meet results-oriented agency goals and (2) the independent reviews that showed FHWA had made improvements to the model. However, we reported that the model had some limitations. For example, the model could not estimate the full range of uncertainties within which its estimates vary. In addition, FHWA used its model combined with other less reliable techniques to reach its estimate of highway investment requirements, so the total investment requirement estimates in the Conditions and Performance report included a combination of estimates with varying levels of rigor. We did not comprehensively review the data that feeds the administration's model, although we had previously reported that data used in the model are subject to some uncertainties.

We also compared the infrastructure investment estimates of a number of Federal agencies, and, in July 2001, reported that FHWA's approach met some of the leading practices GAO identified for capital investment decisionmaking including (1) using a benefit-cost analysis and (2) using results-oriented estimates of the amounts needed to maintain or improve the performance of highways.

Since we last reviewed FHWA's highway needs forecasting model, the Administration has modified its highway and bridge models for estimating future investment needs. These modifications should improve the quality of the highway investment needs forecasts, according to an FHWA official. To improve the model used to estimate highway investment requirements, FHWA made technical improvements in four cost areas: delay, air pollution, benefit-cost analysis procedures, and traveler response to changes in user costs. The new bridge model's advantages are that it filters out improvements that are not cost beneficial, and, compared to the prior model, it more accurately forecasts routine costs and bridge owners' management strategies.

United States General Accounting Office

GAO

Report to the Committee on Environment and Public Works, U.S. Senate

August 2002

SURFACE AND MARITIME TRANSPORTATION

Developing Strategies for Enhancing Mobility: A National Challenge



GAO-02-775

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Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
APTA	American Public Transportation Association
Corps of Engineers	U.S. Army Corps of Engineers
DOT	U.S. Department of Transportation
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GARVEE	Grant Anticipation Revenue Vehicle
HOT	high occupancy toll
HOV	high occupancy vehicle
HPMS	Highway Performance Monitoring System
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent Transportation Systems
MPO	Metropolitan Planning Organization
NAS	National Academy of Sciences
RABA	Revenue Aligned Budget Authority
RRIF	Rail Rehabilitation and Improvement Financing Program
SIB	State Infrastructure Bank
TEA-21	Transportation Equity Act for the 21st Century
TIFIA	Transportation Infrastructure Finance and Innovation Act of 1998
TRB	Transportation Research Board
WMATA	Washington Metropolitan Area Transit Authority

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August 30, 2002

The Honorable James Jeffords
Chairman
The Honorable Robert Smith
Ranking Minority Member
Committee on Environment and Public Works
United States Senate

The scope of the U.S. surface and maritime transportation systems—which primarily include roads, mass transit systems, railroads, and ports and waterways[1]—is vast. One of the major goals of these systems is to provide and enhance mobility, that is, the free flow of passengers and goods. Mobility provides people with access to goods, services, recreation, and jobs; provides businesses with access to materials, markets, and people; and promotes the movement of personnel and material to meet national defense needs. Among the social and economic benefits of enhanced mobility are improved economies and, for some, better quality of life and access to job opportunities. In 2000, the surface and maritime transportation systems carried 2.7 trillion miles of travel by passenger vehicles and trucks, 8.7 billion trips on public transit, 22.5 million trips on intercity passenger rail (Amtrak), and in 1998, about 13.5 billion tons of freight on all modes.

While the U.S. surface and maritime transportation systems provide many benefits, they have also generated some concerns about congestion and the burden they impose on the nation's quality of life through wasted energy, time, and money; increased pollution and threats to public safety; barriers to transportation accessibility for certain population groups; and the level of financial resources available to address transportation problems. Several key pieces of legislation that authorize funding for federal surface transportation programs will expire soon. For example, the Transportation Equity Act for the 21st Century (TEA-21)[2]—which authorizes federal funding for highways, mass transit, and a variety of other surface transportation programs—expires in fiscal year 2003 and the Amtrak

[1]In this report, we define the surface transportation system as highways, mass transit systems, and railroads; and the maritime transportation system as ports, inland waterways, and the intermodal connections leading to them. Pipelines were not part of our review.

[2]P.L. 105-178 (June 9, 1998).

Reform and Accountability Act of 1997[3] that authorizes federal appropriations for Amtrak expires at the end of fiscal year 2002. In addition, the federal funding processes and mechanisms for the maritime transportation system are currently under review by two interagency groups.[4] As the Congress considers reauthorizing surface transportation legislation, it will weigh the structure, nature, and level of federal investment it will provide in future years to enhance mobility and support other surface and maritime transportation activities.

Given the social and economic importance of the surface and maritime transportation systems and to inform the Congress in its reauthorization deliberations, you asked us to provide information on the following questions:

1. What have been the trends over the past 10 years in surface and maritime transportation expenditures made by the public sector?

2. What are the projected trends in the levels of passenger and freight travel on surface and maritime transportation modes over the next 10 years and what are the key factors that influence those trends?

3. What key challenges in maintaining and improving mobility have experts and other sources identified?

4. What are some key strategies for addressing the challenges?

In addressing the first two questions, we analyzed databases and other information obtained from the U.S. Department of Transportation (DOT) and the U.S. Army Corps of Engineers (Corps of Engineers).[5] We did not verify the accuracy of these data. In addressing the third and fourth questions, we relied upon the results of two panels of surface and maritime transportation experts that we convened in April 2002. The 22 experts were selected by the National Academy of Sciences (NAS) and its Transportation Research Board with input from us; they included a cross-section of

[3]P.L. 105-134 (Dec. 2, 1997).

[4]The two groups are the Interagency Committee on the Marine Transportation System and the Marine Transportation System National Advisory Council.

[5]The DOT data on expenditures included spending by the U.S. Coast Guard and the St. Lawrence Seaway Development Corporation for transportation.

representatives from all surface and maritime modes and from various occupations involved in transportation planning. We also reviewed reports prepared by federal agencies, academics, and industry groups to address the third and fourth questions. Appendix VI provides further information on our scope and methodology.

In this report we discuss three types of travel that have important distinctions: local passenger travel, intercity passenger travel, and freight travel. Local travel includes commuting trips to and from work, shopping trips, and other personal trips such as for school, social, or recreational purposes. The main types of vehicles and modes of transportation used for local trips include automobiles and mass transit, including city buses, commuter rail, subways, and ferries. Intercity passenger travel is different from local travel because it represents longer distances traveled, and it occurs on some different modes of transportation, primarily automobile, air service, intercity bus, and intercity rail. Freight generally moves by trucks on public roads; by barges and various cargo ships on the inland, intra-coastal, coastal, and Great Lakes waterways; by trains on rail on private right-of-way; and by airplane. The choice of mode is influenced by the type, weight, and value of goods being shipped; available modes of transportation in the region; and cost, speed, and other service requirements.

Results in Brief

During the past decade, total public sector spending (in 1999 dollars)[6] increased for public roads and transit, remained constant for waterways, and decreased for rail. Federal expenditures for public roads have substantially increased since the passage of TEA-21 in 1998—from $21.2 billion in 1998 to $26.9 billion in 2000, an increase of 26.8 percent.[7] Federal spending for transit decreased slightly between 1991 and 1999 and then increased by 21.5 percent from $4.3 billion in 1999 to $5.2 billion in 2000. Federal spending stayed constant for waterways and decreased for rail during the period from 1991 to 2000. The state and local share of total public sector expenditures stayed relatively constant during fiscal years

[6]We adjusted the expenditure data to account for inflation using separate indexes for expenditures made by the federal government or state and local governments. We used price indexes from the U.S. Bureau of Economic Analysis' National Income and Products Accounts.

[7]Throughout this report, the percentage calculations are based on amounts that have not been rounded.

day in 1982 to about 7 hours in 2000 in 75 metropolitan areas that were studied. Freight mobility is affected by increasing congestion within specific heavily used corridors and at specific bottlenecks that tend to involve intermodal connections, such as border crossings, and road and rail connections at major seaports and within metropolitan areas. For example, one panelist said that railroads are beginning to experience more severe capacity constraints in areas where commuter and intercity passenger rail services share tracks with freight railroads.

- Ensuring access to transportation for certain underserved populations, including some elderly, poor, and rural populations that have restricted mobility. Policies and patterns of development that encourage automobile dependence and favor provision of transit services with inflexible routes and schedules—such as subway or bus—may disadvantage these groups by limiting their access to needed services and/or jobs.

- Addressing the transportation system's negative effects on the environment and communities. Increasing travel can lead to degradation of air quality and other negative externalities. Passenger and freight vehicle emissions contribute to air and water pollution, particularly in congested areas, and the accompanying noise is also a form of pollution.

There is no one solution for the mobility challenges facing the nation, and our expert panelists indicated that numerous approaches are needed to address these challenges. From these discussions, we believe that the wide range of approaches discussed can be clustered into three key strategies that may aid transportation decisionmakers at all levels of government in addressing mobility challenges. These strategies include the following:

1. Focus on the entire surface and maritime transportation system rather than on specific modes or types of travel to achieve desired mobility outcomes. This strategy involves shifting the focus of transportation agencies at the federal, state, and local level from their current emphasis on single modes to consider performance outcomes of all modes in addressing mobility challenges, as well as recognizing interactions across modes, between passenger and freight traffic, and between public and private interests. This strategy offers promise to better target the specific mobility challenges identified above.

2. Use a full range of tools to achieve desired mobility outcomes. This strategy, which calls for using various tools—such as new construction,

corrective and preventive maintenance, rehabilitation, operations and system management, and pricing—to address complex mobility challenges, offers promise to be more effective than placing emphasis on any one technique. For example, building new infrastructure can ease congestion in bottlenecks but is not always a viable solution due to cost, land, regulatory, or administrative constraints. Also, performing needed maintenance on existing transportation systems can improve the speed and reliability of passenger and freight travel, while instituting tolls or fees during peak travel times may lead people to schedule recreational trips or move freight during less congested times or by alternate routes.

3. Provide more options for financing mobility improvements and consider additional sources of revenue. This strategy—which involves providing options for targeting the financing of transportation projects to achieve desired mobility outcomes and to address transportation systems that face the greatest challenges—suggests the value of identifying more options for raising and distributing funds for surface and maritime transportation.

Background

The U.S. surface and maritime transportation systems facilitate mobility through an extensive network of infrastructure and operators, as well as through the vehicles and vessels that permit passengers and freight to move within the systems. The systems include 3.9 million miles of public roads, 121,000 miles of major private railroad networks, and 25,000 miles of commercially navigable waterways. They also include over 500 major urban public transit operators in addition to numerous private transit operators, and more than 300 ports on the coasts, Great Lakes, and inland waterways.

Maintaining the transportation system is critical to sustaining America's economic growth. Efficient mobility systems are essential facilitators of economic development—cities could not exist and global trade could not occur without systems to transport people and goods. DOT has adopted improved mobility—to "shape an accessible, affordable, reliable transportation system for all people, goods, and regions"—as one of its strategic goals. To achieve this goal, it has identified several desired outcomes, including (1) improving the physical condition of the transportation system, (2) reducing transportation time from origin to destination, (3) increasing the reliability of trip times, (4) increasing access

to transportation systems, and (5) reducing the cost of transportation services.

The relative roles, responsibilities, and revenue sources of each sector involved in surface and maritime transportation activities—including the federal government, other levels of government, and the private sector—vary across modes. For public roads, ownership is divided among federal, state, and local governments—over 77 percent of the roads are owned by local governments; 20 percent are owned by the states, including most of the Interstate Highway System; and 3 percent are owned by the federal government.[10] While the federal government owns few roads, it has played a major role in funding the nation's highways. For example, from 1954 through 2001, the federal government invested over $370 billion (in constant 2001 dollars) in the Interstate Highway System.

With the completion of the interstate system in the 1980s—and continuing with passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)[11] and its successor legislation, TEA-21, in 1998—the federal government shifted its focus toward preserving and enhancing the capacity of the system. Under the Federal Aid Highway Program, the Federal Highway Administration (FHWA) provides funds to states to construct, improve, and maintain the interstate highway system and other parts of the U.S. road network and to replace and rehabilitate bridges. TEA-21 established, among other things, a mechanism for ensuring that the level of federal highway program funds distributed to the states would be more closely linked than before to the highway user tax receipts credited to the Highway Account of the Highway Trust Fund. These user taxes include excise taxes on motor fuels (gasoline, gasohol, diesel, and special fuels) and truck-related taxes on truck tires, sales of trucks and trailers, and the use of heavy vehicles. FHWA distributes highway program funds to the states through annual apportionments according to statutory formulas that consider a variety of factors including vehicles miles traveled on the interstate system, motor fuel usage by each state's highway users, and other factors. The federal share for project funding is usually 80 percent but can vary among programs, road types, and states. State and local governments then "match" federal funds with funds from other sources, such as state or local revenues.

[10]These include roads in national forests and parks and on military and Indian reservations.

[11]P.L. 102-240 (Dec. 18, 1991).

While the federal government's primary role has been to provide capital funding for the interstate system and other highway projects, state and local governments provide the bulk of the funding for public roads in the United States and are responsible for operating and maintaining all nonfederal roads including the interstate system. The sources of state highway revenues include user charges, such as taxes on motor fuels and motor vehicles and tolls; proceeds of bond issues; General Fund appropriations; and other taxes and investment income. The sources of local highway revenues include many of the user charges and other sources used by state governments, as well as property taxes and assessments.

The U.S. transit system includes a variety of multiple-occupancy vehicle services designed to transport passengers on local and regional routes. Capital funding for transit came from the following sources in 2000: 47 percent of the total came from the federal government, 27 percent from transit agencies and other nongovernmental sources, 15 percent from local governments, and 11 percent from states. In that same year, the sources of operating funds for transit included passenger fares (36 percent of operating funds); state governments (20 percent); local governments (22 percent); other funds directly generated by transit agencies and local governments through taxes, advertising, and other sources (17 percent); and the federal government (5 percent).

The Federal Transit Administration (FTA) provides financial assistance to states and local transit operators to develop new transit systems and improve, maintain, and operate existing systems. This assistance includes (1) formula grants to provide capital and operating assistance to urbanized and nonurbanized areas and to organizations that provide specialized transit services to the elderly and disabled persons; (2) competitive capital investment grants for constructing new fixed guideway[12] systems and extensions to existing ones, modernizing fixed guideway systems, and investing in buses and bus-related facilities; (3) assistance for transit planning and research; and (4) grants to local governments and nonprofit organizations to connect low-income persons and welfare recipients to jobs and support services. Funding for federal transit programs is generally provided on an 80 percent/20 percent federal to local match basis. Federal

[12]Fixed guideway systems use and occupy a separate right-of-way for the exclusive use of public transportation services. They include fixed rail, exclusive lanes for buses and other high-occupancy vehicles, and other systems.

support for transit projects comes from the Highway Trust Fund's highway and transit accounts and from the General Fund of the U.S. Treasury.[13]

The respective roles of the public and private sector and the revenue sources vary for passenger as compared with freight railroads. With regard to passengers, the Rail Passenger Service Act of 1970 created Amtrak to provide intercity passenger rail service because existing railroads found such service unprofitable. Since its founding, Amtrak has rebuilt rail equipment and benefited from significant public investment in track and stations, especially in the Northeast corridor, which runs between Boston, Mass., and Washington, D.C. The federal government, through the Federal Railroad Administration (FRA), has provided Amtrak with $39 billion (in 2000 dollars)[14] for capital and operating expenses from 1971 through 2002. Federal payments are a significant revenue source for Amtrak's capital budget,[15] but not its operating budget. In fiscal year 2001, for example, the sources of Amtrak's capital funding were private sector debt financing (59 percent of total revenues), the federal government (36 percent), and state and local transportation agencies (5 percent). In that same year, the sources of funding for Amtrak's operating budget were passenger fares (59 percent of total revenues), other business activities and commuter railroads (34 percent), and the federal government and state governments (7 percent).[16] The role of the federal government in providing financial support to Amtrak is currently under review amid concerns about the corporation's financial viability and discussions about the future direction of federal policy toward intercity rail service.

With regard to freight, the private sector owns, operates, and provides almost all of the financing for freight railroads. Since the 1970s, the railroad industry has experienced many changes including deregulation and industry consolidation. Currently, the federal government plays a relatively small role in financing freight railroad infrastructure by offering some

[13]The General Fund contains receipts that are not earmarked by law for a specific purpose, such as almost all income tax receipts.

[14]In nominal dollars, the Congress provided Amtrak with about $25 billion from 1971 through 2002.

[15]Amtrak's capital revenues are used to acquire property, plant, and equipment.

[16]In addition, Amtrak used a portion of its federal capital funding to pay for operating expenses related to overhauling equipment.

credit assistance to state and local governments and railroads for capital improvements.

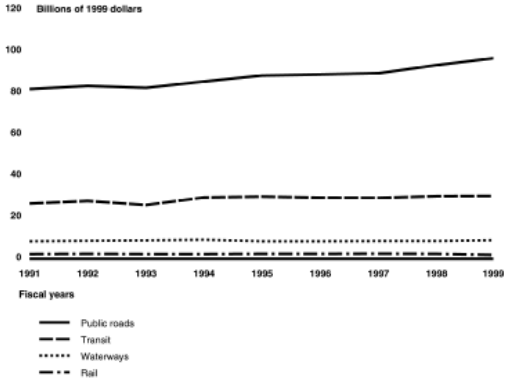
The U.S. maritime transportation system primarily consists of waterways, ports, the intermodal connections (e.g., inland rail and roadways) that permit passengers and cargo to reach marine facilities, and the vessels and vehicles that move cargo and people within the system. The maritime infrastructure is owned and operated by an aggregation of state and local agencies and private companies, with some federal funding provided by the Corps of Engineers, the U.S. Coast Guard, and DOT's Maritime Administration. The Corps of Engineers provides funding for projects to deepen or otherwise improve navigation channels, maintain existing waterways, and construct and rehabilitate inland waterway infrastructure, primarily locks and dams. Funding for channel operations and maintenance generally comes from the Harbor Maintenance Trust Fund supported by a tax on imports, domestic commodities, and other types of port usage. The costs of deepening federal channels are shared by the federal government and nonfederal entities. The Inland Waterways Trust Fund, supported by a fuel tax, funds one-half of the inland and intra-coastal capital investments. Coast Guard funding promotes (1) mobility by providing aids to navigation, icebreaking services, bridge administration, and traffic management activities; (2) security through law enforcement and border control activities; and (3) safety through programs for prevention, response, and investigation. DOT's Maritime Administration provides loan guarantees for the construction, reconstruction, or reconditioning of eligible export vessels and for shipyard modernization and improvement. It also subsidizes the operating costs of some companies that provide maritime services and provides technical assistance to state and local port authorities, terminal operators, the private maritime industry, and others on a variety of topics (e.g., port, intermodal, and advanced cargo handling technologies; environmental compliance; and planning, management, and operations of ports).

Trends in Public Expenditures for Surface and Maritime Transportation Vary by Mode

Public Sector Expenditures

Public sector spending (in 1999 dollars) has increased for public roads and transit between fiscal years 1991 and 1999, but stayed constant for waterways and decreased for rail, as shown in figure 1.

Figure 1: Total Public Sector Expenditures for Surface and Maritime Transportation by Mode, Fiscal Years 1991-1999



Source: U.S. Department of Transportation, Bureau of Transportation Statistics (2002), Government Transportation Financial Statistics (Preliminary Data), Washington, D.C.

Total public sector spending for public roads increased by 18.4 percent between fiscal years 1991 and 1999,[17] from $80.6 billion to $95.5 billion (in 1999 dollars).[18] Of those totals, the relative shares contributed by the federal government and by state and local governments remained constant from 1991 to 1999, as shown in figure 2. Contributions from state and local governments' own funds—that is, independent of federal grants to state and local governments—were approximately 75 percent, with the federal government contributing the remaining 25 percent.[19]

[17]As of May 2002, state and local government expenditures were not available for fiscal years after 1999. Therefore, total public sector expenditures are only reported through fiscal year 1999. Federal expenditure data are available for fiscal year 2000, but only appropriations data are available for fiscal years 2001 and 2002.

[18]Throughout this report, the percentage calculations are based on amounts that have not been rounded.

[19]State and local governments' highway expenditures reported by the Bureau of Transportation Statistics are slightly lower than those reported in the FHWA's Highway Statistics, because data from the FHWA include outlays for activities—such as law enforcement and patrols and policing of streets and highways—not included in the Bureau of Transportation Statistics' data.

day in 1982 to about 7 hours in 2000 in 75 metropolitan areas that were studied. Freight mobility is affected by increasing congestion within specific heavily used corridors and at specific bottlenecks that tend to involve intermodal connections, such as border crossings, and road and rail connections at major seaports and within metropolitan areas. For example, one panelist said that railroads are beginning to experience more severe capacity constraints in areas where commuter and intercity passenger rail services share tracks with freight railroads.

- Ensuring access to transportation for certain underserved populations, including some elderly, poor, and rural populations that have restricted mobility. Policies and patterns of development that encourage automobile dependence and favor provision of transit services with inflexible routes and schedules—such as subway or bus—may disadvantage these groups by limiting their access to needed services and/or jobs.

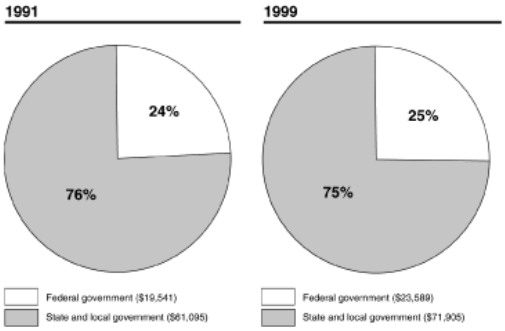
- Addressing the transportation system's negative effects on the environment and communities. Increasing travel can lead to degradation of air quality and other negative externalities. Passenger and freight vehicle emissions contribute to air and water pollution, particularly in congested areas, and the accompanying noise is also a form of pollution.

There is no one solution for the mobility challenges facing the nation, and our expert panelists indicated that numerous approaches are needed to address these challenges. From these discussions, we believe that the wide range of approaches discussed can be clustered into three key strategies that may aid transportation decisionmakers at all levels of government in addressing mobility challenges. These strategies include the following:

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2. Use a full range of tools to achieve desired mobility outcomes. This strategy, which calls for using various tools—such as new construction,

Figure 2: Federal Government and State and Local Government Shares of Expenditures on Public Roads (in millions of 1999 dollars)



Source: U.S. Department of Transportation, Bureau of Transportation Statistics (2002), Government Transportation Financial Statistics (Preliminary Data), Washington, D.C.

The increases in total public spending for roads reflect federal programmatic spending increases resulting from ISTEA in 1992 and TEA-21 in 1998, as well as increases in total state and local spending. In particular, since the passage of TEA-21, the federal government's contribution to total public expenditures on roads increased by 26.8 percent (in 1999 dollars) from $21.2 billion in fiscal year 1998 to $26.9 billion in fiscal year 2000, the latest year for which federal expenditure data are available. Although data on federal expenditures are not currently available for fiscal years after 2000, federal appropriations for fiscal years 2001 and 2002 reached $32.1 billion and $33.3 billion, respectively.[20] Federal funding increases in those years largely resulted from adjustments required by the Revenue Aligned

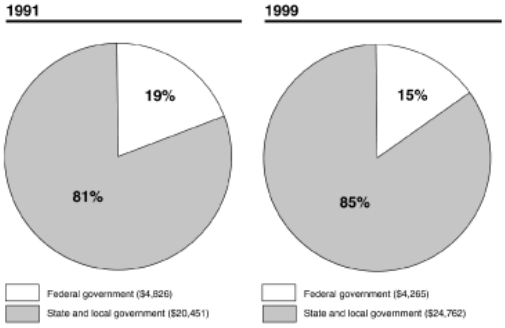
[20]Appropriations are not directly comparable to expenditures. Appropriations provide the authority to make obligations, which eventually turn into expenditures. However, those expenditures might not be made in the same fiscal year as the appropriations.

Budget Authority (RABA) provisions in TEA-21.[21] Since TEA-21, the federal government has shifted its focus toward preserving and enhancing the capacity of public roads, while state and local government expenditures have been focused on maintaining and operating public roads. Appendix I contains additional information on the levels of capital investment and maintenance spending by the public sector.

Total public spending for transit increased by 14.8 percent between fiscal years 1991 and 1999 to just over $29 billion (in 1999 dollars). This mainly reflects increases in state and local expenditures, as federal expenditures for transit actually decreased slightly over this period to $4.3 billion in 1999. In fiscal year 2000, however, federal spending on transit increased by 21.5 percent from $4.3 billion to $5.2 billion (in 1999 dollars). Although federal data on expenditures are not currently available for fiscal years after 2000, appropriations for fiscal years 2001 and 2002 reached $6.3 billion and $6.8 billion, respectively. State and local expenditures, independent of federal grants, increased to over $24 billion in 1999, accounting for over 85 percent of total public sector expenditures for transit, a share that has increased somewhat since 1991, as shown in figure 3.

[21]Under the RABA provision, the annual spending levels that are guaranteed for most federal highway programs are to be adjusted upward or downward during each fiscal year if the receipt levels in the Highway Account of the Highway Trust Fund increase or decrease from those projected in TEA-21.

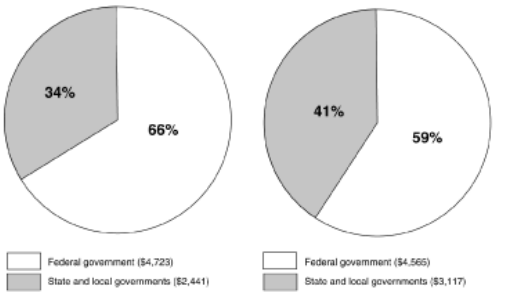
Figure 3: Federal Government and State and Local Government Shares of Expenditures on Public Transit (in millions of 1999 dollars)



Source: U.S. Department of Transportation, Bureau of Transportation Statistics (2002), Government Transportation Financial Statistics (Preliminary Data), Washington, D.C.

Public sector spending on ports and waterways has remained between $7.2 and $7.9 billion (in 1999 dollars), between fiscal years 1991 and 1999. This spending pattern reflects fairly steady levels of federal spending by the Corps of Engineers, the Coast Guard, and the Maritime Administration for water transportation expenditures. Expenditures by the Corps of Engineers and the Coast Guard comprise the bulk of federal spending for water transportation, and have remained at about $1.5 billion and $2 billion (in 1999 dollars) per year, respectively. State and local expenditures, however, increased by 27.7 percent, from $2.4 billion in fiscal year 1991 to $3.1 billion in fiscal year 1999, and accounted for about 41 percent of total public water transportation expenditures in fiscal year 1999, having grown from about 34 percent of the total in fiscal year 1991, as shown in figure 4.

Figure 4: Federal Government and State and Local Government Shares of Expenditures on Waterborne Transportation (in millions of 1999 dollars)



Source: U.S. Department of Transportation, Bureau of Transportation Statistics (2002), Government Transportation Financial Statistics (Preliminary Data), Washington, D.C.

The public sector's role in the funding of freight railroads is limited since the private sector owns, operates, and provides almost all of the financing for freight railroads. In addition, since public sector expenditures for commuter rail and subways are considered public transit expenditures, public expenditures discussed here for passenger rail are limited to funding for Amtrak. Federal support for Amtrak has fluctuated somewhat throughout the 1990s, but has dropped off substantially in recent years, with fiscal years 2001 and 2002 appropriations of $520 and $521 million, respectively. Sufficient data are not currently available to characterize trends in state and local governments' spending for intercity passenger rail.[32]

[32]However, Amtrak estimates that states will contribute $223 million to Amtrak routes and infrastructure in 2002.

Private Sector Expenditures

The private sector plays an important role in the provision of transportation services in each mode. For example, while the private sector does not invest heavily in providing roads, it purchases and operates most of the vehicles for use on publicly provided roads. For freight rail, the private sector owns and operates most of the tracks as well as the freight trains that run on the tracks. In the maritime sector, many ports on the inland waterways are privately owned, as are freight vessels and towboats. Data on private sector expenditures on a national level are limited. However, available data show that private expenditures for transportation on roads, rail, and waterways rose throughout the 1990s. According to the U.S. Bureau of Economic Analysis' Survey of Current Business,[23] individuals and businesses spent about $397 billion in 2000 for the purchase of new cars, buses, trucks, and other motor vehicles, a 57-percent increase from 1993 levels (in 2000 dollars). In addition to the purchase of vehicles, the private sector also invests in and operates toll roads and lanes; however, data on these investments are not currently available on a national level. According to the Survey of Current Business, freight railroads and other businesses spent over $11 billion for railroad infrastructure and rail cars in 2000, a 66-percent increase from 1991 (in 2000 dollars). In addition, private sector investment on ships and boats more than doubled between 1991 and 2000, to about $3.7 billion (in 2000 dollars). However, private investment in waterways also includes port facilities for loading and unloading ships and for warehousing goods. Data on these investments are also currently not available on a national level.

Passenger and Freight Travel Are Expected to Increase on All Modes

Federal projections show passenger and freight travel increasing over the next 10 years on all modes,[24] due to population growth, increasing affluence, economic growth, and other factors. Passenger vehicle travel on public roads is expected to grow by 24.7 percent from 2000 to 2010. Passenger travel on transit systems is expected to increase by 17.2 percent over the same period. Intercity passenger rail ridership is expected to

[23]Data were compiled from issues of the survey released between 1994 and 2001 (tables B-4, B-5, B-6, 5.6, and 5.8) and were adjusted for inflation using separate indexes from U.S. Bureau of Economic Analysis' National Income and Products Accounts for individual expenditures on new vehicles or business expenditures on transportation equipment. The survey data do not include overall private investment in transit systems.

[24]The projections used in this report were developed by the DOT modal administrations, the Corps of Engineers, and Amtrak. We did not verify the data used in making projections, and we do not endorse the projections as accurate.

increase by 26 percent from 2001 to 2010. Finally, preliminary estimates by DOT also indicate that tons of freight moved on all surface and maritime modes—truck, rail, and water—are expected to increase by about 43 percent from 1998 through 2010, with the largest increase expected to be in tons moved by truck.

However, several factors in the forecast methodologies limit their ability to capture the effects of changes in travel levels on the surface and maritime transportation systems as a whole (see app. II for more information about the travel forecast methodologies). For example, a key assumption underlying most of the national travel projections we obtained is that capacity will increase as levels of travel increase; that is, the projections are not limited by possible future constraints on capacity such as increasing congestion. On the other hand, if capacity does not increase, future travel levels may be lower than projected.[25] In addition, differences in travel measurements hinder direct comparisons between modes and types of travel. For example, intercity highway travel is not differentiated from local travel in FHWA's projections of travel on public roads, so projections of intercity highway travel cannot be directly compared to intercity passenger travel projections for other modes, such as rail. For freight travel, FHWA produces projections of future tonnage shipped on each mode; however, tonnage is only one measure of freight travel and does not capture important aspects of freight mobility, such as the distances over which freight moves or the value of the freight being moved.

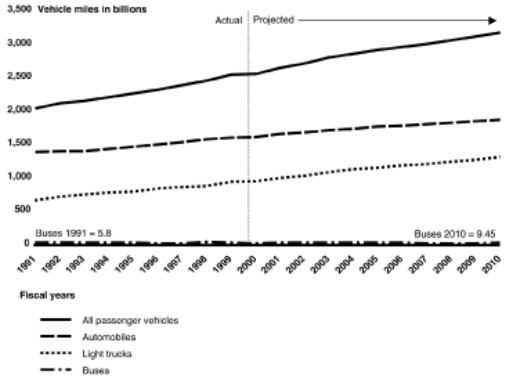
Travel on Public Roads Is Projected to Grow Fairly Steadily

As shown in figure 5, vehicle miles traveled for passenger vehicles on public roads are projected to grow fairly steadily through 2010, by 24.7 percent over the 10-year period from 2000 through 2010, with an average annual increase of 2.2 percent. This is similar to the actual average annual rate of growth from 1991 to 2000, which was 2.5 percent. At the projected rate of growth, vehicle miles traveled would reach 3.2 trillion by 2010. The

[25]Other factors also influence travel but were not always included in travel projections. For example, growth in miles driven on public roads is influenced by shifts in population to less populated residential areas, transit ridership is affected by levels of immigration, and freight travel is affected by technological innovations that improve transportation efficiency, but the influence of these factors is not taken into account. In addition, investments in additional transportation capacity can stimulate corresponding increases in travel demand. Consequently, these national travel projections need to be used carefully in evaluating how capacity improvements or other changes in one mode of transportation might affect travel across other modes and the transportation system as a whole.

20-year annual growth rate forecasts produced by individual states ranged from a low of 0.39 percent for Maine to a high of 3.43 percent for Utah.[26] (See app. II for more detailed information on state forecasts.)

Figure 5: Historical and Projected Vehicle Miles Traveled for Passenger Vehicles on Public Roads, 1991-2010



Note: Automobiles include all passenger cars plus motorcycles. Light trucks are defined as other 2-axle 4-tire vehicles (such as vans, pickup trucks, and sport utility vehicles). Buses include commercial buses, school buses, and buses owned by federal, state, or local governments.

Source: Federal Highway Administration.

In addition to passenger vehicles, trucks carrying freight contribute to the overall levels of travel on public roads. Vehicle miles traveled by freight trucks are also projected to increase by 2010, but such traffic makes up a relatively small share of total vehicle miles traveled. According to forecasts

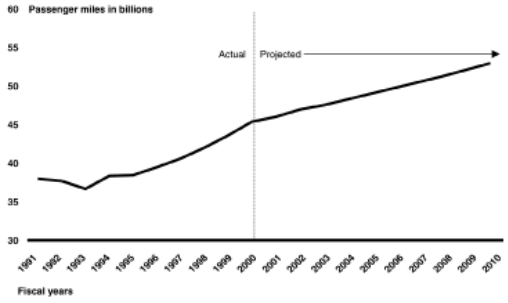
[26]FHWA provided us with forecasts for total (passenger and freight) vehicle miles traveled from individual states, the District of Columbia, and Puerto Rico (see app. II). These project future travel through 2020 rather than through 2010.

by FHWA, freight truck vehicle miles are expected to grow by 32.5 percent from 2000 to 2010, but will constitute less than 10 percent of total vehicle miles traveled nationwide in 2010. However, within certain corridors, trucks may account for a more substantial portion of total traffic. The projected average annual growth rate for truck travel is 2.9 percent for 2000 to 2010, compared to an actual average annual growth rate of 3.9 percent from 1991 to 2000. We discuss freight travel in more detail later in this report, after the discussion of passenger travel.

Transit Travel Is Projected to Increase

For transit, FTA projects that the growth in passenger miles traveled between 2000 and 2010 will average 1.6 percent annually, for a total growth of 17.2 percent. Actual growth from 1991 through 2000 averaged 2.1 percent annually. (See fig. 6.) At the projected growth rate, annual passenger miles traveled on the nation's transit systems would be approximately 52.9 billion by 2010. The transit forecast is a national weighted average and the individual forecasts upon which it is based vary widely by metropolitan area. For example, transit forecasts for specific urbanized areas range from a -0.05 percent average annual decrease in Philadelphia to a 3.56 percent average annual increase in San Diego.

Figure 6: Historical and Projected Passenger Miles Traveled on Transit, 1991-2010



Note: Types of transit included in this figure are: automated guideway (guided, fully automated vehicle), cable car, commuter rail, demand response (vehicle operating in response to calls from passengers), ferryboat, heavy rail, inclined plane (vehicle operating up and down slope on rail via a cable mechanism), light rail, bus, monorail, public trolley, and vanpool.

Sources: For 1991-2000: National Transit Database; for 2001-2010: GAO's calculations based on the Federal Transit Administration's annual growth rate projection.

Intercity Passenger Travel Is Projected to Increase

Both DOT and Amtrak project future increases in intercity passenger travel. Although automobiles dominate intercity travel, FHWA's projections of vehicle miles traveled do not separately report long-distance travel in cars on public roads. After automobiles, airplanes and intercity buses are the next most used modes and intercity passenger rail is the least used.[27] However, we do not report on air travel since it is outside the scope of this report, or on bus travel, because while FHWA projected increases in the number of miles traveled by all types of buses, we were unable to obtain specific projections of intercity ridership on buses. For intercity passenger rail, Amtrak predicts a cumulative increase in total ridership of 25.9 percent from 23.5 million passengers in 2001 to 29.6 million passengers in 2010, a contrast with the relatively flat ridership of recent years, which has remained between 20 and 23 million passengers per year (see app. II for further details about Amtrak's projections).[28]

Factors Expected to Affect Future Passenger Travel Include Population Growth, Increasing Affluence, and Improved Communications

According to FHWA, FTA, and many of our panelists, a number of factors are likely to influence not only the amount of travel that will occur in the future, but also the modes travelers choose. First, the U.S. Census Bureau predicts that the country's population will reach almost 300 million by 2010, which will result in more travelers on all modes. This population growth, and the areas in which it is expected to occur, could have a variety of effects on mode choices. In particular, the population growth that is expected in suburban areas could lead to a larger increase in travel by private vehicles than by transit because suburban areas generally have lower population densities than inner cities, and also have more dispersed

[27]In 2000, the latest year for which comparable data are available, domestic airlines carried about 657 million passengers, intercity buses carried about 359 million passengers, and Amtrak carried about 22.5 million passengers.

[28]The national Amtrak ridership statistics, however, mask some regional trends. Combined ridership in the Northeast corridor and on the West Coast has grown by about 2 million passengers since 1994, while ridership on the rest of the intercity passenger rail system has generally decreased.

travel patterns, making them harder to serve through conventional public transit. Rural areas are also expected to experience high rates of population growth and persons living there, like suburban residents, are more reliant on private vehicles and are not easily served by conventional public transit. While these demographic trends tend to decrease transit's share of total passenger travel as compared to travel by private vehicle, the overall growth in population is expected to result in absolute increases in the level of travel on transit systems as well as by private vehicle. Another important factor that could affect mode choice is that the population aged 85 and over will increase 30 percent by 2010, according to data from the Census Bureau. The aging of the population might increase the market for demand-responsive transit services[29] and improved road safety features, such as enhanced signage.

Second, DOT officials and our panelists believed that the increasing affluence of the U.S. population would play a key role in future travel, both in overall levels and in the modes travelers choose. They noted that, as income rises, people tend to take more and longer trips, private vehicle ownership tends to increase, and public transit use generally decreases. Third, communication technology could affect local and intercity travel, but the direction and extent of the effect is uncertain. For example, telecommuting and videoconferencing are becoming more common, but are not expected to significantly replace face-to-face meetings unless the technology improves substantially. Finally, changes in the price (or perceived price), condition, and reliability of one modal choice as compared to another are also likely to affect levels of travel and mode choices. For example, changes in the petroleum market that affect fuel prices, or changes in government policy that affect the cost of driving or transit prices could result in shifts between personal vehicles and transit; however, it is difficult to predict the extent to which these changes would occur. Also, if road congestion increases, there could be a shift to transit or a decrease in overall travel. See appendix III for a more detailed discussion of these factors.

[29]According to the American Public Transportation Association, demand response modes are passenger cars, vans, or buses with fewer than 25 seats operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations.

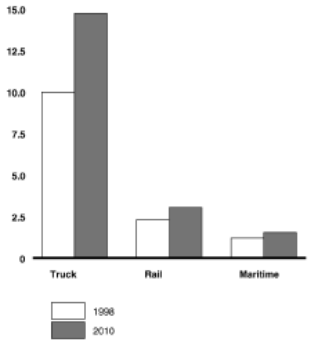
The Amount of Freight Moved Is Expected to Increase to 19.3 Billion Tons by 2010

Trucks move the majority of freight tonnage and are expected to continue moving the bulk of freight into the future. FHWA's preliminary forecasts[30] of international and domestic freight tonnage across all surface and maritime modes project that total freight moved will increase 43 percent, from 13.5 billion tons in 1998 to 19.3 billion tons in 2010. According to the forecasts, by 2010, 14.8 billion tons are projected to move by truck, a 47.6-percent increase; 3 billion tons by rail, a 31.8-percent increase; and 1.5 billion tons by water, a 26.6-percent increase, as shown in figure 7.[31] Trucks are expected to remain the dominant mode, in terms of tonnage, because production of the commodities that typically move by truck, such as manufactured goods, is expected to grow faster than the main commodities moved by rail or on water, such as coal and grain.

[30]Numerous projections of freight travel have been produced for particular modes, corridors, or commodities. For example, the Corps of Engineers has produced projections for tons moving on the inland waterways, while the *Latin America Trade and Transportation Study* contains projections of trade patterns between the United States and Latin America. For this report, we relied on projections produced by FHWA, because these are the only projections that predict national freight travel on all modes.

[31]Some freight may be moved by more than one mode before reaching its destination, such as moving by rail for one segment of the trip, then by truck to its final destination. This may result in tons being counted on more than one mode in FHWA's projections. In addition, FHWA's maritime freight projections do not include international trade of bulk products and some inland domestic bulk shipments.

Figure 7: Freight Tons (in billions) in 1998 and Projected to 2010[a] for Surface and Maritime[b] Modes



[a]These forecasts are still in draft.

[b]FHWA's maritime freight projections do not include international trade of bulk products and some inland domestic bulk shipments.

Source: Federal Highway Administration.

Tonnage is only one measure of freight travel and does not capture important aspects of freight mobility, such as the distances over which freight moves or the value of the freight being moved. Ton-miles[32] measure the amount of freight moved as well as the distance over which it moves, and historically, rail has been the dominant mode in terms of ton-miles for domestic freight. In 1998, the base year of FHWA's projections, domestic rail ton-miles totaled over 1.4 trillion, while intercity truck ton-miles totaled just over one trillion, and domestic ton-miles on the waterways totaled 672.8 billion. Air is the dominant mode in terms of value per ton according

[32]Ton-miles are calculated by multiplying the total number of tons moved by the total miles traveled.

to DOT's *Transportation Statistics Annual Report 2000*,[33] at $51,000 per ton (in 1997 dollars). However, in terms of total value, trucks are the dominant mode. According to the *Annual Report*, trucks moved nearly $5 trillion (in 1997 dollars) in domestic goods, as opposed to $320 billion by rail and less than $100 billion by inland waterway.

International freight is an increasingly important aspect of the U.S. economy. For international freight, water is the dominant mode in terms of tonnage. According to a DOT report, more than 95 percent of all overseas products and materials that enter or leave the country move through ports and waterways.[34] More specifically, containers, which generally carry manufactured commodities such as consumer goods and electrical equipment and can be easily transferred to rail or truck, dominate in terms of value, accounting for 55 percent of total imports and exports, while only accounting for 12 percent of foreign tonnage. Containers are the fastest growing segment of the maritime sector. While FHWA predicts that total maritime freight tonnage will grow by 26.6 percent, the Corps of Engineers projects that volumes of freight moving in containers will increase by nearly 70 percent by 2010. In addition, ships designed to carry containers are the fastest growing segment of the maritime shipping fleet and are also increasing in size. Although freight vessels designed to carry bulk freight (e.g., coal, grain, or oil) are the largest sector of the freight vessel fleet, the number of containerships is increasing by 8.8 percent annually, which is double the growth rate of any other type of vessel according to the Corps of Engineers. Also, most of the overall capacity of the containership fleet is now found in larger containerships, with a capacity of more than 3,000 twenty-foot containers, and ships with capacities of three times that amount are currently on order.

[33]Bureau of Transportation Statistics, *Transportation Statistics Annual Report 2000* (Washington, D.C.: U.S. Department of Transportation, 2001).

[34]*An Assessment of the U.S. Marine Transportation System* (Washington, D.C.: U.S. Department of Transportation, September 1999).

Factors Expected to Affect Freight Travel Include Increasing International Trade and Economic Growth

According to reports by the Transportation Research Board and the Bureau of Transportation Statistics,[35] increasing international trade and economic growth are expected to influence volumes of future freight travel. In addition, the increasing value of cargo shipped and changes in policies affecting certain commodities can affect overall levels of freight traffic as well as the choice of mode for that traffic. The North American Free Trade Agreement has contributed to the increases in tonnage of imports by rail (24-percent increase) and by truck (20-percent increase), from Mexico and Canada between 1996 and 2000, while expanding trade with the Pacific Rim has increased maritime traffic at west coast container ports. With increasing affluence, economic growth often results in a greater volume of goods produced and consumed, leading to more freight moved, particularly higher-value cargo. In addition, the increasing value of cargo affects the modes on which that cargo is shipped. High-value cargo, such as electronics and office equipment, tends to be shipped by air or truck, while rail and barges generally carry lower-value bulk items like coal and grains. Changes in environmental regulations and other policies also affect the amount, cost, and mode choice for moving freight. For example, a change in demand for coal due to stricter environmental controls could affect rail and water transportation, the primary modes for shipping coal. See appendix III for a more detailed discussion of the factors that influence freight travel.

[35]"Characteristics and Changes in Freight Transportation Demand: A Guidebook for Planners and Policy Analysts," prepared for the National Cooperative Highway Research Program, Project 8-30 Phase II (Washington, D.C.: Transportation Research Board, June 19, 1995). Bureau of Transportation Statistics, *Transportation Statistics Annual Report 2000* (Washington, D.C.: U.S. Department of Transportation, 2001).

Key Mobility Challenges Include Growing Congestion, Limited Access to the Transportation System for Certain Groups, and Effects on the Environment and Communities

To identify key mobility challenges and the strategies for addressing those challenges that are discussed later in this report, we relied upon the results of two panels of surface and maritime transportation experts that we convened in April 2002, as well as reports prepared by federal and other government agencies, academics, and industry groups. According to our expert panelists and other sources, with increasing passenger and freight travel, the surface and maritime transportation systems face a number of challenges that involve ensuring continued mobility while maintaining a balance with other social goals, such as environmental preservation. Ensuring continued mobility involves preventing congestion from overwhelming the transportation system and ensuring access to transportation for certain underserved populations. In particular, more travel can lead to growing congestion at bottlenecks and at peak travel times on public roads, transit systems, freight rail lines, and at freight hubs such as ports and borders where freight is transferred from one mode to another. In addition, settlement patterns and dependence on the automobile limit access to transportation systems for some elderly people and low-income households, and in rural areas where populations are expected to expand. Increasing travel levels can also negatively affect the environment and communities by increasing the levels of air, water, and noise pollution.

Congestion Is Growing at Bottlenecks and at Peak Travel Times

Many panelists explained that congestion is generally growing for passenger and freight travel and will continue to increase at localized bottlenecks (places where the capacity of the transportation system is most limited), at peak travel times, and on all surface and maritime transportation modes to some extent. However, panelists pointed out that transportation systems as a whole have excess capacity and that communities may have different views on what constitutes congestion. Residents of small cities and towns may perceive significant congestion on their streets that may be considered insignificant to residents in major metropolitan areas. In addition, because of the relative nature of congestion, its severity is difficult to determine or to measure and while one measure may be appropriate for some situations, it may be inadequate for describing others.

Congestion in Passenger Travel and on Freight Networks

For local urban travel, a study by the Texas Transportation Institute[36] showed that the amount of traffic experiencing congestion in peak travel periods doubled from 33 percent in 1982 to 66 percent in 2000 in the 75 metropolitan areas studied. In addition, the average time per day that roads were congested increased over this period, from about 4.5 hours in 1982 to about 7 hours in 2000. Increased road congestion can also affect public bus and other transit systems that operate on roads. Some transit systems are also experiencing increasing rail congestion at peak travel times. For example, the Washington Metropolitan Area Transit Authority's (WMATA) recent studies on crowding found that rail travel demand has reached and, in some cases, exceeded scheduled capacity—an average of 140 passengers per car—during the peak morning and afternoon hours. Of the more than 200 peak morning rail trips that WMATA observed over a recent 6-month period, on average, 15 percent were considered "uncomfortably crowded" (125 to 149 passengers per car) and 8 percent had "crush loads" (150 or more passengers per car).[37]

In addition to local travel, concerns have been raised about how intercity and tourist travel interacts with local traffic in metropolitan areas and in smaller towns and rural areas, and how this interaction will evolve in the future. According to a report sponsored by the World Business Council for Sustainable Development, *Mobility 2001*,[38] capacity problems for intercity travelers are generally not severe outside of large cities, except in certain heavily traveled corridors, such as the Northeast corridor, which links Washington, D.C., New York, and Boston. However, at the beginning and end of trips, intercity bus and automobile traffic contribute to and suffer from urban congestion. In addition, the study said that intercity travel may constitute a substantial proportion of total traffic passing through smaller towns and rural areas. Also, according to a GAO survey of all states, state officials are increasingly concerned about traffic volumes on interstate

[36]David Shrank and Tim Lomax, *2002 Urban Mobility Report* (College Station, TX: Texas Transportation Institute, June 2002).

[37]U.S. General Accounting Office, *Mass Transit: Many Management Successes at WMATA, but Capital Planning Could Be Enhanced*, GAO-01-744 (July 2, 2001).

[38]Massachusetts Institute of Technology and Charles River Associates, Inc., *Mobility 2001: World Mobility at the End of the Twentieth Century and Its Sustainability*, (World Business Council for Sustainable Development, August 2001).

highways in rural areas, and high levels of rural congestion are expected in 18 states within 10 years.[39]

Congestion is also expected to increase on major freight transportation networks at specific bottlenecks, particularly where intermodal connections occur, and at peak travel times, according to the panelists. They expressed concern regarding interactions between freight and passenger travel and how increases in both types of travel will affect mobility in the future. Trucks contribute to congestion in metropolitan areas where they generally move on the same roads and highways as personal vehicles, particularly during peak periods of congestion. In addition, high demand for freight, particularly freight moved on trucks, exists in metropolitan areas where overall congestion tends to be the worst.

With international trade an increasing part of the economy and with larger containerships being built, some panelists indicated that more pressure will be placed on the already congested road and rail connections to major U.S. seaports and at the border crossings with Canada and Mexico. For example, according to a DOT report,[40] more than one-half of the ports responding to a 1997 survey of port access issues identified traffic impediments on local truck routes as the major infrastructure problem.

According to one panelist from the freight rail industry, there is ample capacity on most of the freight rail network. However, railroads are beginning to experience more severe capacity constraints in particular heavily used corridors, such as the Northeast corridor, and within major metropolitan areas, especially where commuter and intercity passenger rail services share tracks with freight railroads. Capacity constraints at these bottlenecks are expected to worsen in the future. The panelist explained that congestion on some freight rail segments where the tracks are also used for passenger rail service—for which there is growing demand—reduces the ability of freight railroads to expand service on the existing tracks to meet the growing demand for freight movements on those segments.

[39]U.S. General Accounting Office, *Status of the Interstate Highway System*, GAO-02-571 (May 31, 2002).

[40]*An Assessment of the U.S. Marine Transportation System* (Washington, D.C.: U.S. Department of Transportation, September 1999).

On the inland waterways, according to two panelists from that industry, there is sufficient capacity on most of the inland waterway network, although congestion is increasing at small, aging, and increasingly unreliable locks. According to the Corps of Engineers, the number of hours that locks were unavailable due to lock failures increased in recent years, from about 35,000 hours in 1991 to 55,000 hours in 1999, occurring primarily on the upper Mississippi and Illinois rivers. In addition, according to a Corps of Engineers analysis of congestion on the inland waterways, with expected growth in freight travel, 15 locks would exceed 80 percent of their capacity by 2020, as compared to 4 that had reached that level in 1999.

Other Systemic Factors Contributing to Congestion

According to our expert panelists, while increasing passenger and freight travel contribute to increasing congestion at bottlenecks and at peak travel times, other systemic factors contribute to congestion, including barriers to building enough capacity to accommodate growing levels of travel, challenges to effectively managing and operating transportation systems, and barriers in effectively managing how, and the extent to which, transportation systems are used.

At bottlenecks and at peak travel times, there is insufficient capacity to accommodate the levels of traffic attempting to use the infrastructure. One reason for the insufficient capacity is that transportation infrastructure, which is generally publicly provided (with the major exception of freight railroads), can take a long time to plan and build, and it may not be possible to build fast enough to keep pace with increasing and shifting travel patterns. In addition, constructing new capacity is often costly and can conflict with other social goals such as environmental preservation and community maintenance. As a result, approval of projects to build new capacity, which requires environmental impact statements and community outreach, generally takes a long time, if it is obtained at all.

In addition, a number of panelists indicated that funding and planning rigidities in the public institutions responsible for providing transportation infrastructure tend to promote one mode of transportation, rather than a set of balanced transportation choices. Focus on a single mode can result in difficulties dealing effectively with congestion. For example, as suburban expressways enable community developments to grow and move farther out from city centers, jobs and goods follow these developments. This results in increasing passenger and freight travel on the expressways, and a shifting of traffic flows that may not easily be accommodated by existing transportation choices. One panelist indicated that suburban expressways are among the least reliable in terms of travel times because,

if congestion occurs, there are fewer feasible alternative routes or modes of transportation. In addition, some bottlenecks occur where modes connect, because funding is generally mode-specific, and congestion at these intermodal connections is not easily addressed. According to FHWA, public sector funding programs are generally focused on a primary mode of transportation, such as highways, or a primary purpose, such as improving air quality. This means that intermodal projects may require a broader range of funding than might be available under a single program.

Panelists also noted that the types of congestion problems that are expected to worsen in the future involve interactions between long-distance and local traffic and between passengers and freight, and existing institutions may not have the capacity or the authority to address them. For example, some local bottlenecks may hinder traffic that has regional or national significance, such as national freight flows from major coastal ports, or can affect the economies and traffic in more than one state. Current state and local planning organizations may have difficulty considering all the costs and benefits related to national or international traffic flows that affect other jurisdictions as well as their own.

The concept of capacity is broader than just the physical characteristics of the transportation network (e.g., the number of lane-miles of road). The capacity of transportation systems is also determined by how well they are managed and operated (particularly publicly owned and operated systems), and how the use of those systems is managed. Many factors related to the management and operation of transportation systems can contribute to increasing congestion. Many panelists said that congestion on highways was in part due to poor management of traffic flows on the connectors between highways and poor management in clearing roads that are blocked due to accidents, inclement weather, or construction. For example, in the 75 metropolitan areas studied by the Texas Transportation Institute, 54 percent of annual vehicle delays in 2000 were due to incidents such as breakdowns or crashes. In addition, the Oak Ridge National Laboratory reported that, nationwide, significant delays are caused by work zones on highways; poorly timed traffic signals; and snow, ice, and fog.[41]

[41]Several sources of nonrecurring delays were not considered in this study, including special events, rain, rail crossings, and toll booths. S.M. Chin, O. Franzese, D.L. Greene, H.L. Hwang, and R. Gibson, *Temporary Losses of Capacity Study and Impacts on Performance*, Report No. ORNL/TM-2002/3 (Oak Ridge, TN: Oak Ridge National Laboratory, May 2002).

In addition, according to a number of panelists, congestion on transportation systems is also in part due to inefficient pricing of the infrastructure because users—whether they are drivers on a highway or barge operators moving through a lock—do not pay the full costs they impose on the system and on other users for their use of the system. They further argued that if travelers and freight carriers had to pay a higher cost for using transportation systems during peak periods to reflect the full costs they impose, they would have an incentive to avoid or reschedule some trips and to load vehicles more fully, resulting in less congestion.

Effects of Congestion

Congestion affects travel times and the reliability of transportation systems. As discussed earlier in this report, the Texas Transportation Institute found that 66 percent of peak period travel on roadways was congested in 2000, compared to 33 percent in 1982 in the 75 metropolitan areas studied. According to the study, this means that two of every three vehicles experience congestion in their morning or evening commute. In the aggregate, congestion results in thousands of hours of delay every day, which can translate into costs such as lost productivity and increased fuel consumption. In addition, a decrease in travel reliability imposes costs on the traveler in terms of arriving late to work or for other appointments, and in raising the cost of moving goods resulting in higher prices for consumers.

Some panelists noted that congestion, in some sense, reflects full use of transportation infrastructure, and is therefore not a problem. In addition, they explained that travelers adjust to congestion and adapt their travel routes and times, as well as housing and work choices, to avoid congestion. For example, according to the *Transportation Statistics Annual Report 2000*, median commute times increased about 2 minutes between 1985 and 1999, despite increases in the percentage of people driving to work alone and the average commuting distance. For freight travel, one panelist made a similar argument, citing that transportation costs related to managing business operations have decreased as a percentage of gross national product, indicating that producers and manufacturers adjust to transportation supply, by switching modes or altering delivery schedules to avoid delays and resulting cost increases.

However, the *Mobility 2001* report describes these adaptations by individuals and businesses as economic inefficiencies that can be very costly. According to the report, increasing congestion can cause avoidance of a substantial number of trips resulting in a corresponding loss of the benefits of those trips. In addition to negative economic effects, travelers'

serve through transit systems; however, some barriers to providing these types of services exist. For example, according to one of our panelists, some paratransit[45] services are not permitted to carry able-bodied people, even if those people are on the route and are willing to pay for the service. As the elderly population increases over the next 10 years, issues pertaining to access are expected to become more prominent in society.

Low-Income Households

Lower income levels can also be a significant barrier to transportation access. The cost of purchasing, insuring, and maintaining a car is prohibitive to some households, and 26 percent of low-income households do not own a car, compared with 4 percent of other households, according to the 1999 *Conditions and Performance* report. Among all low-income households, about 8 percent of trips are made in cars that are owned by others as compared to 1 percent for other income groups. Furthermore, the same uncertainties and inconveniences apply to this group as to the elderly regarding relying on others for transportation. Transportation access is important for employment opportunities to help increase income, yet this access is not always available. This is because growth in employment opportunities tends to occur in the suburbs and outlying areas, while many low-income populations are concentrated in the inner cities or in rural areas. In case studies of access to jobs for low-income populations, FTA researchers found that transportation barriers to job access included gaps in transit service, lack of knowledge of where transit services are provided, and high transportation costs resulting from multiple transfers and long distances traveled.[46] Another problem they noted was the difficulty in coordinating certain types of work shifts with the availability of public transportation service. Without sufficient access to jobs, families face more obstacles to achieving the goal of independence from government assistance. Limited transportation access can also reduce opportunities for affordable housing and restrict choices for shopping and other services.

Rural Populations

Rural populations, which according to the 2000 Census grew by 10 percent over the last 10 years, also face access problems. Access to some form of transportation is necessary to connect rural populations to jobs and other

[45]Paratransit is a service where individuals who are unable to use the regular transit system independently (because of a physical or mental impairment) are picked up and dropped off at their destinations.

[46]Federal Transit Administration, *Access to Jobs: Planning Case Studies* (Washington, D.C.: U.S. Department of Transportation, September 2001).

amenities in city centers or, increasingly, in the suburbs. The *Mobility 2001* report states that automobiles offer greater flexibility in schedule and choice of destinations than other modes of transportation, and often also provide shorter travel times with lower out-of-pocket costs. The report also notes that conventional transit systems are best equipped to serve high levels of travel demand that is concentrated in a relatively limited area or along well-defined corridors, such as inner cities and corridors between those areas and suburbs. Trips by rural residents tend to be long due to low population densities and the relative isolation of small communities. Therefore, transportation can be a challenge to provide in rural areas, especially for persons without access to private automobiles. A report prepared for the FTA in 2001[47] found that 1 in 13 rural residents lives in a household without a personal vehicle. In addition, the elderly made 31 percent of all rural transit trips in 2000 and persons with disabilities made 23 percent. However, according to a report by the Coordinating Council on Access and Mobility,[48] while almost 60 percent of all nonmetropolitan counties had some public transportation services in 2000, many of these operations were small and offered services to limited geographic areas during limited times.

Transportation's Effects on the Environment and Communities Are a Growing Concern

While ISTEA and TEA-21 provided funds aimed at mitigating adverse effects of transportation, concerns persist about such effects on the environment and communities. As a result of the negative consequences of transportation, tradeoffs must be made between facilitating increased mobility and giving due regard to environmental and other social goals. For example, transportation vehicles are major sources of local, urban, and regional air pollution because they depend on fossil fuels to operate. Emissions from vehicles include sulfur dioxide, lead, carbon monoxide, volatile organic compounds, particulate matter, and nitrous oxides. In addition, the emission of greenhouse gases such as carbon dioxide, methane, and nitrous oxide are increasing and greenhouse gases have been linked to reduction in atmospheric ozone and climate changes. According to *Mobility 2001*, improved technologies can help reduce per-vehicle emissions, but the increasing numbers of vehicles traveling and the total

[47]Community Transportation Association of America, *Status of Rural Public Transportation 2000* (April 2001).

[48]Coordinating Council on Access and Mobility, *Planning Guidelines for Coordinated State and Local Specialized Transportation Services* (Washington, D.C.: U.S. Department of Transportation, Dec. 20, 2000).

miles traveled may offset these gains. In addition, congested conditions on highways tend to exacerbate the problem because extra fuel is consumed due to increased acceleration, deceleration, and idling. Vehicle emissions in congested areas can trigger respiratory and other illnesses, and runoff from impervious surfaces can carry lawn chemicals and other pollutants into lakes, streams, and rivers, thus threatening aquatic environments.[49]

Freight transportation also has significant environmental effects. Trucks are significant contributors to air pollution. According to the American Trucking Association, trucks were responsible for 18.5 percent of nitrous oxide emissions and 27.5 percent of other particulate emissions from mobile sources in the United States. The *Mobility 2001* report states that freight trains also contribute to emissions of hydrocarbons, carbon monoxide, and nitrous oxide, although generally at levels considerably lower than trucks. In addition, while large shipping vessels are more energy efficient than trucks or trains, they are also major sources of nitrogen, sulfur dioxide, and diesel particulate emissions. According to the International Maritime Organization, ocean shipping is responsible for 22 percent of the wastes dumped into the sea on an annual basis. Barges moving freight on the inland waterway system are among the most energy efficient forms of freight transportation, contributing relatively lower amounts of noxious emissions compared with trucks and freight trains, according to the Corps of Engineers. However, the dredging and damming required to make rivers and harbors navigable can cause significant disruption to ecosystems.

Noise pollution is another factor exacerbated by increasing levels of transportation. While FHWA, FTA, and many cities have established criteria for different land uses close to highways and rail lines to protect against physically damaging noise levels, average noise levels caused by road traffic in some areas can still have adverse consequences on people's hearing. In addition, several studies have found that residential property values decrease as average noise levels rise above a certain threshold. Freight also contributes to noise pollution. According to *Mobility 2001*, shipping is the largest source of low-frequency, underwater noise, which may have adverse effects on marine life, although these effects are not yet fully understood. These noise levels are particularly serious on highly

[49]See U.S. General Accounting Office, *Environmental Protection: Federal Incentives Could Help Promote Land Use That Protects Air and Water Quality*, GAO-02-12 (Washington, D.C.: Oct. 31, 2001).

trafficked shipping routes. In addition, dredging also contributes to noise pollution.

Growing awareness of the environmental and social costs of transportation projects is making it more difficult to pursue major transportation improvements. According to a number of panelists, the difficulty in quantifying and measuring the costs and benefits of increased mobility also hinders the ability of transportation planners to make a strong case to local decisionmakers for mobility improvements. In addition, transportation planning and funding is mode-specific and oriented toward passenger travel, which hinders transportation planners' ability to recognize systemwide and multi-modal strategies for addressing mobility needs and other social concerns.

Strategies for Addressing Mobility Challenges Include Focusing on Systemwide Outcomes, Using a Full Range of Tools, and Providing Options for Financing Surface and Maritime Transportation

The panelists presented numerous approaches for addressing the types of challenges discussed throughout this report, but they emphasized that no single strategy would be sufficient. From these discussions and our other research, we have identified three key strategies that may aid transportation decisionmakers at all levels of government in addressing mobility challenges and the institutional barriers that contribute to them. These strategies include the following:

1. Focus on the entire surface and maritime transportation system rather than on specific modes or types of travel to achieve desired mobility outcomes. A systemwide approach to transportation planning and funding, as opposed to focus on a single mode or type of travel, could improve focus on outcomes related to customer or community needs.

2. Use a full range of tools to achieve those desired outcomes. Controlling congestion and improving access will require a strategic mix of construction, corrective and preventive maintenance, rehabilitation, operations and system management, and managing system use through pricing and other techniques.

3. Provide more options for financing mobility improvements and consider additional sources of revenue. Targeting financing to transportation projects that will achieve desired mobility outcomes might require more options for raising and distributing funds for surface and maritime transportation. However, using revenue sources that are not directly tied to the use of transportation systems could allow decisionmakers to bypass transportation planning requirements

which, in turn, could limit the ability of transportation agencies to focus on and achieve desired outcomes.

Focus on the Entire Surface and Maritime Transportation System Rather Than on Specific Modes or Types of Travel to Achieve Desired Mobility Outcomes

Some panelists said that mobility should be viewed on a systemwide basis across all modes and types of travel. Addressing the types of mobility challenges discussed earlier in this report can require a scope beyond a local jurisdiction or a state line and across more than one mode or type of travel. For example, congestion challenges often occur where modes connect or should connect—such as ports or freight hubs where freight is transferred from one mode to another, or airports that passengers need to access by car, bus, or rail. These connections require coordination of more than one mode of transportation and cooperation among multiple transportation providers and planners, such as port authorities, metropolitan planning organizations (MPO),[50] and private freight railroads. Some panelists therefore advocated shifting the focus of government transportation agencies at the federal, state, and local levels to consider all modes and types of travel in addressing mobility challenges—as opposed to focusing on a specific mode or type of travel in planning and implementing mobility improvements.

Some panelists said that current transportation planning institutions, such as state transportation departments, MPOs, or Corps of Engineers regional offices, may not have sufficient expertise, or in some cases, authority to effectively identify and implement mobility improvements across modes or types of travel. They suggested that transportation planning by all entities focus more closely on regional issues and highlighted the importance of cooperation and coordination among modal agencies at the federal, state, and local level, between public and private transportation providers, and between transportation planning organizations and other government and community agencies to address transportation issues. For example, several panelists said that the Alameda Corridor in Los Angeles is a good example of successful cooperation and coordination among agencies. This corridor is designed to improve freight mobility for cargo coming into the ports of Los Angeles and Long Beach and out to the rest of the country. Planning, financing, and building this corridor required cooperation among private railroads, the local port authorities, the cities of Los Angeles and Long

[50]MPOs are organizations of city, county, state, and federal officials that provide a regional forum for transportation planning.

Beach, community groups along the entire corridor, the state of California, and the federal government.

Several panelists said that a greater understanding of the full life-cycle costs and benefits of various mobility improvements is needed to take a more systemwide approach to transportation planning and funding. The panelists said the cost-benefit frameworks that transportation agencies currently use to evaluate various transportation projects could be more comprehensive in considering a wider array of social and economic costs and benefits, recognizing transportation systems' links to each other and to other social and financial systems.

Many panelists advocated a systemwide, rather than mode-specific, approach to transportation planning and funding that could also improve focus on outcomes that users and communities desire from the transportation system. For example, one panelist described a performance oriented funding system, in which the federal government would first define certain national interests of the transportation system—such as maintaining the entire interstate highway system or identifying freight corridors of importance to the national economy—then set national performance standards for those systems that states and localities must meet. Federal funds would be distributed to those entities that are addressing national interests and meeting the established standards. Any federal funds remaining after meeting the performance standards could then be used for whatever transportation purpose the state or locality deems most appropriate to achieve state or local mobility goals. Another panelist expanded the notion of setting national performance standards to include a recognition of the interactions between transportation goals and local economic development and quality of life goals, and to allow localities to modify national performance goals given local conditions. For example, a national performance standard, such as average speeds of 45 miles per hour for highways, might be unattainable for some locations given local conditions, and might run contrary to other local goals related to economic development.

Some panelists described several other types of systems that could focus on outcomes. For example, one panelist suggested a system in which federal support would reward those states or localities that apply federal money to gain efficiencies in their transportation systems, or tie transportation projects to land use and other local policies to achieve community and environmental goals, as well as mobility goals. Another panelist described a system in which different federal matching criteria for

different types of expenditures might reflect federal priorities. For example, if infrastructure preservation became a higher national priority than building new capacity, matching requirements could be changed to a 50 percent federal share for building new physical capacity and an 80 percent federal share for preservation. Other panelists suggested that requiring state and local governments to pay for a larger share of transportation projects might provide them with incentives to invest in more cost-effective projects. If cost savings resulted, these entities might have more funds available to address other mobility challenges. Some of the panelists suggested reducing the federal match for projects in all modes to give states and localities more fiscal responsibility for projects they are planning. Other panelists also suggested that federal matching requirements should be equal for all modes to avoid creating incentives to pursue projects in one mode that might be less effective than projects in other modes.

Use a Full Range of Tools to Address Mobility Challenges

Many panelists emphasized that using a range of various tools to address mobility challenges may help control congestion and improve access. This involves a strategic mix of construction, corrective and preventive maintenance, rehabilitation, operations and system management, and managing system use through pricing or other techniques. Many of the panelists said that no one type of technique would be sufficient to address mobility challenges. Although these techniques are currently in use, panelists indicated that planners should more consistently consider a full range of techniques.

Build New Infrastructure

Building additional infrastructure is perhaps the most familiar technique for addressing congestion and improving access to surface and maritime transportation. Several panelists expressed the view that although there is a lot of unused capacity in the transportation system, certain bottlenecks and key corridors require new infrastructure. However, building new infrastructure cannot completely eliminate congestion. For example, according to the Texas Transportation Institute, it would require at least twice the level of current road expansion to keep traffic congestion levels constant, if that were the only strategy pursued. In addition, while adding lanes may be a useful tool to deal with highway congestion for states with relatively low population densities, this option may not be as useful or possible for states with relatively high population densities—particularly in urban areas, where the ability to add lanes is limited due to a shortage of available space. Furthermore, investments in additional transportation capacity can stimulate increases in travel demand, sometimes leading to

congestion and slower travel speeds on the new or improved infrastructure.

Increase Infrastructure Maintenance and Rehabilitation

Other panelists said that an emphasis on enhancing capacity from existing infrastructure through increased corrective and preventive maintenance and rehabilitation is an important supplement to, and sometimes a substitute for, building new infrastructure. In 1999, the President's Commission to Study Capital Budgeting reported that, because infrastructure maintenance requires more rapid budgetary spending than new construction and has a lower visibility, it is less likely to be funded at a sufficient level.[51] However, one panelist said that for public roads, every dollar spent on preventive maintenance when the roads are in good condition saves $4 to $5 over what would have to be spent to maintain roads in fair condition or $10 to maintain roads once they are in poor condition. Maintaining and rehabilitating transportation systems can improve the speed and reliability of passenger and freight travel, thereby optimizing capital investments.

Improve Management and Operations

Better management and operation of existing surface and maritime transportation infrastructure is another technique for enhancing mobility advocated by some panelists. Improving management and operations may allow the existing transportation system to accommodate additional travel without having to add new infrastructure. For example, the Texas Transportation Institute reported that coordinating traffic signal timing with changing traffic conditions could improve flow on congested roadways. In addition, according to an FHWA survey, better management of work zones—which includes accelerating construction activities to minimize their effects on the public, coordinating planned and ongoing construction activities, and using more durable construction materials—can reduce traffic delays caused by work zones and improve traveler satisfaction.[52] Also, according to one panelist, automating the operation of locks and dams on the inland waterways could reduce congestion at these bottlenecks. Another panelist, in an article that he authored, noted that shifting the focus of transportation planning from building capital facilities

[51]Report of the President's Commission to Study Capital Budgeting, *President's Commission to Study Capital Budgeting* (Washington, D.C.: Government Printing Office, February 1999).

[52]Federal Highway Administration, *Moving Ahead: The American Public Speaks on Roadways and Transportation in Communities*, FHWA OP-01-017 (Washington, D.C.: U.S. Department of Transportation, February 2001).

to an "operations mindset" will require a cultural shift in many transportation institutions, particularly in the public sector, so that the organizational structure, hierarchy, and rewards and incentives are all focused on improving transportation management and operations.[53] He also commented on the need to improve performance measures related to operations and management so that both the quality and the reliability of transportation services are measured.

Several panelists suggested that contracting out a greater portion of operations and maintenance activities could allow public transportation agencies to focus their attention on improving overall management and developing policies to address mobility challenges. This practice could involve outsourcing operations and maintenance to private entities through competitive bidding, as is currently done for roads in the United Kingdom. In addition, by relieving public agencies of these functions, contracting could reduce the cost of operating transportation infrastructure and improve the level of service for each dollar invested for publicly owned transportation systems, according to one panelist.

Developing comprehensive strategies for reducing congestion caused by incidents is another way to improve management and operation of surface and maritime transportation modes. According to the Texas Transportation Institute, incidents such as traffic accidents and breakdowns cause significant delays on roadways. One panelist said that some local jurisdictions are developing common protocols for handling incidents that affect more than one mode and transportation agency, such as state transportation departments and state and local law enforcement, resulting in improved communications and coordination among police, firefighters, medical personnel, and operators of transportation systems. Examples of improvements to incident management include employing roving crews to quickly move accidents and other impediments off of roads and rail and implementing technological improvements that can help barges on the inland waterways navigate locks in inclement weather, thereby reducing delays on that system.

Increase Investment in Technology

Several panelists also suggested that increasing public sector investment in technologies—known as Intelligent Transportation Systems (ITS)—that are designed to enhance the safety, efficiency, and effectiveness of the

[53]Joseph M. Sussman, "Transitions in the World of Transportation: A Systems View," *Transportation Quarterly* 56 (2002): 21-22.

transportation network, can serve as a way of increasing capacity and mobility without making major capital investments. DOT's ITS program has two major areas of emphasis: (1) deploying and integrating intelligent infrastructure and (2) testing and evaluating intelligent vehicles. ITS includes technologies that improve traffic flow by adjusting signals, facilitating traffic flow at toll plazas, alerting emergency management services to the locations of crashes, increasing the efficiency of transit fare payment systems, and other actions. Appendix IV describes the different systems that are part of DOT's ITS program.

Other technological improvements suggested by panelists included increasing information available to users of the transportation system to help people avoid congested areas and to improve customer satisfaction with the system. For example, up-to-the-minute traffic updates posted on electronic road signs or over the Internet help give drivers the information necessary to make choices about when and where to travel. It was suggested that the federal government could play a key role in facilitating the development and sharing of such innovations through training programs and research centers, such as the National Cooperative Highway Research Program, the Transit Cooperative Research Program, and possible similar programs for waterborne transportation. However, panelists cautioned that the federal government might need to deal with some barriers to investing in technology development and implementation. One panelist said that there are few incentives for agencies to take risks on new technologies. If an agency improves its efficiency, it may result in the agency receiving reduced funding rather than being able to reinvest the savings.

Use Demand Management Techniques

Finally, another approach to reducing congestion without making major capital investments is to use demand management techniques to reduce the number of vehicles traveling at the most congested times and on the most congested routes. For public roads, demand management generally means reducing the number of cars traveling on particularly congested routes toward downtown during the morning commuting period and away from downtown during the late afternoon commuting period. One panelist, in a book that he authored, said that "the most effective means of reducing

peak-hour congestion would be to persuade solo drivers to share vehicles."[54]

One type of demand management for travel on public roads is to make greater use of pricing incentives. In particular, many economists have proposed using congestion pricing that involves charging surcharges or tolls to drivers who choose to travel during peak periods when their use of the roads increases congestion. Economists generally believe that such surcharges or tolls enhance economic efficiency by making drivers take into account the external costs they impose on others in deciding when and where to drive. These costs include congestion, as well as pollution and other external effects. The goal of congestion pricing would be to charge a toll for travel during congested periods that would make the cost (including the toll) that a driver pays for such a trip equal or close to the total cost of that trip, including external costs. These surcharges could help reduce congestion by providing incentives for travelers to share rides, use transit, travel at less congested (generally off-peak) times and on less congested routes, or make other adjustments—and at the same time, generate more revenues that can be targeted to alleviating congestion in those specific corridors. According to a report issued by the Transportation Research Board, technologies that are currently used at some toll facilities to automatically charge users could also be used to electronically collect congestion surcharges without establishing additional toll booths that would cause delays.[55] Peak-period pricing also has applicability for other modes of transportation. Amtrak and some transit systems use peak-period pricing, which gives travelers incentives to make their trips at less congested times.

In addition to pricing incentives, other demand management techniques that encourage ride-sharing can be useful in reducing congestion. Ride-sharing can be encouraged by establishing carpool and vanpool staging areas, providing free or preferred parking for carpools and vanpools, subsidizing transit fares, and designating certain highway lanes as high occupancy vehicle (HOV) lanes that can only be used by vehicles with a specified number of people in them (two or more). HOV lanes can provide an incentive for sharing rides because they reduce the travel time for a

[54]Anthony Downs, *Stuck in Traffic: Coping with Peak-Hour Traffic Congestion* (The Brookings Institution: Washington, D.C.: 1992) p.64.

[55]National Research Council, Transportation Research Board, *Curbing Gridlock: Peak-Period Fees to Relieve Traffic Congestion* (Washington, D.C.: 1994).

group traveling together relative to the time required to travel alone. This incentive is likely to be particularly strong when the regular lanes are heavily congested. Several panelists also recommended use of high occupancy toll (HOT) lanes, which combine pricing techniques with the HOV concept. Experiments with HOT lanes, which allow lower occupancy vehicles or solo drivers to pay a fee to use HOV lanes during peak traffic periods, are currently taking place in California. HOT lanes can provide motorists with a choice: if they are in a hurry, they may elect to pay to have less delay and an improved level of service compared to the regular lanes. When HOT lanes run parallel to regular lanes, congestion in regular lanes may be reduced more than would be achieved by HOV lanes.

Demand management techniques on roads, particularly those involving pricing, often provoke strong political opposition. Several panelists said that instituting charges to use roads that have been available "free" is particularly unpopular because many travelers believe that they have already paid for the roads through gasoline and other taxes and should not have to pay "twice." Other concerns about congestion pricing include equity issues because of the potentially regressive nature of these charges (i.e., the surcharges constitute a larger portion of the earnings of lower income households and therefore impose a greater financial burden on them).[56] In addition, some people find the concept of restricting lanes or roads to people who pay to use them to be elitist because that approach allows people who can afford to pay the tolls to avoid congestion that others must endure. Several of the panelists suggested that tolls might become more acceptable to the public if they were applied to new roads or lanes as a demonstration project so that the tolls' effectiveness in reducing congestion and increasing commuter choices could be evaluated.

Provide Options for Financing Mobility Improvements and Consider Additional Sources of Revenue

Several panelists indicated that targeting the financing of transportation to achieving desired mobility outcomes, and addressing those segments of transportation systems that are most congested, would require more options for financing surface and maritime transportation projects than are currently available, and might also require more sources of revenue in the future.

[56]Proponents of congestion pricing, however, such as the Committee for Study of Urban Transportation Congestion Pricing of the Transportation Research Board, have noted that all income groups can benefit if there is an appropriate distribution of the revenues obtained through congestion pricing.

Increase Funding Flexibility	According to many panelists, the current system of financing surface and maritime transportation projects limits options for addressing mobility challenges. For example, several panelists said that separate funding for each mode at the federal, state, and local level can make it difficult to consider possible efficient and effective ways for enhancing mobility, and providing more flexibility in funding across modes could help address this limitation. In addition, some panelists argued that "earmarking" or designation by the Congress of federal funds for particular transportation projects bypasses traditional planning processes used to identify the highest priority projects, thus potentially limiting transportation agencies' options for addressing the most severe mobility challenges. According to one panelist, bypassing transportation planning processes can also result in logical connections or interconnections between projects being overlooked.
Expand Support for Alternative Financing Mechanisms	Several panelists acknowledged that the public sector could expand its financial support for alternative financing mechanisms to access new sources of capital and stimulate additional investment in surface and maritime transportation infrastructure. These mechanisms include both newly emerging and existing financing techniques such as providing credit assistance to state and local governments for capital projects and using tax policy to provide incentives to the private sector for investing in surface and maritime transportation infrastructure (see app. V for a description of alternative financing methods). The panelists emphasized, however, that these mechanisms currently provide only a small portion of the total funding that is needed for capital investment and are not, by themselves, a major strategy for addressing mobility challenges. Furthermore, they cautioned that some of these mechanisms, such as Grant Anticipation Revenue Vehicles,[57] could create difficulties for state and local agencies to address future transportation problems, because agencies would be reliant on future federal revenues to repay the bonds.
Consider New Revenue Sources	Many panelists stated that a possible future shortage of revenues presents a fundamental limitation to addressing mobility challenges.[58] Some panelists

[57]Grant Anticipation Revenue Vehicles allow states to pay debt financing costs with future anticipated federal highway funds.

[58]However, one panelist believed that increased spending on transportation would never alleviate congestion and that such spending increases would reduce the funds available for dealing with other problems.

said that, because of the increasing use of alternative fuels, revenues from the gas tax are expected to decrease in the future, possibly hindering the public sector's ability to finance future transportation projects. In addition, one panelist explained that MPOs are required to produce financially constrained long-range plans, and the plans in the panelist's organization indicate that future projections of revenue do not cover the rising costs of planned transportation projects.

One method of raising revenue is for counties and other regional authorities to impose sales taxes for funding transportation projects. A number of counties have already passed such taxes and more are being considered nationwide. However, several panelists expressed concerns that this method might not be the best option for addressing mobility challenges. For example, one panelist stated that moving away from transportation user charges to sales taxes that are not directly tied to the use of transportation systems weakens the ties between transportation planning and finance. Counties and other authorities may be able to bypass traditional state and metropolitan planning processes because these sales taxes provide them with their own sources of funding for transportation.

A number of panelists suggested increasing current federal fuel taxes to raise additional revenue for surface transportation projects. In contrast, other panelists argued that the federal gas tax could be reduced. They said that, under the current system, states are receiving most of the revenue raised by the federal gas tax within their state lines and therefore there is little need for the federal government to be involved in collecting this revenue, except for projects that affect more than one state or are of national significance. However, other panelists said that this might lead to a decrease in gas tax revenues available for transportation, because states may have incentives to use this revenue for purposes other than transportation or may not collect as much as is currently collected.

Given that freight tonnage moved across all modes is expected to increase by 43 percent during the period from 1998 to 2010, new or increased taxes or other fees imposed on the freight sector could also help fund mobility improvements. For example, one panelist from the rail industry suggested modeling more projects on the Alameda Corridor in Los Angeles, where private rail freight carriers pay a fee to use infrastructure built with public financing. Another way to raise revenue for funding mobility improvements would be to increase taxes on freight trucking. According to FHWA, heavy trucks (weighing over 55,000 pounds) cause a disproportionate amount of damage to the nation's highways and have not paid a corresponding share

for the cost of pavement damage they cause. This situation will only be compounded by the large expected increases in freight tonnage moved by truck over the next 10 years. The Joint Committee on Taxation estimated that raising the ceiling on the tax paid by heavy vehicles to $1,900 could generate about $100 million per year.[59]

Another revenue raising strategy includes dedicating more of the revenues from taxes on alternative fuels, such as gasohol, to the Highway Trust Fund rather than to the U.S. Treasury's General Fund, as currently happens. Finally, panelists also said that pricing strategies, mentioned earlier in this report as a tool to reduce congestion, are also possible additional sources of revenue for transportation purposes.

Agency Comments and Our Evaluation

We provided DOT, the Corps of Engineers, and Amtrak with draft copies of this report for their review and comment. We obtained oral comments from officials at DOT and the Corps of Engineers. These officials generally agreed with the report and provided technical comments that we incorporated as appropriate. In addition, officials from the Federal Railroad Administration within DOT commented that the report was timely and would be vital to the dialogue that occurs as the Congress considers the reauthorization of surface transportation legislation. Amtrak had no comments on the report.

Our work was primarily performed at the headquarters of DOT and the Corps of Engineers (see app. VI for a detailed description of our scope and methodology). We conducted our work from September 2001 through August 2002 in accordance with generally accepted government auditing standards.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days after the date of this report. At that time, we will send copies of this report to the congressional committees with responsibilities for surface and maritime transportation programs; DOT officials, including the Secretary of Transportation, the administrators of the Federal Highway Administration,

[59]See U.S. General Accounting Office, *Highway Financing: Factors Affecting Highway Trust Fund Revenues*, GAO-02-667T (Washington, D.C.: May 9, 2002).

Federal Railroad Administration, Federal Transit Administration, and Maritime Administration, the Director of the Bureau of Transportation Statistics, and the Commandant of the U.S. Coast Guard; the Commander and Chief of Engineers, U.S. Army Corps of Engineers; the President of Amtrak, and the Director of the Office of Management and Budget. We will make copies available to others on request. This report will also be available on our home page at no charge at http://www.gao.gov.

If you have any questions about this report, please contact me at heckerj@gao.gov or Kate Siggerud at siggerudk@gao.gov. Alternatively, we can be reached at (202) 512-2834. GAO contacts and acknowledgments are listed in appendix VII.



JayEtta Z. Hecker
Director
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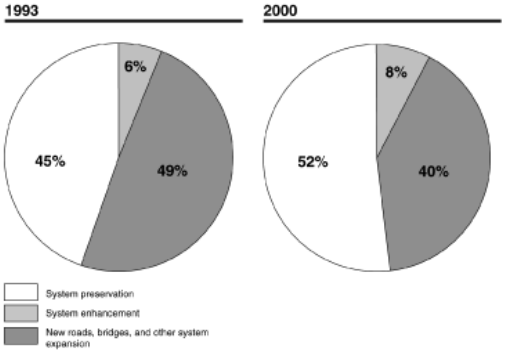
Appendix I

Expenditures for Capital, Operations, and Maintenance

Comparing the proportion of public spending devoted to various purposes across modes is difficult due to differences in the level of public sector involvement and in the definition of what constitutes capital versus operations and maintenance expenses in each mode. For example, the operation of public roads is essentially a function of private citizens operating their own vehicles, while operations for mass transit includes spending for bus drivers and subway operators, among other items. In addition, maintenance expenditures can differ greatly from one mode to another in their definition and scope. For example, maintenance for a public road involves activities such as patching, filling potholes, and fixing signage, while maintenance for channels and harbors involves routine dredging of built up sediment and disposal or storage of the dredged material. Given these significant differences in scope, different modes classify and report on maintenance expenses in different ways.

For public roads, capital expenditures (which includes new construction, resurfacing, rehabilitation, restoration, and reconstruction of roads) constituted about one-half of total annual public sector expenditures over the last 10 years, with small increases in recent years. Of total capital expenditures in fiscal year 2000, 52 percent was used for system preservation, such as resurfacing and rehabilitation, while 40 percent was used for construction of new roads and bridges and other system expansions. These percentages have fluctuated somewhat throughout the 1990s. However, as shown in figure 8, the percentage of capital outlays spent on system preservation expenses increased from 45 percent to 52 percent between fiscal years 1993 and 2000, while construction of new roads and bridges and other system expansions declined from 49 percent to 40 percent over the same period.

Figure 8: Purposes for Capital Outlays for Public Roads, Fiscal Years 1993 and 2000



Source: Federal Highway Administration.

For transit, capital expenditures accounted for about 26 percent of total annual public sector expenditures in 1999. The federal government spends more heavily on capital than on operations for transit. The federal share of capital expenditures fluctuated throughout the 1990s but in fiscal year 2000 stood at about 50 percent, the same as it was in fiscal year 1991. The federal share of total operating expenses declined from about 5 percent in fiscal year 1991 to about 2 percent in fiscal year 2000.[60]

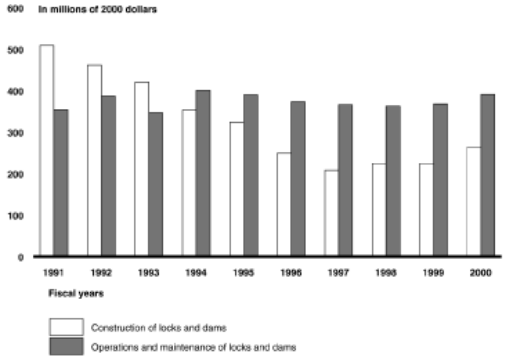
Federal government support to Amtrak for operating expenses and capital expenditures has fluctuated throughout the 1990s. Annual operating grants fluctuated between $300 and $600 million and capital grants between $300 and $500 million. In addition to these grants, the Taxpayer Relief Act of

[60]Because some capital funds from the federal Urbanized Area Formula program were used to pay for operating expenses, the 2 percent operating expense figure may be somewhat understated and the 50 percent capital expenditure figure may be somewhat overstated.

1997[61] provided Amtrak with $2.2 billion for capital and operating purposes in fiscal years 1998 and 1999. Federal support declined in fiscal years 2000 and 2001, however, with the federal government providing grants to Amtrak of $571 and $521 million, respectively.

For water transportation, spending by the U.S. Army Corps of Engineers (Corps of Engineers) for construction of locks and dams for inland waterway navigation[62] fell while expenditures for operations and maintenance remained at around $350 to $400 million, as shown in figure 9.

Figure 9: Federal Expenditures for Construction and Operations and Maintenance of Locks and Dams, Fiscal Years 1991-2000



Source: U.S. Department of Transportation, Bureau of Transportation Statistics (2002). Government Transportation Financial Statistics (Preliminary Data). Washington, D.C.

[61]P.L. 105-34 (Aug. 5, 1997).

[62]Locks and dams serve other purposes in addition to navigation, including irrigation, flood control, and recreation.

By contrast, Corps of Engineers expenditures for the construction, operations, and maintenance of federal channels and harbors have increased over the past decade. During fiscal years 1991 through 2000, construction expenditures increased from $112 million to $252 million (in 2000 dollars), while operations and maintenance expenditures increased from $631 million to $671 million (in 2000 dollars). In addition to the Corps of Engineers, the U.S. Coast Guard and the Maritime Administration also spend significant amounts for water transportation, although these agencies have limited responsibility for construction or maintenance of water transportation infrastructure.

While it is clear that travelers choose between modes of travel for reasons of convenience and cost, among other things, none of the FHWA travel forecasts consider the effects of changes in levels of travel on other modes, such as transit or rail. FHWA officials said that they would like to have a data system that projects intermodal travel, but for now such a system does not exist. The models also cannot reflect the impact of major shocks on the system, such as natural disasters or the terrorist attacks of September 2001.

Passenger Travel on Transit

The Federal Transit Administration (FTA) makes national-level forecasts for growth in transit passenger miles traveled by collecting 15- to 25-year forecasts developed by metropolitan planning organizations (MPO)[65] in the 33 largest metropolitan areas in the country.[66] FTA calculates a national weighted average using the MPO forecasts and regional averages.[67] MPOs create their forecasts as part of their long-range planning process.[68] Unlike the first forecast for road travel discussed above, the 1999 *Conditions and Performance* report[69] stated that the MPO forecasts for vehicle miles traveled and passenger miles traveled incorporate the effects of actions that the MPOs are proposing to shape demand in their areas to attain air quality and other developmental goals. The MPO plans may include transit expansion, congestion pricing, parking constraints, capacity limits, and other local policy options. MPO forecasts also have to consider funding availability.

[65]MPOs are organizations of city, county, state, and federal officials that provide a regional forum for transportation planning.

[66]According to FTA, the 33 metropolitan areas account for approximately 90 percent of the nation's transit use, so they should provide a reasonable approximation of national-level forecasts.

[67]There is no forecast for New York City, so FTA substituted the average growth rate for the other major east coast cities, which is 1.32 percent.

[68]Methodologies used by the MPOs to derive their forecasts vary, although officials at FTA told us that there are two common types. One type uses a standard four-step modeling process involving data on how many trips people make, where people are going, the modal split of trips, and actual routes. The second type is econometric, in which regional forecast data on income and demographics are fed into a model to derive travel projections.

[69]Federal Highway Administration and Federal Transit Administration, *1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (Washington, D.C.: U.S. Department of Transportation, 2000).

Intercity Passenger Travel

Amtrak provided us with systemwide forecasts of ridership, which are based on assumed annual economic growth of between 1 and 1.5 percent, fare increases equal to the national inflation rate, and projected ridership increases on particular routes, including new or changing service on certain routes scheduled to come on line over the forecast period. For short-distance routes, Amtrak uses a model that estimates total travel over a route by any mode, based on economic and demographic growth. The model then estimates travel on each mode competing in the corridor based on cost and service factors in each mode. For long distance routes, Amtrak uses a different model that projects future rail ridership using variables that have been determined to influence past rail ridership, such as population, employment, travel time for rail, and level of service for rail. This model does not consider conditions on other competing modes.

Freight Travel Across Modes

In forecasting growth in national freight travel, models developed by FHWA and the U.S. Army Corps of Engineers (Corps of Engineers) use growth in trade and the economy as key factors driving freight travel. Projected growth in each particular mode is determined by growth in the production of the specific mix of commodities that historically are shipped on that mode. Therefore, any projected shift in freight movement from one mode to another is due to projected changes in the mix of commodities, or projected changes in where goods are produced and consumed.

Because current or future conditions and the capacity of the freight transportation system cannot be factored into the national forecasts, a number of factors—including growing congestion, as well as the benefits of specific projects that might relieve congestion—are not considered in the projections.[70] In addition, future trends in other factors that affect shippers' choices of freight modes—such as relative cost, time, or reliability—are not easily quantifiable and are also linked to each system's capacity and the congestion on each system. As such, these factors are not included in FHWA's or Corps of Engineers' national forecasting models.

Underlying the commodity forecasts used by FHWA and the Corps of Engineers are a number of standard macro-economic assumptions

[70]Local freight travel forecasts done by the Corps of Engineers' district offices for use in specific project feasibility studies do consider possible diversion to other alternative modes as a result of increasing congestion.

concerning primarily supply side factors, such as changes in the size of the labor force and real growth in exports due to trade liberalization. Changes in border, airport, and seaport security since September 11 may affect assumptions that are imbedded in these commodity forecasts. For example, increased delays and inspections at the border or at a port may create problems for shippers to meet just-in-time requirements, possibly resulting in a short-term shift to an alternative mode, or a limiting of trade.

Although current national freight forecasts are not capacity-constrained, FHWA is developing a "Freight Analysis Framework" to provide alternative analyses, assessing certain capacity limitations. The main impediment to developing this capability is determining capacity on each mode. There are commonly accepted measures of road capacity that are being incorporated, but rail and waterway capacity is not as easily measured.

State Forecasts of Vehicle Miles Traveled

FHWA provided us with state-level forecasts of total vehicle miles traveled on public roads from 2000 to 2010, derived from data in the Highway Performance Monitoring System (HPMS) sample data set.[71] This data set contains state-reported data on average annual daily traffic for approximately 113,000 road segments nationwide. For each sample section, HPMS includes measures of average annual daily traffic for the reporting year and estimates of future traffic for a specified forecast year, which is generally 18 to 25 years after the reporting year. It should be noted that the HPMS sample data do not include sections on any roads classified as local roads or rural minor collectors.

Because the individual HPMS segment forecasts come from the states, we do not know exactly what models were used to develop them. According to officials at FHWA, the only national guidance comes from the HPMS Field Manual, which says that future average annual daily traffic should come from a technically supportable state procedure or data from MPOs or other local sources. The manual also says that HPMS forecasts for urbanized areas should be consistent with those developed by the MPO at the functional system and urbanized area level.

[71]HPMS also includes data from the District of Columbia and Puerto Rico.

Table 1: Projected Average Annual Growth Rates for Vehicle Miles Traveled, 2000-2020

State	Rural (%)	Urban (%)	State total (%)
Alabama	2.94	3.18	3.06
Alaska	2.34	2.12	2.23
Arizona	1.60	1.42	1.48
Arkansas	2.54	2.23	2.43
California	3.09	2.25	2.42
Colorado	2.22	1.94	2.05
Connecticut	1.71	1.28	1.38
Delaware	1.33	0.86	1.05
District of Columbia	N/A	1.69	1.69
Florida	1.85	1.63	1.69
Georgia	0.60	0.86	0.75
Hawaii	1.62	1.46	1.51
Idaho	3.07	3.08	3.08
Illinois	1.17	1.36	1.30
Indiana	3.07	2.69	2.88
Iowa	1.95	2.24	2.06
Kansas	1.88	2.14	2.00
Kentucky	2.90	2.12	2.55
Louisiana	1.93	1.73	1.84
Maine	0.31	0.58	0.39
Maryland	2.82	2.56	2.64
Massachusetts	1.02	1.06	1.05
Michigan	2.22	1.63	1.86
Minnesota	2.23	2.09	2.16
Mississippi	2.77	2.71	2.75
Missouri	1.67	1.96	1.82
Montana	2.49	2.75	2.55
Nebraska	2.48	2.08	2.33
Nevada	2.16	2.08	2.11
New Hampshire	2.10	2.24	2.16
New Jersey	1.77	1.25	1.36
New Mexico	2.29	1.28	1.93
New York	1.76	1.83	1.81
North Carolina	2.68	2.64	2.66

(Continued From Previous Page)

State	Rural (%)	Urban (%)	State total (%)
North Dakota	1.76	2.31	1.90
Ohio	1.64	1.23	1.39
Oklahoma	2.21	2.32	2.26
Oregon	2.19	1.91	2.06
Pennsylvania	2.90	2.49	2.66
Rhode Island	1.28	1.09	1.12
South Carolina	2.44	2.28	2.38
South Dakota	1.47	1.48	1.47
Tennessee	2.18	2.37	2.29
Texas	2.63	2.27	2.40
Utah	3.25	3.54	3.43
Vermont	1.62	1.04	1.48
Virginia	2.60	2.01	2.27
Washington	1.80	2.03	1.96
West Virginia	2.80	2.32	2.67
Wisconsin	2.21	2.21	2.21
Wyoming	2.07	1.06	1.83
Puerto Rico	2.30	1.67	1.83
Total	**2.27**	**1.97**	**2.09**

Source: Federal Highway Administration, as reported by states in the Highway Performance Monitoring System database.

Factors Influencing Future Travel

Local and Intercity Travel

For both local and intercity passenger travel, population growth is expected to be one of the key factors driving overall travel levels. Where that growth will occur will likely have a large effect on travel patterns and mode choices. According to the U.S. Census Bureau, the U.S. population will grow to almost 300 million by 2010.[72] Although this represents a slower growth rate than in the past, it would still add approximately 18.4 million people to the 2000 population, and will likely also substantially increase the number of vehicles on public roads as well as the number of passengers on transit and intercity rail.

The Census Bureau reported that since 1990, the greatest population growth has been in the South and West. According to one panelist, these regions' metropolitan areas traditionally have lower central city densities and higher suburban densities than the Midwest and East. These areas are therefore harder to serve through transit than metropolitan areas with higher population densities, where transit can be more feasible. However, according to some transportation experts, it may not be possible to build new transit infrastructure in these areas due to environmental or other concerns. The population growth that is expected in suburban areas could lead to a larger increase in travel by private vehicles than by transit because suburban areas generally have lower population densities than inner cities, and also have more dispersed travel patterns, making them less easy to serve through conventional public transit. Although overall population growth will likely be greatest in suburban parts of metropolitan areas, high rates of growth are also predicted for rural areas. As is the case in suburbs, these rural areas are difficult to serve with anything but private automobiles because of low population densities and geographical dispersion of travel patterns, so travel by private vehicle may increase. Immigration patterns are also expected to contribute to changes in travel levels, but the extent will depend on immigration policies. For example, according to a senior researcher with the American Public Transportation Association, higher rates of immigration tend to increase transit use.

In addition to overall population growth, another demographic trend that will likely affect mode choices is the aging of the population. According to data from the U.S. Census Bureau, the number of people aged 55 and over is projected to increase 26 percent between 2001 and 2010. The most rapidly growing broad age group is expected to be the population aged 85

[72]These projections have not yet been updated with data from the 2000 Census.

and older, which is projected to increase 30 percent by 2010. According to the Federal Highway Administration and Federal Transit Administration's 1999 *Conditions and Performance* report,[73] the elderly have different mobility issues than the nonelderly because they are less likely to have drivers' licenses, have more serious health problems, and may require special services and facilities. According to a report prepared for the World Business Council for Sustainable Development (*Mobility 2001*),[74] cars driven by the elderly will constitute an increasing proportion of traffic, especially in the suburbs and rural areas, where many elderly people tend to reside. Increases in the number of older drivers can pose safety problems, in that the elderly have a higher rate of crashes per mile driven than younger drivers, and that rate rises significantly after age 85. The *Mobility 2001* report also says that the driver fatality rate of drivers over 75 years of age is higher than any other age group except teenagers. Growth of the elderly population may therefore increase the importance of providing demand-responsive transit services[75] and improving signs on public roads to make them clearer and more visible.

Along with population growth, the increasing affluence of the U.S. population is expected to play a key role in local and intercity passenger travel levels and in the modes travelers choose. The 1999 *Conditions and Performance* report states that rates of vehicle ownership are lower in low-income households, leading those households to rely more on transit systems. According to Federal Transit Administration (FTA) officials and *Mobility 2001*, transit use—particularly use of buses—generally decreases as income increases. Increasing affluence also influences intercity travel levels. The 1999 *Conditions and Performance* report says that people with high incomes take approximately 30 percent more trips than people with low incomes, and the trips tend to be longer. Long-distance travel for business and recreation increases with income. Also, as income increases,

[73]Federal Highway Administration and Federal Transit Administration, *1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (Washington, D.C.: U.S. Department of Transportation, 2000).

[74]Massachusetts Institute of Technology and Charles River Associates, Inc., *Mobility 2001: World Mobility at the End of the Twentieth Century and Its Sustainability* (World Business Council for Sustainable Development, August 2001).

[75]According to the American Public Transportation Association, demand response modes are passenger cars, vans, or buses with fewer than 25 seats operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations.

travel by faster modes, such as car and air, increases, and travel by intercity bus tends to decrease.

Several participants in our surface and maritime transportation panels (see app. VI) also indicated that improvements in communication technology will likely affect the amount and mode of intercity travel, but the direction and extent of the effect is uncertain. One panelist said that there is no additional cost to communicating over greater distances, so communications will replace travel to some extent, particularly as technologies improve. However, two other panelists said that communication technology might increase travel by making the benefit of travel more certain. For example, the Internet can provide people with current and extensive information about vacation destinations, potentially increasing the desire to travel. According to *Mobility 2001*, it is unclear whether telecommunications technology will substitute for the physical transportation of people and goods. Telecommuting and teleconferencing are becoming more common, but technological improvements would have to be significant before they can substitute for actual presence at work or in face-to-face meetings. In addition, while home-based workers do not have to commute, they tend to travel approximately the same amount as traditional workers, but differ in how their travel is distributed among trip purposes.

The terrorist attacks on the United States on September 11, 2001, are expected to have some effect on passenger travel levels and choices about which mode to use, but U.S. Department of Transportation (DOT) officials and participants in the panels did not believe the long-term changes would be significant, provided that no more attacks occur. Federal Highway Administration and Federal Railroad Administration officials speculated that increased delays in air travel due to stricter security procedures might shift some travel from air to other modes, such as car or rail, although they expected this effect to be negligible in the long term unless additional incidents occur.

Finally, changes in the price (or perceived price), condition, and reliability of one modal choice as compared with another are also likely to affect levels of travel and mode choices. For example, changes in the petroleum market that affect fuel prices, or changes in government policy that affect the cost of driving or transit prices, could result in shifts between personal vehicles and transit; however, it is difficult to predict the extent to which these changes will occur. According to *Mobility 2001*, automobiles offer greater flexibility in schedule and choice of destinations than other modes

of transportation, and often also provide shorter travel times with lower out-of-pocket costs. However, if heavy and unpredictable road congestion causes large variations in automobile travel time, there could be a shift to transit or a decrease in overall travel.

Freight Travel

According to several reports by DOT and transportation research organizations, increasing international trade, economic growth, the increasing value of cargo shipped, and changes in policies affecting certain commodities are expected to influence future volumes of freight travel and the choice of mode by which freight is shipped.

Increasing international trade and national trade policies are expected to affect commodity flows, volumes, and mode choice.[76] According to the *Transportation Statistics Annual Report 2000*,[77] the globalization of businesses can shift production of goods sold in the United States to locations outside of the country, increasing total ton-miles[78] and changing the average length of haul of shipments. This shift in production could also affect freight mode choice, with more commodities being shipped by multiple modes as distances increase. According to *Mobility 2001*, truck transportation tends to be cheaper, faster, and more energy efficient than rail and barges for shipping high-value cargo. However, as distances increase, rail and intermodal transportation (linking rail and truck travel) become more cost-efficient options. Various trade policies also affect freight flows and volumes. For example, the North American Free Trade Agreement has contributed to the increased volume of trade moving on rail and highways. According to data from the Bureau of Transportation Statistics' Transborder Surface Freight Database, between 1996 and 2000, tonnage of imports by rail from Mexico and Canada increased by about 25

[76]The U.S. economy has become increasingly integrated with the global economy, as domestic and foreign companies manage worldwide production and distribution systems. For example, auto manufacturers may locate their factories and warehouses in separate countries or continents from their retail outlets. See *Characteristics and Changes in Freight Transportation Demand: A Guidebook for Planners and Policy Analysts*, prepared for the National Cooperative Highway Research Program, Project 8-30 Phase II (Washington, D.C.: Transportation Research Board, June 19, 1995).

[77]Bureau of Transportation Statistics, *Transportation Statistics Annual Report 2000* (Washington, D.C.: U.S. Department of Transportation, 2001).

[78]Ton-miles are calculated by multiplying the tons of commerce being moved by the number of miles moved.

percent, and imports by truck increased 20 percent. In the maritime sector, expanding trade with the Pacific Rim increased traffic at west coast container ports.

According to the *Transportation Statistics Annual Report 2000*, economic growth results in a greater volume of goods produced and consumed, leading to more freight moved. As the economy grows, disposable income per capita increases and individual purchasing power rises, which can cause businesses to ship more freight per capita. According to the report, freight ton-miles per capita increased more than 30 percent, from 10,600 in 1975 to 14,000 in 1999.

The increasing value of cargo and the continuing shift toward a more service-oriented economy and more time-sensitive shipments has affected the volume of freight shipments and the choice of modes on which freight is shipped. According to the *Transportation Statistics Annual Report 2000*, there is a continuing shift toward production of high-value, low-weight products, which leads to changes in freight travel levels and mode choice. For example, it takes more ton-miles to ship $1,000 worth of steel than it does to ship $1,000 worth of cell phones. High-value cargo, such as electronics and office equipment, tends to be shipped by air or truck, while rail and barges generally carry lower-value bulk items, such as coal and grain.[79] According to *Mobility 2001*, the growth of e-commerce and just-in-time inventory practices depend upon the ability to deliver goods quickly and efficiently. A report prepared for the National Cooperative Highway Research Program[80] states that the effects of just-in-time inventory practices are to increase the number of individual shipments, decrease their length of haul, and increase the importance of on-time delivery. Both reports indicate that such practices may shift some freight from slower

[79]The *Mobility 2001* report states that inland waterways can move very large shipments of grain or lumber with a minimal expenditure of energy. For example, on the lower Mississippi River, 40 or more 10-ton barges can be lashed together into a single tow for movement down the river. Rail is also cost-efficient for shipping low-value bulk commodities long distances. However, because both of these modes are slower than truck travel on highways, and are limited to fixed waterways or tracks, trucks are more often used for transporting high-value goods and for local deliveries. Ocean shipping is the dominant mode for overseas freight tonnage because extremely large ships operating with small crews can move great tonnages vast distances at minimal costs.

[80]"Characteristics and Changes in Freight Transportation Demand: A Guidebook for Planners and Policy Analysts," prepared for the National Cooperative Highway Research Program, Project 8-30 Phase II (Washington, D.C.: Transportation Research Board, June 19, 1995).

modes, such as rail, to faster modes, such as truck or air. In addition, the *Mobility 2001* report states that as the demand for specialized goods and services grows, the demand for smaller, more specialized trucks increases. Items ordered from catalogs or on-line retailers are often delivered by specialized trucks.

Policies affecting particular commodities can have a large impact on the freight industry. For example, policies concerning greenhouse gas emissions can affect the amount of coal mined and shipped. Because coal is a primary good shipped by rail and water, reduction in coal mining would have a significant effect on tonnage for those modes. Changes in the type of coal mined as a result of environmental policies—such as an increase in mining of low-sulfur coal—can also affect the regional patterns of shipments, resulting in greater ton-miles of coal shipped. Also, increasing emissions controls and clean fuel requirements may raise the cost of operating trucks and result in a shift of freight from truck to rail or barge. For example, according to *Mobility 2001*, recently released rules from the Environmental Protection Agency implementing more stringent controls for emissions from heavy-duty vehicles are predicted to increase the purchase price of a truck by $803. Other environmental regulations also affect the cost of shipping freight, as when controls on the disposal of material dredged from navigation channels increase the costs of expanding those channels. Policies regarding cargo security may also affect the flow of goods into and out of the United States. For example, several of our panelists indicated that implementing stricter security measures will increase the cost of shipping freight as companies invest in the personnel and technology required. Tighter security measures could also increase time necessary to clear cargo through Customs or other inspection stations.

Appendix IV

Intelligent Transportation Systems

The U.S. Department of Transportation's (DOT) program of Intelligent Transportation Systems (ITS) offers technology-based systems intended to improve the safety, efficiency, and effectiveness of the surface transportation system. The ITS program applies proven and emerging technologies—drawn from computer hardware and software systems, telecommunications, navigation, and other systems—to surface transportation. DOT's ITS program has two areas of emphasis: (1) deploying and integrating intelligent infrastructure and (2) testing and evaluating intelligent vehicles. Under the first area of emphasis, the intelligent infrastructure program is composed of the family of technologies that can enhance operations in three types of infrastructure: (1) infrastructure in metropolitan areas, (2) infrastructure in rural areas, and (3) commercial vehicles. Under the ITS program, DOT provides grants to states to support ITS activities. In practice, the Congress has designated the locations and amounts of funding for ITS. DOT solicits the specific projects to be funded and ensures that those projects meet criteria established in the Transportation Equity Act for the 21st Century.

Metropolitan intelligent transportation systems focus on deployment and integration of technologies in urban and suburban geographic areas to improve mobility. These systems include:

- Arterial management systems that automate the process of adjusting signals to optimize traffic flow along arterial roadways;
- Freeway management systems that provide information to motorists and detect problems whose resolution will increase capacity and minimize congestion resulting from accidents;
- Transit management systems that enable new ways of monitoring and maintaining transit fleets to increase operational efficiencies through advanced vehicle locating devices, equipment monitoring systems, and fleet management;
- Incident management systems that enable authorities to identify and respond to vehicle crashes or breakdowns with the most appropriate and timely emergency services, thereby minimizing recovery times;
- Electronic toll collection systems that provide drivers and transportation agencies with convenient and reliable automated transactions to improve traffic flow at toll plazas and increase the operational efficiency of toll collection;

- Electronic fare payment systems that use electronic communication, data processing, and data storage techniques in the process of fare collection and in subsequent recordkeeping and funds transfer;
- Highway-rail intersection systems that coordinate traffic signal operations and train movement and notify drivers of approaching trains using in-vehicle warning systems;
- Emergency management systems that enhance coordination to ensure the nearest and most appropriate emergency service units respond to a crash;
- Regional multimodal traveler information systems that provide road and transit information to travelers to enhance the effectiveness of trip planning and en-route alternatives;
- Information management systems that provide for the archiving of data generated by ITS devices to support planning and operations; and
- Integrated systems that are designed to deliver the optimal mix of services in response to transportation system demands.

Rural Intelligent Transportation Systems are designed to deploy high potential technologies in rural environments to satisfy the needs of a diverse population of users and operators. DOT has established seven categories of rural intelligent transportation projects. They are as follows:

- Surface Transportation Weather and Winter Mobility - technologies that alert drivers to hazardous conditions and dangers, including wide-area information dissemination of site-specific safety advisories and warnings;
- Emergency Services - systems that improve emergency response to serious crashes in rural areas, including technologies that automatically mobilize the closest police, ambulances, or fire fighters in cases of collisions of other emergencies;
- Statewide/Regional Traveler Information Infrastructure – system components that provide information to travelers who are unfamiliar with the local rural area and the operators of transportation services;

- Rural Crash Prevention – technologies and systems that are directed at preventing crashes before they occur, as well as reducing crash severity;
- Rural Transit Mobility – services designed to improve the efficiency of rural transit services and their accessibility to rural residents;
- Rural Traffic Management – services designed to identify and implement multi-jurisdictional coordination, mobile facilities, and simple solutions for small communities and operations in areas where utilities may not be available; and
- Highway Operations and Maintenance – systems designed to leverage technologies that improve the ability of highway workers to maintain and operate rural roads.

The Commercial Vehicle ITS program focuses on applying technologies to improve the safety and productivity of commercial vehicles and drivers, reduce commercial vehicles' operations costs, and facilitate regulatory processes for the trucking industry and government agencies. This is primarily accomplished through the Commercial Vehicle Information Systems and Networks—a program that links existing federal, state, and motor carrier information systems so that all entities can share information and communicate with each other in a more timely and accurate manner.

The second area of emphasis in DOT's ITS program—testing and evaluating intelligent vehicles—is designed to foster improvements in the safety and mobility of vehicles. This component of the ITS program is meant to promote traffic safety by expediting the commercial availability of advanced vehicle control and safety systems in four classes of vehicles: (1) light vehicles, including passenger cars, light trucks, vans, and sport utility vehicles; (2) commercial vehicles, including heavy trucks and interstate buses; (3) transit vehicles, including all nonrail vehicles operated by transit agencies; and (4) specialty vehicles, including those used for emergency response, law enforcement, and highway maintenance.

Appendix V

Alternative Financing Methods

Transportation officials at all levels of government recognize that funding from traditional sources (i.e., state revenues and federal aid) does not always keep pace with demands for new, expanded, or improved surface and maritime transportation infrastructure. Accordingly, the U.S. Department of Transportation (DOT) has supported a broad spectrum of emerging or established alternative financing mechanisms that can be used to augment traditional funding sources, access new sources of capital and operating funds, and enable transportation providers to proceed with major projects sooner than they might otherwise. These mechanisms fall into several broad categories: (1) allowing states to pay debt financing costs with future anticipated federal highway funds, (2) providing federal credit assistance, and (3) establishing financing institutions at the state level. In addition, state, local, and regional governments engage in public/private partnerships to tap private sector resources for investment in transportation capital projects. The federal government helps subsidize public/private partnerships by providing them with tax exemptions.

The federal government allows states to tap into Federal-aid highway funds to repay debt-financing costs associated with highway projects through the use of Grant Anticipation Revenue Vehicles (GARVEE). Under this program, states can pledge a share of future obligations of federal highway funds toward repayment of bond-related expenses, including a portion of the principal and interest payments, insurance costs, and other costs. A project must be approved by DOT's Federal Highway Administration to be eligible for this type of assistance.

The federal government also provides credit assistance in the form of loans, loan guarantees, and lines of credit for a variety of surface and maritime transportation programs, as follows:

- Under the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA), the federal government provides direct loans, loan guarantees, and lines of credit aimed at leveraging federal funds to attract nonfederal coinvestment in infrastructure improvements. This program is designed to provide financing for highway, mass transit, rail, airport, and intermodal projects, including expansions of multi-state highway trade corridors; major rehabilitation and replacement of transit vehicles, facilities, and equipment; border crossing infrastructure; and other investments with regional and national benefits.

- Under the Rail Rehabilitation and Improvement Financing Program (RRIF), established by the Transportation Equity Act for the 21st

Century (TEA-21) in 1998, the federal government is authorized to provide direct loans and loan guarantees for railroad capital improvements. This type of credit assistance is made available to state and local governments, government-sponsored authorities, railroads, corporations, or joint ventures that include at least one railroad. However, as of June 2002, no loans or loan guarantees had been granted under this program.

- Under Title XI of the Merchant Marine Act of 1936, known as the Federal Ship Financing Guarantees Program, the federal government provides for a full faith and credit guarantee of debt obligations issued by (1) U.S. or foreign shipowners for the purpose of financing or refinancing U.S. or eligible export vessels that are constructed, reconstructed, or reconditioned in U.S. shipyards; and (2) U.S. shipyards for the purpose of financing advanced shipbuilding technology.

A third way that the federal government helps transportation providers finance capital projects is by supporting State Infrastructure Banks (SIB). SIBs are investment funds established at the state or regional level that can make loans and provide other types of credit assistance to public and private transportation project sponsors. Under this program, the federal government allows states to use federal grants as "seed" funds to finance capital investments in highway and transit construction projects. The federal government currently supports SIBs in 39 states.

In addition to these alternative financing mechanisms directly supported by the federal government, state, local, and regional governments sometimes engage in public/private partnerships to tap private sector resources for investment in transportation capital projects. The federal government also helps subsidize public/private partnerships by providing them with tax subsidies. One such subsidy is specifically targeted towards investment in ground transportation facilities—the tax exemption for interest earned on state and local bonds that are used to finance high-speed rail facilities and government-owned docks, wharves, and other facilities. In addition, a Department of the Treasury study indicates that the rates of tax

depreciation allowed for railroads, railroad equipment, ships, and boats are likely to provide some subsidy to investors in those assets.[81]

Partnerships between state and local governments and the private sector are formed for the purpose of sharing the risks, financing costs, and benefits of transportation projects. Such partnerships can be used to minimize cost by improving project quality, maintaining risk-management, improving efficiency, spurring innovation, and accessing expertise that may not be available within the agency. These partnerships can take many forms; some examples include:

- Partnerships formed to develop, finance, build, and operate new toll roads and other roadways;
- Joint development of transit assets whereby land and facilities that are owned by transit agencies are sold or leased to private firms and the proceeds are used for capital investment in, and operations of, transit systems;
- "Turnkey" contracts for transit construction projects whereby the contractor (1) accepts a lower price for the delivered product if the project is delayed or (2) receives a higher profit if the project is delivered earlier or under budget; and
- Cross-border leases that permit foreign investors to own assets used in the United States, lease them to an American entity, and receive tax benefits under the laws of their home country. This financing mechanism offers an "up front" cost savings to transit agencies that are acquiring vehicles or other assets from a foreign firm.

[81]A subsidy is provided when the tax deductions that investors are permitted to claim for depreciation of assets are larger (in present value terms) than the amount of true economic depreciation of those assets. Although economic depreciation is difficult to estimate, the Department of the Treasury study suggests that tax depreciation exceeds economic depreciation for certain transportation assets. (See Department of the Treasury, *Report to the Congress on Depreciation Recovery Periods and Methods*, July 2000.)

Appendix VI

Scope and Methodology

Our work covered major modes of surface and maritime transportation for passengers and freight, including public roads, public transit, railways, and ports and inland waterways. To determine trends in public expenditures for surface and maritime transportation over the past 10 years, we relied on U.S. Department of Transportation (DOT) reports and databases that document annual spending levels in each mode of transportation. We analyzed trends in total public sector and federal expenditures across modes during the 10-year period covering fiscal years 1991 through 2000, and we compared the proportion of public expenditures devoted to capital activities versus operating and maintaining the existing infrastructure during that same time period. We adjusted the expenditure data to account for inflation using separate indexes for expenditures made by the federal government and state and local governments. We used price indexes from the Department of Commerce's Bureau of Economic Analysis' National Income and Products Accounts.

To determine projected levels of freight and passenger travel over the next 10 years, we identified projections made by DOT's modal administrations, the U.S. Army Corps of Engineers, and Amtrak for the period covering calendar years 2001 through 2010. We interviewed officials responsible for the projections and reviewed available documentation to identify the methodology used in preparing the projections and the key factors driving them. We also obtained data on past levels of freight and passenger travel, covering fiscal years 1991 through 2000, from DOT's modal administrations, the U.S. Army Corps of Engineers, and Amtrak. We analyzed the factors driving the trends for three types of travel—local, intercity, and freight—that have important distinctions in the types of vehicles and modes used for the travel.

To identify mobility challenges and strategies for addressing those challenges, we primarily relied upon expert opinion, as well as a review of pertinent literature. In particular, we convened two panels of surface and maritime transportation experts to identify mobility issues and gather views about alternative strategies for addressing the issues and challenges to implementing those strategies. We contracted with the National Academy of Sciences (NAS) and its Transportation Research Board (TRB) to provide technical assistance in identifying and scheduling the two panels that were held on April 1 and 3, 2002. TRB officials selected a total of 22 panelists with input from us, including a cross-section of representatives from all surface and maritime modes and from various occupations involved in transportation planning. In keeping with NAS policy, the panelists were invited to provide their individual views and the panels were

not designed to build consensus on any of the issues discussed. We analyzed the content of all of the comments made by the panelists to identify common themes about key mobility challenges and strategies for addressing those challenges. Where applicable, we also identified the opposing points of view about the challenges and strategies.

The names and backgrounds of the panelists are as follows. We also note that two of the panelists served as moderators for the sessions, Dr. Joseph M. Sussman of the Massachusetts Institute of Technology and Dr. Damian J. Kulash of the Eno Foundation, Inc.

- Benjamin J. Allen is Interim Vice President for External Affairs and Distinguished Professor of Business at Iowa State University. Dr. Allen serves on the editorial boards of the *Transportation Journal* and *Transport Logistics*, and he is currently Chair of the Committee for the Study of Freight Capacity for the Next Century at TRB. His expertise includes transportation regulation, resource allocation, income distribution, and managerial decisionmaking and his research has been published in numerous transportation journals.

- Daniel Brand is Vice President of Charles River Associates, Inc., in Boston, Mass. Mr. Brand has served as Undersecretary of the Massachusetts Department of Transportation, Associate Professor of City Planning at Harvard University, and Senior Lecturer in the Massachusetts Institute of Technology's Civil Engineering Department. Mr. Brand edited *Urban Transportation Innovation*, coedited *Urban Travel Demand Forecasting*, and is the author of numerous monographs and articles on transportation.

- Jon E. Burkhardt is the Senior Study Director at Westat, Inc., in Rockville, Md. His expertise is in the transit needs of rural and small urban areas, in particular, the needs of the elderly population in such areas. He has directed studies on the ways in which advanced technology can aid rural public transit systems, the mobility challenges for older persons, and the economic impacts of rural public transportation.

- Sarah C. Campbell is the President of TransManagement, Inc., in Washington, D.C., where she advises transportation agencies at all levels of government, nonprofit organizations, and private foundations on transportation issues. Ms. Campbell is currently a member of the Executive Committee of the TRB. She was a founding director of the

Surface Transportation Policy Project and currently serves as chairman of its board of directors.

- Christina S. Casgar is the Executive Director of the Foundation for Intermodal Research and Education in Greenbelt, Md. Ms. Casgar's expertise is in transportation and logistics policies of federal, state, and local levels of government, particularly in issues involving port authorities. She has also worked with the TRB as an industry investigator to identify key issues and areas of research regarding the motor carrier industry.

- Anthony Downs is a Senior Fellow at the Brookings Institution. Mr. Downs's research interests are in the areas of democracy, demographics, housing, metropolitan policy, real estate, real estate finance, "smart growth," suburban sprawl, and urban policy. He is the author of *New Visions for Metropolitan America* (1994), *Stuck in Traffic: Coping with Peak-Hour Traffic Congestion* (1992), and several policy briefs published by the Brookings Institution.

- Thomas R. Hickey served until recently as the General Manager of the Port Authority Transit Corporation in Lindenwold, N.J. Mr. Hickey has 23 years of public transit experience, and he is a nationally recognized authority in the field of passenger rail operations and the design of intermodal facilities.

- Ronald F. Kirby is the Director of Transportation Planning at the Metropolitan Washington Council of Governments. Dr. Kirby is responsible for conducting long-range planning of the highway and public transportation system in the Washington, D.C., region, assessing the air quality implications of transportation plans and programs, implementing a regional ridesharing program, and participating in airport systems planning in the region. Prior to joining the Council of Governments, he conducted transportation studies for the Urban Institute and the World Bank.

- Damian J. Kulash is the President and Chief Executive Officer of the Eno Transportation Foundation, Inc., in Washington, D.C. Dr. Kulash established a series of forums at the Foundation addressing major issues affecting all transportation modes including economic returns on transportation investment, coordination of intermodal freight operations in Europe and the United States, and development of a U.S. transportation strategy that is compatible with national global climate

change objectives. He has published numerous articles in transportation journals and directed studies at the Congressional Budget Office and the TRB.

- Charles A. Lave is a Professor of Economics (Emeritus) at the University of California, Irvine where he served as Chair of the Economics Department. Dr. Lave has been a visiting scholar at the Massachusetts Institute of Technology and Harvard University, and he served on the Board of Directors of the National Bureau of Economic Research from 1991 through 1997. He has published numerous articles on transportation pricing and other topics.

- Stephen Lockwood is Vice President of Parsons Corporation, an international firm that provides transportation planning, design, construction, engineering, and project management services. Mr. Lockwood is also a consultant to the American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), and other transportation organizations. Prior to joining Parsons, he served as Associate Administrator for Policy at FHWA.

- Timothy J. Lomax is a Research Engineer at the Texas Transportation Institute at Texas A&M University. Dr. Lomax has published extensively on urban mobility issues and he developed a methodology used to assess congestion levels and costs in major cities throughout the United States. He is currently conducting research, funded by nine state transportation departments, to improve mobility measuring capabilities.

- James R. McCarville is the Executive Director of the Port of Pittsburgh Commission. He also serves as the President of the trade association, Inland Rivers' Ports and Terminals, Inc., and is a member of the Marine Transportation System National Advisory Council, a group sponsored by the U.S. Secretary of Transportation. Mr. McCarville previously served as a consultant to the governments of Brazil, Uruguay, and Mexico on matters of port organization, operational efficiency, and privatization.

- James W. McClellan is Senior Vice President for Strategic Planning at the Norfolk Southern Corporation in Norfolk, Va., where he previously held positions in corporate planning and development. Prior to joining Norfolk Southern, he served in various marketing and planning positions with the New York Central Railroad, DOT's Federal Railroad Administration, and the Association of American Railroads.

- Michael D. Meyer is a Professor in the School of Civil and Environmental Engineering at the Georgia Institute of Technology and was the Chair of the school from 1995 to 2000. He previously served as Director of Transportation Planning for the state of Massachusetts. Dr. Meyer's expertise includes transportation planning, public works economics and finance, public policy analysis, and environmental impact assessments. He has written over 120 technical articles and has authored or co-authored numerous texts on transportation planning and policy.

- William W. Millar is President of the American Public Transportation Association (APTA). Prior to joining APTA, he was executive director of the Port Authority of Allegheny County in Pittsburgh, Pa. Mr. Millar is a nationally recognized leader in public transit and has served on or as Chair of the executive committees of TRB, the Transit Development Corporation, APTA, and the Pennsylvania Association of Municipal Transportation Authorities.

- Alan E. Pisarski is an independent transportation consultant in Falls Church, Va., providing services to public and private sector clients in the United States and abroad in the areas of transport policy, travel behavior, and data analysis and development. He has served as an advisor to numerous transportation and statistics agencies and transportation trade associations. He has also conducted surface transportation reviews for AASHTO and FHWA.

- Craig E. Philip is President and Chief Executive Officer of the Ingram Barge Company in Nashville, Tenn. He has served in various professional and senior management capacities in the maritime, rail, and intermodal industries and has held adjunct faculty positions at Princeton University and Vanderbilt University. Dr. Philip serves on the Executive Committee of the American Waterways Operators Association, the Marine Transportation System National Advisory Council, and the National Academy of Sciences' Marine Board, and he is immediate past Chairman of the National Waterways Conference.

- Arlee T. Reno is a consultant with Cambridge Systematics in Washington, D.C. Mr. Reno has expertise in performance-based planning and measurement, multimodal investment analysis, urban transportation costs, alternative tax sources, and revenue forecasting for highway agencies. He has conducted reviews for the FHWA, AASHTO, and numerous state transportation agencies.

- Joseph M. Sussman is the JR East Professor in the Department of Civil and Environmental Engineering and the Engineering Systems Division at the Massachusetts Institute of Technology. Dr. Sussman is the author of *Introduction to Transportation Systems* (2000) and specializes in transportation systems and institutions, regional strategic transportation planning, intercity freight and passenger rail, intelligent transportation systems, simulation and risk assessment methods, and complex systems and he has authored numerous publications in those areas. He has served as Chair of TRB committees and as the Chairman of its Executive Committee in 1994, and he serves on the Board of Directors of ITS America and ITS Massachusetts.

- Louis S. Thompson is a Railways Advisor for the World Bank where he consults on all of the Bank's railway lending activities. Prior to joining the Bank, Mr. Thompson held a number of senior positions in DOT's Federal Railroad Administration, including Acting Associate Administrator for Policy, Associate Administrator for Passenger and Freight Services, Associate Administrator for Intercity Services, and Director of the Northeast Corridor Improvement Project. He has also served as an economics and engineering consultant.

- Martin Wachs is the Director of the Institute of Transportation Studies at the University of California, Berkeley and he holds faculty appointments in the departments of City and Regional Planning and Civil and Environmental Engineering at the university. Dr. Wachs has published extensively in the areas of transportation planning and policy, especially as related to elderly populations, fare and subsidy policies, crime in public transit, ethics, and forecasting. He currently serves as Chairman of the TRB and has served on various transportation committees for the state of California.

Appendix VII

GAO Contacts and Acknowledgments

GAO Contacts

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Acknowledgments

In addition to the above, Christine Bonham, Jay Cherlow, Helen DeSaulniers, Colin Fallon, Rita Grieco, Brandon Haller, David Hooper, Jessica Lucas, Sara Ann Moessbauer, Jobenia Odum, and Andrew Von Ah of GAO, as well as the experts identified in appendix VI, made key contributions to this report.

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STATEMENT OF GORDON PROCTOR, DIRECTOR OF THE OHIO DEPARTMENT OF TRANSPORTATION

Mr. Chairman, members of the committee, I am Gordon Proctor, Director of the Ohio Department of Transportation. On behalf of Ohio Governor Bob Taft, I thank you for this opportunity to testify and we especially would like to acknowledge the assistance of Sen. Voinovich in making this possible. His leadership on transportation has been greatly appreciated.

As you shape the next transportation act, I ask that you focus on the tremendous need to rebuild, reconstruct and rejuvenate the interstate highway system. This system will reach its 50th anniversary in 2006, mid-way through the next Act. The Interstate Highway System has served us well and today plays a vital and irreplaceable role in our transportation system. At the same time, this system is aging,

stressed and sorely in need of additional investment to ensure the safety, adequacy and competitiveness of our nation's transportation system.

Let me put the interstate system in context for you. It represents only 1.2 percent of the public road miles in the United States but it carries 24 percent of our country's traffic and 80 percent of all truck freight. Traffic volumes on the interstate system nationally have risen 41 percent in the past 10 years and truck volumes have grown by even more.

The advent of computerized inventory systems combined with the ease and access of the interstate highway network led to the creation of Just in Time Inventory. This strategy played a large role in dropping the nation's cost of logistics from 16 percent of the Gross Domestic Product in1978 to only 10 percent of the Gross Domestic Product today.1 That means that a substantial portion of America's rise in productivity in the past 20 years has been attributable to our Interstate Highway System. As Governor Taft has said, the interstates are the conveyor belt for America's Just In Time economy.

However, we are experiencing very troubling trends in Ohio and across the country. Ohio is a good microcosm because our interstate highway system is America's fourth largest and we estimate it carries the third greatest value of truck freight in the country.

In the past 25 years we have experienced an 89 percent increase in truck volumes on our interstate highways. Routinely, every day in almost every major Ohio city, truck volumes on our major interstate highways exceed 20,000 thousand trucks a day. We estimate, truck volumes will grow approximately 60 percent over the next 20 years, and some estimate the growth will be even higher. This means that within 20 years, 30,000 trucks a day will be the norm on the interstates in Cincinnati, in Dayton, in Springfield, in Toledo, in Cleveland, in Akron, in Canton, in Youngstown and in Columbus.

These routes used to be our safest and our most reliable routes. Severe congestion, outdated interchanges, poor geometrics and tremendous volumes have turned nearly every urban interstate route in Ohio into a high-congestion, high-accident bottleneck.

I–75 in Toledo carries 19,000 trucks a day. It is 43 percent over capacity and it averages 100 accidents per year per mile. A 17-mile stretch of I–75 in Cincinnati carries 184,000 vehicles a day, including 14,000 trucks and it averages 80 accidents per year per mile. I–75 in Dayton carries 20,000 trucks per day and averages 80 accidents per year per mile.

The most congested location in Ohio is the overlap of Interstate 70 and Interstate 71 in downtown Columbus, the figurative and literal crossroads of Ohio. At that location, the interstates are 114 percent over capacity and average 274 accidents per mile per year. That equals more than one accident for every business day of the year. Within a 2.5 mile radius of the junction, the routes experienced 2037 accidents over a 3-year period.

I will offer one final example from Dayton, Ohio, which I suspect is indicative of what is happening in dozens of American communities. We recently completed a conceptual analysis of alternatives to improve the unsafe and congested design on I–75 near downtown Dayton. The estimated cost to bring the corridor up to modern standards was $750 million. Such costs are so far beyond the resources we have that we had no choice but to reject even an attempt to bring all aspects of the highway up to standard. Instead, we are opting for a much reduced project which will make the highway adequate for an estimated $300 million. Three hundred million dollars equals an entire year's new construction budget for the Ohio Department of Transportation. While that one project may be feasible, multiply that project times 10 and you have an idea of the magnitude of the repairs needed in Cincinnati, Toledo, Cleveland, Akron, Canton, Youngstown and Columbus. If Ohio's needs are this great, the needs of other States also are enormous and represent a major challenge in the next transportation act.

What can Congress do about this? First, please do not dilute the core, basic highway funding formulas which are essential to maintaining the backbone of our system. Special set asides and narrowly focused programs may be popular with certain groups. However, full funding of the basic core highway programs will do the most to rebuild our interstates.

Second, as the interstates approach their 50th year, do not let them be treated as historical artifacts subject to preservation in their current outmoded state under the nation's historic preservation statutes.

Third, please recognize that the Nation needs to restore the capacity of these critical bottlenecks and do not allow any agencies to promulgate new rules to slow down or impede our progress in repairing these locations.

Finally, we support an idea suggested by Administrator Peters that a national study or national commission is needed to evaluate the future of our interstate highway system. This system is so important to our transportation network that its future must be secure.

Mr. Chairman, Senator Voinovich, members of the committee, thank you for this opportunity and I would be happy to answer any questions.

RESPONSES OF GORDON PROCTOR TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. You stated during the hearing that truck volumes on Ohio's major Interstate highways approach 20,000 trucks per day. How does the truck volume compare to passenger car volume on the same roadways? Has the ratio of passenger cars to trucks increased or decreased in Ohio?

Response. As I stated in my testimony, the I–70/I–71 split in downtown Columbus carries 20,000 trucks per day. That section of roadways also carries 130,000 cars a day. In 1977, trucks comprised nearly 11 percent of the total traffic volume on Ohio's highway system. Today, that figure has increased to 13 percent. This might not seem like a significant increase at face value, but truck volumes in Ohio have doubled during that same period. Total truck volumes have increased from 12 billion to 24 billion trucks annually. Passenger car volumes are keeping pace with the dramatic truck volumes our State is enduring.

Question 2. In your testimony, you indicated that 7 percent of Interstate pavements in Ohio will require replacement by 2008. In what areas of Ohio are Interstate pavement replacements needed and how much do you estimate it will cost? What is the status of these projects and have funds been identified?

Response. We have an aggressive pavement reconstruction program beginning in 2005 through 2008. Approximately $400 million in State and Federal maintenance and preservation funds will be used to repair some of the State's worst highway conditions. The following is a list of the projects scheduled for rehabilitation:

- I–71 in Morrow and Richland counties
- I–70 in Clark, Madison and Montgomery counties
- I–71 and SR 83 in Medina County
- I–80 in Mahoning County
- I–71 in Wayne County
- SR 2 and I–90 in Lake County
- I–75 in Wood and Lucas counties
- I–480 in Cuyahoga County
- I–75 in Warren County
- I–90 in Ashtabula County
- I–275 in Hamilton County

Question 3. You stated during the hearing that the number of traffic accidents and fatalities has stalled in recent years. What do you believe is the most important thing we can do to reduce traffic accidents and fatalities in Ohio?

Response. The most important factor in reducing traffic accidents and fatalities in Ohio is proper maintenance and repair of our highways. Some examples of important maintenance and repair items include capacity additions for alleviating congestion, remedying outdated geometrics, leveling grades, improving skid resistance, and improving shoulders. By making our roadways safer by fully funding all of these items, we feel strongly that accidents can be reduced.

Question 4. You indicated in your statement that Congress should not dilute the basic core highway programs with special set asides or narrowly focused programs. What are the basic core programs and why are they so important to helping Ohio meet its transportation needs? What would you recommend be done to address special transportation project needs without "diluting" the basic core highway programs?

Response. The basic core funding programs, in our opinion, are the Interstate Maintenance Program, the Bridge Rehabilitation Program and the other Surface Transportation Programs. The Congestion Mitigation/Air Quality Program is also important but additional flexibility should be given for the expenditure of these funds. To truly address congestion, capacity expansions are sometimes necessary. CMAQ funding should be made available for projects of that type.

Additional flexibility in all programs would be beneficial so that each individual State can use Federal funds to address any special needs it may have. Stringent guidelines and multiple programs would only dilute the core highway programs and result in special projects remaining unfunded.

Question 5. You stated in your testimony that Congress should not allow any agencies to promulgate new rules to slow down or impede progress in repairing critical bottlenecks to improve capacity. Are there such rules already in place that slow down or impede States' ability to improve the condition and performance of highways and bridges? Are there any rules that are being considered which might impact the ability of States to meet their needs?

Response. At this time, we are unaware of any pending rules that may be considered that might impact our ability to deliver important transportation projects. The Streamlining rules proposed during the previous Administration were of great concern to us. We were very pleased to learn of their withdrawal and of President Bush's recent Executive Order on this issue. We strongly support the actions that Secretary Mineta and Administrator Peters have taken since issuance of the Order. In fact, Ohio has submitted 4 projects to be considered by the Transportation Infrastructure Streamlining Task Force as priority projects. We will closely monitor and participate in this process.

Question 6. Federal Highway Administrator Mary Peters has called for the creation of a blue-ribbon commission to study and make recommendations for addressing the needs of the Interstate highway system. How could this blue-ribbon commission be most helpful in informing the debate for next year's highway bill?

Response. The interstate is the most important part of our nation's transportation system. Ohio, like many States, is facing a massive reconstruction and rehabilitation of its Interstate system. The magnitude of national Interstate reconstruction needs is unknown. We feel that in order for Congress to be truly knowledgeable on this issue, a forum should be established that focuses solely on Interstate needs and concerns. The building of the Interstate system was a national effort. A clear, concise national plan should be identified for the massive reconstruction and rehabilitation that will be necessary in the upcoming years.

RESPONSES OF GORDON PROCTOR TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Mr. Proctor, I appreciate your testimony about the looming reconstruction needs of the interstate highway system. Are these needs taken into account in DOT's Conditions and Performance Report or AASHTO's Bottom Line Report?

Response. Yes, the Ohio Department of Transportation participated with USDOT and AASHTO in the completion of their respective reports.

Question 2. How has the steady growth of truck traffic impacted the physical condition and useful life of the Interstate system and National Highway System?

Response. Truck volumes in Ohio have grown from 12 billion annually to 24 billion annually. As a result our pavements and bridges are sustaining increasing loadings. A large, legally loaded truck weighing 80,000 pounds puts about the same wear and tear on a road as 9,000 to 10,000 cars. Moreover, a large truck causes as much congestion as 2.5 to 3.5 cars on flat terrain and as much as 15 cars on uphill grades. As a result, we have seen bridges and pavements deteriorate more rapidly in those areas of the State that carry high volumes of trucks.

STATEMENT OF THOMAS L. JACKSON, P.E., PRESIDENT-ELECT, AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

The American Society of Civil Engineers (ASCE) is pleased to provide this statement on "The State of America's Highway Infrastructure" for the record as the Environment and Public Works Committee examines the reauthorization of the nation's surface transportation program.

ASCE, founded in 1852, is the country's oldest national civil engineering organization representing more than 125,000 civil engineers in private practice, government, industry and academia who are dedicated to the advancement of the science and profession of civil engineering. ASCE is a 501(c) (3) non-profit educational and professional society.

ASCE believes the reauthorization of the nation's surface transportation programs should focus on three goals:[1]

- Expanding infrastructure investment
- Enhancing infrastructure delivery
- Maximizing infrastructure effectiveness

[1]To read ASCE's "Reauthorizing the Nation's Surface Transportation Program: A Blueprint for Success," visit www.asce.org/govrel/tea3

In 2001, ASCE released the Report Card for America's Infrastructure, which gave the nation's infrastructure a grade of "D+" based on 12 categories. Roads received a grade of "D," bridges a "C," and transit a "C-."

The nation's surface transportation programs have benefited from an increase in Federal and local funding currently allocated to ease road congestion, to repair decaying bridges, and to add transit miles. In our role as stewards of the infrastructure, ASCE developed its first Report Card for America's Infrastructure in 1998, and the infrastructure scored an overall grade of "D."

Although many Americans were alarmed by these report cards, few were surprised. Their daily experience had prepared them. They were coping with traffic congestion and crumbling pavement. Their children and grandchildren were attending schools so overcrowded the first lunch shift started at 10:15 a.m. or so old and neglected that the roof leaked whenever it rained.

Indeed, ASCE's first report card in 1998 did help to prompt action. Soon after its release, Congress passed the Transportation Equity Act for the 21st Century (TEA–21), P.L. 105–178, providing record levels of authorized funding for roads, bridges, and transit. Voters in communities throughout the United States passed bond initiatives to provide desperately needed funds to build and restore school facilities.

At the same time, however, growing frustration with worsening traffic congestion, school overcrowding and the other burdens placed on our overtaxed infrastructure has led voters to put the brakes on development by passing initiatives to limit growth.

A. The State of the Nation's Surface Transportation Infrastructure

ROADS

According to ASCE's 2001 Report Card, the nation's roads earned a D+, up from a D-in 1998. The major reason for this is that the Congress and State and local governments have begun to address the investment crisis and crumbling infrastructure through the enactment of TEA–21, which provided $218 billion for the nation's highway and transit programs, and additional State and local programs to fund surface transportation infrastructure. But even at these increased funding levels, capital investments fall short of needs by 43 billion dollars a year.

On our highways, nearly 70 percent of peak-hour traffic experiences congested conditions. And, according to a study by the Texas Transportation Institute the total congestion "bill" for the 75 areas studied in 2000 came to $67.5 billion, which is the value of 3.6 billion hours of delay and 5.7 billion gallons of excess fuel consumed.[2] To keep congestion from increasing between 1999 and 2000 would have required 1,780 new lane-miles of freeway and 2,590 new lane-miles of streets—OR—an average of 6.2 million additional new trips per day taken by either carpool or transit, or perhaps satisfied by some electronic means—OR operational improvements that allowed 3 percent more travel to be handled on the existing systems—OR—some combination of these actions.[3] None of this took place and congestion increased.

TEA–21 funds, combined with additional revenues from State and local governments, have begun to make an impact on road projects in all 50 States. Total highway expenditures by all levels of government and all expenditure types (including capital outlays; maintenance; and research, policing and administrative) have increased from $93.5 billion in 1995, before TEA–21 was enacted, to $111.9 billion in 1999. Additionally, the obligation of Federal funds for roadway projects has almost doubled during this same period from $8.6 billion in 1995 to $16.3 billion in 1999. Another good measure of the increased attention to our nation's highways is the miles of Federal-aid roadway projects underway. This number has also increased dramatically from 16,654 miles in 1995 to 29,030 miles in 1999.

Even with TEA–21's commitment, our nation must increase annual investment by $27 billion at all levels to improve conditions and performance adequately, according to the Federal Highway Administration (FHwA). An FHwA report concludes that the Nation should be investing $94 billion a year in its road and bridge system over the next 20 years. However, this investment level refers only to capital investment and does not include maintenance, research, policing or administrative expenditures.

In 1999, the total capital investment by all levels of government was $59.4 billion, well short of the needed $94 billion.

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[2]"2002 Urban Mobility Report," Texas Transportation Institute, Texas A&M University, http://mobility.tamu.edu

[3]Ibid.

Yet even with this added attention, 58 percent of America's urban and rural roadways are in poor, mediocre or fair condition, according to the FHwA.[4] Although this is a slight improvement from previous years, conditions remain at substandard levels.

The FHwA ranks "poor" roads as those in need of immediate improvement. "Mediocre" roads need improvement in the near future to preserve usability. "Fair" roads will likely need improvement. "Good" roads are in decent condition and will not require improvement in the near future. "Very good" roads have new or almost new pavement.

Substandard road conditions are dangerous. Outdated and substandard road and bridge design, pavement conditions, and safety features are factors in 30 percent of all fatal highway accidents, according to the FHwA.

Americans' personal and commercial highway travel continues to increase at a faster rate than highway capacity and our highways cannot sufficiently support our current or projected travel needs. Between 1970 and 1995, passenger travel nearly doubled in the U.S. and road use is expected to increase by nearly two-thirds in the next 20 years. Growth can be attributed to changes in the labor force, income, make-up of metropolitan areas and other factors.

While passenger and commercial travel on our highways has increased dramatically in the past 10 years, America has been seriously under-investing in needed road and bridge repairs and has failed to even maintain the substandard conditions we currently have. This is a dangerous trend that is affecting highway safety, as well as the health of the American economy.

BRIDGES

According to ASCE's 2001 Report Card, the nation's bridges received a grade of C, an improvement from a C minus in 1998. Almost a third of America's bridges are rated structurally deficient or functionally obsolete.

In one example from Alabama, a school bus bringing students to one Washington County school had to stop at a structurally deficient bridge, let all the kids get off and walk across so the empty—and therefore lighter—bus could safely cross the bridge. The children then climbed back on the bus and continued their trip. Naturally, this ritual was repeated on the way home. To avoid this, that bus now drives 15 miles out of the way.

According to the FHWA, 10.6 billion dollars are required per year for 20 years to eliminate the current backlog of bridge deficiencies and ensure acceptable levels of safety.[5]

In 1998, 29 percent of the nation's bridges were rated structurally deficient or functionally obsolete by the Federal Highway Administration.[6]

While this number remains high, it is a slight improvement over previous years. In fact, over the last 10 years the number of bridge deficiencies steadily declined from 34.6 percent in 1992 to 29.6 percent in 1998. FHwA's strategic plan states that by 2008 less than 25 percent of the nation's bridges should be classified as deficient.[7]

A structurally deficient bridge is closed or restricted to light vehicles because of its deteriorated structural components. While not necessarily unsafe, these bridges must have limits for speed and weight. A functionally obsolete bridge has older design features and while it is not unsafe for all vehicles, it cannot safely accommodate current traffic volumes, and vehicle sizes and weights.

TRANSIT

Though transit is not within the jurisdiction of the Senate Environment and Public Works Committee, it is difficult to completely discuss the problems facing the nation's surface transportation program without mentioning it.

According to ASCE's 2001 Report Card, the grade for transit declined from a C to a C minus. While transit bus and rail facilities have improved in recent years and new systems are being built, those improvements can't keep up with the heavy strain placed on the system by rapidly increasing ridership, which has increased by 15 percent since 1995—even faster than aviation or highway transportation.

Capital spending must increase 41 percent just to maintain our transit system at its present level of service. But we need to do more than that. Many transit systems

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[4]U.S. Dept. of Transportation (DOT), 1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance, 2000.
[5]Ibid.
[6]Ibid.
[7]Ibid.

were designed to transport workers from the suburbs to jobs in urban centers—a pattern that has now shifted to include suburb-to-suburb commutes as well. In order to reduce highway congestion and the associated pollution, we need to build a flexible, coordinated transportation system. Improvements like that will require up to 16 billion dollars annually.

For transit there is both good news and bad news. The bad news is that while investments at both the Federal and State/local levels are increasing, ridership demand is increasing at an even faster rate. The good news is that increased ridership means increased fare box revenues. However, it means additional public investment is needed. Yet, the question remains, can investment keep pace with demand?

In 2000 Americans took more than 9 billion trips on transit, and transit ridership increased by 4.5 percent over 1998. This continued a trend that marked the fourth straight year of ridership increases, and amounted to a 15 percent increase since 1995.

Transit funding is growing, but at a slower pace. Total spending for mass transit in 1997 was $25.1 billion. The Federal share was $4.4 billion, State and local governments contributed $13.2 billion and operating revenue provided the rest. For fiscal year 2000, the Federal investment increased to $4.56 billion and to $6.2 billion for fiscal year 2001. Total spending from all sources on transit capital projects for fiscal year 1997 was $7.6 billion.

The Federal Government invests $7.66 billion annually in mass transit capital improvements. However, according to the Federal Transit Administration an additional $10.8 billion is needed to maintain current conditions and $16 billion to eliminate identified deficiencies. Capital spending on transit needs to increase 41 percent to reach $10.8 billion annually.

Even with the increased investment, many people in the U.S. have little or no access to transit at all. The Federal Transit Administration reports that 25 percent of the nation's urban population does not have pedestrian access to transit. In addition, 30 percent of the nation's non-metropolitan counties have no transit service at all. This can prevent those without motor vehicles from participating in the economy, places the financial burden of automobile ownership on many low income families, and adds unnecessary automobile trips to our nation's congested streets and highways.

There are substantial benefits to the taxpayer in exchange for public investment in transit infrastructure. Transit provides basic mobility for those lacking a motor vehicle or who are unable to drive. It promotes location efficiency and reduces other infrastructure costs by encouraging dense, multi-purpose, pedestrian-oriented urban development. Transit is more energy efficient on a per-person basis than the automobile. Finally, and perhaps most important, it provides an environmental benefit. By reducing passenger car traffic transit reduces air, noise, and water pollution precisely where those reductions are needed most, in major urban areas.

The U.S. Department of Transportation reports that:[8]

- Investment in transit continues to increase, including increased Federal funding through TEA–21. Transit system route miles show a 10-year increase of 44.2 percent in rail service and 10.4 percent in non-rail service.
- In 1997, there were 149,468 transit vehicles; 9,922 miles of track; 2,681 stations; and 1,179 transit maintenance facilities in the U.S.
- There were 156,733 non-rail route miles of transit service in 1997.
- Transit system capacity, measured in vehicle revenue miles, increased by 19.7 percent from 1987 to 1997, while non-rail increased 17.1 percent.
- The average condition of urban bus vehicles was 3.1 on a scale of 5.0 or adequate, largely unchanged for the past 10 years. Sixty-three percent of urban bus vehicles are full-sized buses whose average condition has remained steady at 3.0 for the last decade.
- The average condition of rail vehicles was 4.0 or good. This is down slightly and caused by heavy ridership in major urban areas.

According to the Department of Transportation, the estimated average annual investment required to maintain the same physical conditions and operating performance of the nation's transit systems as in 1997, by replacing and rehabilitating deteriorated assets and expanding capacity to accommodate expected transit passenger growth, is $10.8 billion. The cost to improve conditions and performance is estimated to be $16 billion.[9]

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[8]U.S. Department of Transportation, 1999 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance, May 2000.

[9]Ibid.

B. Expanding the Investment in the Nation's Surface Transportation Programs

Establishing a sound financial foundation for future surface transportation improvements is an essential part of the reauthorization of the surface transportation program. TEA–21 provided record funding levels to the States and significant improvements have been made to our nation's infrastructure. In spite of these notable efforts, the nation's surface transportation system will require an even more substantial investment. United States Department of Transportation (DOT) data reflects the fact that an investment of $50 billion per year would be needed just to preserve the system in its current condition. With funding as the cornerstone of any attempt to reauthorize TEA–21 it is imperative that a variety of funding issues be advanced as part of ASCE's overall strategy.

ASCE supports total annual funding of $40 billion to $50 billion for the Federal-aid highway program. To achieve this level, ASCE supports an increase of six cents per gallon in the Federal user fee on gasoline. This would raise approximately $10.2 billion a year, of which an estimated $8.4 billion in new revenues would be available in direct financing for Federal-aid highway projects annually. The remainder—approximately $1.8 billion annually—would be directed to Federal transit programs. These increases are desperately needed.

ASCE supports the following goals for increasing our infrastructure investment.

- A 6 cent increase in the user fee with one cent dedicated to infrastructure safety and security. These new funds should be distributed between highways and transit using the formula approved in TEA–21.
- The user fee on gasoline should be indexed to the Consumer Price Index (CPI) to preserve the purchasing power of the fee.
- The Transportation Trust Fund balances should be managed to maximize investment in the nation's infrastructure.
- Congress should preserve the current firewalls to allow for full use of trust fund revenues for investment in the nation's surface transportation system.
- The reauthorization should maintain the current funding guarantees.
- Congress should stop diverting 2.5 cents of the user fee on ethanol to the General Fund, and put it back into the Highway Trust Fund.
- Make the necessary changes to alter the Revenue Aligned Budget Authority (RABA) to decrease the volatility of the estimates from year to year and ensure a stable user fee based source of funding.
- The current flexibility provisions found in TEA–21 should be maintained. The goal of the flexibility should be to establish a truly multi-modal transportation system for the Nation.

First to be addressed is the issue of raising the user fee on motor fuels. While the gas tax is an important element of the current revenue stream feeding the Federal Highway Trust Fund, it continues to erode in value due to its inherent inelastic nature. Two strategies must be advanced to remedy this condition. First, raise the gasoline user fee by six cents. This would provide a much needed infusion of funding toward the $50 billion per year need. In tandem with raising the motor fuel tax, ASCE believes that it is important to shore up the weakness of the motor fuel tax and its inability to retain value over the long term by adding a provision to the law that would index it based on the Consumer Price Index (CPI). This would allow the rate to adjust and reflect the current economic conditions of the Nation.

As the needs of the users change so must the priorities of the nation's transportation owners and operators. Safety and security have always been important but have been driven to the top of the priority list by events of the last year. In response to this important need, ASCE is advancing the position that one cent of the proposed six cent increase in the motor fuel tax be directed toward safety and security projects as deemed appropriate by the transportation agencies administering the funds.

Important provisions of TEA–21 are embodied in the principles of Revenue Aligned Budget Authority (RABA) and firewalls. RABA was established to ensure that the Federal Highway Trust Fund revenues would be spent in accordance with the rate at which they were deposited into the fund. Over the life of TEA–21 it has allowed States to construct many projects with these additional moneys that would have otherwise languished in the trust fund. In addition, with the establishment of firewalls on the Federal Highway Trust Fund, a condition was created wherein the States could count on their funds in a long term investment strategy. This has eliminated the fear that some major projects would fall victim to various budget strategies at the national level.

Any transportation legislation must have two fundamental philosophies to buildupon. First is the issue of equity. Some measure of equity was accomplished through the establishment of minimum guarantees. This provision of TEA–21 raised

the return to the States to a minimum level in order to bring greater equity to the donor/donee situation that exists across the country. In addition, a commitment to spend the maximum amount possible from the Federal Highway Trust Fund was an important part of this legislation. Positive, proactive management of the trust fund balance will be essential to addressing the critical transportation needs facing our nation today.

Innovative Financing

Even with increases in the gasoline user-fee, it is likely that tax-based revenues will not be sufficient to keep pace with the nation's transportation needs.

There is a compelling need for enhanced funding, to a large extent through user-oriented fees that have been demonstrated to be a well-accepted and equitable source of infrastructure financing. In the case of surface transportation, federally sponsored studies demonstrate the need for higher levels of investment. An additional challenge is to convince our citizens and our elected leaders that we must either "pay now" or "pay later", and that paying now is much more cost-effective and prudent in the long run.

Innovative financing techniques can greatly accelerate infrastructure development and can have a powerful economic stimulus effect compared to conventional methods. This is the current approach in South Carolina, Georgia, Louisiana, Florida, and Texas, where expanded and accelerated transportation investment programs have been announced. Innovative financing techniques, including toll road-based funding, figure heavily in several of these State programs.

The innovative programs in TEA–21 have been a good start, but more needs to be done to expand their scope, and new programs or approaches must be introduced. We must find new and innovative ways to finance the critical transportation infrastructure needs of the Nation.

ASCE supports the innovative financing programs and advocates making programs available to all States where appropriate. Additionally, the Federal Government should make every effort to develop new programs.

ASCE supports the following changes to enhance the existing programs:

Transportation Infrastructure Finance and Innovation Act (TIFIA)

- The TIFIA process for review, approval and negotiation is regarded as burdensome, and could be streamlined.
- TIFIA projects have a minimum eligibility threshold of $100 million and consideration could be given to lowering this to $50 million to expand the pool of projects.
- TIFIA loans could be "fully subordinated". Current TIFIA legislation is written to subordinate TIFIA loans to other creditors. However, in the event of liquidation/default, the TIFIA loan advances to parity status with other creditors. This is known as the "springing lien" provision. It is thought by some that this has limited the availability of other credit. The issue is controversial, with pros and cons on both sides, but reform should be seriously considered.

State Infrastructure Banks (SIBs)

- With the exception of five States (Texas, Rhode Island, Florida, Missouri, and California), TEA–21 did not permit further capitalization of SIBs with Federal funds. It is felt that this has suppressed SIB activity.
- Federal regulations still apply to loan funds that are repaid to the bank, encumbering SIB funded projects with Federal regulatory requirements.

Grant Anticipation Revenue Vehicles (GARVEEs)

- Increase the flexibility of GARVEE bond repayment methods. For example, utilize the total apportionment amount as a source of repayment (i.e., all funding categories), so that no particular funding category is overburdened.

New programs for consideration as part of the next reauthorization are:

- Increased use of user fees, tolls, value pricing, and HOT lanes.
- Possible indexing of highway trust fund motor fuels tax to inflation.
- Establishing a true multimodal funding program (i.e., funds can be used interchangeably for rail, highway, freight, intermodal facilities, etc.).
- Tax credit bonds, private activity bonds, and tax-exempt bonds for privately developed projects.

Long-term Viability of Fuel Taxes for Transportation Finance

ASCE supports the need to address impacts on future surface transportation funding and believes that provision should be made in the next surface transportation authorizing legislation to explore the viability of the most promising options to strengthen this funding. In particular, the impacts of fuel cell technology should

be studied as well as how to create a mileage based system for funding our nation's surface transportation system as this technology comes to market and lessens the nation's dependence on gasoline as a fuel source for automobiles.

Fuel taxes have long been the mainstay of transportation infrastructure finance, but their future is now uncertain. In many States, there is a strong reluctance to raise fuel taxes, and some State legislatures have even reduced taxes to compensate for the sharp increase in average gasoline prices over the last 2 years. Many localities and States are supplementing or replacing fuel taxes with other sources, such as sales taxes and other general revenue sources. There is also a growing trend to use additives to gasoline for environmental reasons. The most prominent additive, ethanol, enjoys a Federal exemption from fuel taxes that reduces Federal and State trust fund revenues by some several billion dollars annually. Looking ahead, a slow but steady increase in fleet efficiency—perhaps due to increased market penetration by electric, fuel cell, or hybrid technologies—would reduce the revenue per mile of use generated by users. Whereas cleaner-burning fuels and increased fuel efficiency are desirable policy goals in their own right, particularly in regard to global warming, they may reduce the reliability of fuel taxes in the future.

A helpful first step in this process will be the Transportation Research Board's recently initiated Study on Future Funding of the National Highway System, which will describe the current policy framework of transportation finance and evaluate options for a long-term transition to sources other than fuel taxes. The goals of the study are to: (1) determine the extent to which alternatives to fuel taxes will be needed in the next two decades or so; (2) analyze the pros and cons of different alternatives in terms of political feasibility, fairness, and cost; (3) suggest ways in which barriers to these alternatives might be overcome; (4) recommend ways in which the efficiency and fairness of the fuel tax could be enhanced, and (5) recommend, as necessary, a transition strategy to other revenue sources. The study's first task, to be summarized in an interim report, will provide one or more scenarios to illustrate the time span during which petroleum-based gasoline availability and cost might reduce fuel tax revenues. The interim report has been requested to provide insight to those parties involved in the development of the surface transportation reauthorization legislation, particularly with regard to projections of fuel tax revenues during the next reauthorization cycle. The study will also provide estimates of trends in expenditures for transportation infrastructure from sources other than the fuel tax.

C. Life Cycle Cost & Surface Transportation Design

The use of Life-Cycle Cost Analysis (LCCA) principles will raise the awareness of clients of the total cost of projects and promote quality engineering. Short-term design cost savings which lead to high future costs will be exposed as a result of the analysis. In the short-term the cost of projects will increase; however, the useful life of a project will increase, and there may be cost savings in operations and maintenance over the long term.

When the cost of a project is estimated only for design and construction, the long-term costs associated with maintenance, operation, and retiring a project, as well as the cost to the public due to delays, inconvenience and lost commerce are overlooked. The increasing use of bidding to select the design team has resulted in a pattern of reducing engineering effort to remain competitive, with the result of higher construction and life cycle costs.

ASCE encourages the use of Life-Cycle Cost Analysis (LCCA) principles in the design process to evaluate the total cost of projects. The analysis should include initial construction, operation, maintenance, environmental, safety and all other costs reasonably anticipated during the life of the project, whether borne by the project owner or those otherwise affected.[10]

D. Integrated Truck and Highway Design[11]

Truck sizes and weights need to be viewed in the context of major changes in cargo movement caused by the deregulation of the truck, railroad and aviation industries. Changes are continuing and will have profound impacts on the highway industry. Thus, while the use of larger and heavier trucks improves the productivity of the trucking industry and reduces the cost of transporting commodities, such ve-

[10]American Society of Civil Engineers, Policy Statement 451, "Life-Cycle Cost Analysis," 1999.

[11]For a more technical discussion of the truck weight issue please see: Ghosn, Michael, "Development of Truck Weight Regulations Using Bridge Reliability Model," Journal of Bridge Engineering, American Society of Civil Engineers, November 2000, and Ghosn, Michael, and Moses, Fred, "Effect of Changing Truck Weight Regulations on U.S. Bridge Network, Journal of Bridge Engineering, American Society of Civil Engineers, November 2000.

hicles also affect highway safety and accelerate deterioration of highway pavements and bridges.

History documents a continuing trend toward larger trucks and smaller passenger vehicles along with significantly increasing truck volumes. The safety issue and highway pavement and geometric design aspects of mixing large trucks and smaller passenger vehicles will continue to be a subject of importance to highway administrators and designers.

State limits for weights may not differ from the Federal maximums on the Interstate system except where "grandfather" provisions allow heavier combinations. Realistically, these trucks must also use highways which are not a part of the Interstate system for access. Many miles on the National Highway System do not meet the standards to qualify for the designated highway network. There are many miles of State and local roads which are even more deficient in meeting the standards of geometric and structural capability. States should balance the need for access to widely dispersed industrial and commercial sites with the need to protect inadequate road segments.

Increases in truck sizes and weights impact negatively on the structural life and geometric adequacy of the present road network. Users of the transportation system, both the general public and the trucking industry, will experience reduced service levels, delays, increased vehicle wear and operation costs and reduced safety. These negative impacts must be balanced against productivity gains and reduced commodity costs. Highways can be designed and constructed to accommodate various truck sizes and weights. Additional maintenance can be provided to sustain the pavements, capacity and safety of the system. Trucks can be designed to reduce axle loadings, enhance productivity and improve safety. Truck safety can also be enhanced through improved inspection, enforcement and operator safety programs.

Thus, highways and trucks can be designed and operated to improve their interaction, protect the highway investment and enhance safety. Industry and government cooperation in research, testing and evaluation can identify ways to improve trucking efficiency and safety while protecting the public investment in the highway system.

The American Society of Civil Engineers (ASCE) supports a program where[12]*:*

- Truck and highway design should be coordinated through joint research activities, such as in the National Cooperative Highway Research Program (NCHRP), and others. ASCE urges Congress, the Federal Highway Administration, the Federal Motor Carrier Safety Administration, the State transportation agencies, and the trucking industry to form these strong cooperative relationships.
- New and reconstructed roadways should be structurally, geometrically, and environmentally designed to support modern truck sizes and weights, and to insure the safe operation of the system.
- Truck designers should consider the effects of vehicle configuration and suspension systems on pavement and bridge performance. Manufacturers should also consider the effects of these factors on the safe operation of the vehicle in mixed traffic.
- Industry and government should ensure that trucks meet legal size and weight limitations and are safely maintained and operated.

E. Intermodal Facilities

TEA–21 continues a surface transportation program with flexible funding for highway, transit and other modal facilities. Traditional transportation practice inhibits attainment of a truly intermodal process because of customary approaches and philosophies that support the modal orientation of agencies, the lack of connections among modes, the inequities in Federal matching ratios for different modes, and the consolidation of funding for multimodal projects.

A primary emphasis of passenger intermodalism is to facilitate connections between the private automobile and other access modes and public transportation systems. For example, park-and ride facilities provide critical connections for mass transit commuters using automobiles for a portion of their trips.

The movement of freight from origin to destination is increasingly multimodal. Most freight is carried by trucks for final delivery, making planning the connections between highways and other modes critical to efficient freight movement.

TEA–21 continues to highlight intermodalism. Increased intermodalism is accomplished by statewide and metropolitan planning organizations, management systems and compliance with the Clean Air Act Amendments of 1990 (CAAA). Federal regu-

[12]American Society of Civil Engineers, Policy Statement 276, "Integrated Truck and Highway Design," 2000.

lations explicitly state that "each State . . . carry out a continuing, comprehensive, and intermodal statewide transportation planning process," and that metropolitan transportation plans and programs shall "lead to the development and operation of an integrated intermodal transportation system that facilitates the efficient, economic movement of people and goods."

TEA–21 and the CAAA have changed the way transportation plans have been developed from a mode by mode to an intermodal basis.

Programs of the Federal, State and local governments should maintain and strengthen the TEA–21 provisions and funding mechanisms to consider a wide range of multimodal options and new technologies in the development of transportation plans, programs and projects.

The American Society of Civil Engineers (ASCE) supports the vision of the Transportation Equity Act for the 21st Century (TEA–21) in the development of "a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy and will move people and freight in an energy efficient manner." Support for partnerships among the Federal, State and local governments, with various citizens, groups and firms from the private sector are essential to further the intermodal goals of TEA–21.[13]

F. Operations and Maintenance of the Nation's Surface Transportation Infrastructure

There is a clear and present need for an increased focus on transportation operations and maintenance at all levels—Federal, State, regional, and local. This need is based on several factors:

- An aging transportation infrastructure.
- Growing congestion and incident problems are causing transportation system performance to be a top priority in many areas of the country.
- Capacity constraints and costs of new construction are forcing us to look at alternative solutions and place a premium on maintaining and improving the existing transportation system.
- Customers desire travel choices, better information, and increased reliability to meet their mobility needs.
- An efficient and responsive transportation system is critical to meeting homeland security priorities.

An increased focus on transportation operations functions can enhance performance of the transportation system, for example:

- Routine traffic and transit operations;
- Public safety responses;
- Planned construction disruptions;
- Incident management;
- Network and facility management;
- Traveler and shipper information; and
- Bicycle and pedestrian mobility.

The Department of Transportation should encourage local matching and innovative funding. The Federal Government has a role in exploring and promoting best practices related to innovative funding for operations and maintenance.

ASCE supports a strong Federal role in the nation's transportation system and strongly endorses Federal leadership in increasing the focus on transportation operations and maintenance, thereby enhancing the performance of and preserving our investment in the transportation system. Reauthorization of TEA–21 should accomplish the following regarding Operations and Maintenance:[14]

- Support and assist homeland security initiatives. Transportation operations and homeland security share many of the same goals and functions. Resource sharing (e.g. communications infrastructure, traffic control centers) and joint planning are appropriate. Transit security and preparedness, international border security, asset security and tracking, vulnerability assessment, planning, and creation of system redundancy are important transportation priorities for homeland security.
- Support and assist State and local agencies. Beyond establishing transportation operations and maintenance as a national priority, the Federal role should be to support and assist State and local entities in accomplishing related goals. This

[13]American Society of Civil Engineers, Policy Statement 149, "Intermodal Transportation Systems," 2002.

[14]American Society of Civil Engineers, Policy Statement 495, "Operations and Maintenance of Transportation Systems," 2002.

includes support of research and development, provision of tools, promotion of best practices, and enhancement of education and training at all levels.

- Provide flexible funding. Flexible funding approaches are important components to supporting operations and maintenance needs. Expanding funding eligibility for operations and maintenance programs, enabling direct funding to local and regional operating agencies, public-private partnerships or outsourcing, and simplifying and clarifying Federal funding processes are important actions.
- Recognize that the private sector has much to offer in management and technical skills in operations and maintenance. Public-private partnerships may provide enhanced operations and management programs.
- Specific programs. In addition to flexible funding, several programs should be considered for targeted funding:
- Homeland security initiatives related to transportation
- Incident management programs
- Implementation of infostructure for data collection and management
- Provision of real-time information to and from customers
- Support for regional cooperation and partnerships
- Programs to alleviate bottlenecks.

G. Conclusion

As Congress grapples with the reauthorization of the nation's surface transportation program ASCE recommends that the following concepts guide the process:

- Expanding infrastructure investment.
- Enhancing infrastructure delivery.
- Maximizing infrastructure effectiveness.

Unless we act now, the problem will only get worse because road use is expected to increase by nearly two-thirds in the next 20 years.

The lack of adequate investment in America's infrastructure has left us with a vast backlog of deteriorated facilities that no longer meet our nation's increasing demands.

To remedy America's current and looming problem, ASCE estimated in 2001 a $ 1.3 trillion investment in all categories of infrastructure over the next 5 years and called for a renewed partnership among citizens, local, State and Federal Governments, and the private sector.

RESPONSES OF THOMAS JACKSON TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. In your testimony, you proposed a 6 cent per gallon increase in the Federal gas tax. If the gas tax cannot be increased, how much more do you think we need to generate from other financing mechanisms to invest in our nation's transportation system? How crucial is a user fee increase to meeting our future transportation needs?

Response. ASCE supports total annual funding of $40 billion to $50 billion for the Federal-aid highway program. Currently, we are investing nearly $32 billion a year in the Federal-aid highway program. It will be nearly impossible to reach the $40–50 billion investment level without an increase in the user fee on gasoline.

ASCE does support the following policy changes to increase the funds available to the Federal-aid highway program:

- The user fee on gasoline should be indexed to the Consumer Price Index (CPI) to preserve the purchasing power of the fee.
- The Transportation Trust Fund balances should be managed to maximize investment in the nation's infrastructure, including spending down the trust fund balance.
- Congress should stop diverting 2.5 cents of the user fee on ethanol to the General Fund, and put it back into the Highway Trust Fund.
- Congress should preserve the current firewalls to allow for full use of trust fund revenues for investment in the nation's surface transportation system.
- The reauthorization should maintain the current funding guarantees.

If all of these revenue enhancements were enacted by Congress, they would add $5 billion to projected Highway Account revenues in fiscal year 2004. This would gradually rise to $9 billion in fiscal year 2009. This would allow the program to grow to $44 billion by fiscal year 2009, far short of the $60 billion needed just to maintain current structural, safety and traffic conditions.

This illustrates that to maintain a minimally adequate Federal highway program after TEA–21 the Federal user fee on gasoline must be raised. ASCE supports an

increase of six cents per gallon in the Federal user fee on gasoline. This would raise approximately $10.2 billion a year, of which an estimated $8.4 billion in new revenues would be available in direct financing for Federal-aid highway projects annually. The remainder—approximately $1.8 billion annually—would be directed to Federal transit programs. These increases are desperately needed.

United States Department of Transportation (DOT) data reflects the fact that an investment of $60 billion per year would be needed just to preserve the system in its current condition. With funding as the cornerstone of any attempt to reauthorize TEA–21 it is imperative that a variety of funding issues be advanced as part of the overall strategy to improve the nation's surface transportation program.

Question 2. As Highway Trust Fund revenues decrease in the future due to increased fuel efficiency and use of alternative fuels, what can we do to maintain a reliable source of highway funding and still rely on a user fee based system that pays its own way?

Response. ASCE supports the need to address impacts on future surface transportation funding and believes that provision should be made in the next surface transportation authorizing legislation to explore the viability of the most promising options to strengthen this funding. In particular, the impacts of fuel cell technology should be studied as well as how to create a mileage based system for funding our nation's surface transportation system as this technology comes to market and lessens the nation's dependence on gasoline as a fuel source for automobiles.

Fuel taxes have long been the mainstay of transportation infrastructure finance, but their future is now uncertain. In many States, there is a strong reluctance to raise fuel taxes, and some State legislatures have even reduced taxes to compensate for the sharp increase in average gasoline prices over the last 2 years. Many localities and States are supplementing or replacing fuel taxes with other sources, such as sales taxes and other general revenue sources. There is also a growing trend to use additives to gasoline for environmental reasons. The most prominent additive, ethanol, enjoys a Federal exemption from fuel taxes that reduces Federal and State trust fund revenues by some several billion dollars annually. Looking ahead, a slow but steady increase in fleet efficiency—perhaps due to increased market penetration by electric, fuel cell, or hybrid technologies—would reduce the revenue per mile of use generated by users.

A helpful first step in this process will be the Transportation Research Board's recently initiated Study on Future Funding of the National Highway System, which will describe the current policy framework of transportation finance and evaluate options for a long-term transition to sources other than fuel taxes. The goals of the study are to: (1) determine the extent to which alternatives to fuel taxes will be needed in the next two decades or so; (2) analyze the pros and cons of different alternatives in terms of political feasibility, fairness, and cost; (3) suggest ways in which barriers to these alternatives might be overcome; (4) recommend ways in which the efficiency and fairness of the fuel tax could be enhanced, and (5) recommend, as necessary, a transition strategy to other revenue sources. The study's first task, to be summarized in an interim report, will provide one or more scenarios to illustrate the time span during which petroleum-based gasoline availability and cost might reduce fuel tax revenues. The interim report has been requested to provide insight to those parties involved in the development of the surface transportation reauthorization legislation, particularly with regard to projections of fuel tax revenues during the next reauthorization cycle. The study will also provide estimates of trends in expenditures for transportation infrastructure from sources other than the fuel tax.

RESPONSES OF THOMAS JACKSON TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. We have heard numerous times today about expected increases in truck traffic in the next ten to 20 years. What impact will this increased traffic have on our ability to maintain our highways?

Response. History documents a continuing trend toward larger trucks and smaller passenger vehicles along with significantly increasing truck volumes. The safety issue and highway pavement and geometric design aspects of mixing large trucks and smaller passenger vehicles will continue to be a subject of importance to highway administrators and designers.

Increases in truck sizes and weights impact negatively on the structural life and geometric adequacy of the present road network. Users of the transportation system, both the general public and the trucking industry, will experience reduced service levels, delays, increased vehicle wear and operation costs and reduced safety. These negative impacts must be balanced against productivity gains and reduced commodity costs.

Question 2. If trucks that are heavier than currently allowed are permitted to travel our highways, what will be the consequences with respect to the condition and performance of existing highways and bridges?

Response. Increases in truck sizes and weights impact negatively on the structural life and geometric adequacy of the present road network. Users of the transportation system, both the general public and the trucking industry, will experience reduced service levels, delays, increased vehicle wear and operation costs and reduced safety.

In numerous instances bridges will need to retrofitted or replaced to accommodate larger trucks and bigger loads, and this is the largest cost associated with allowing larger trucks on road system.

Question 3. If reconstruction projects and new infrastructure are built to withstand heaver trucks, what will that do to the costs of these projects?

Response. There will certainly be additional costs associated with increasing truck weights, but some of these costs can be borne early in the design and construction process which can minimize the final cost. This is especially true in bridge repair and replacement. It is well documented that increasing truck weights will necessitate more attention to bridge deficiencies, and this will require Federal highway funds. Some of these deficiencies can be addressed by FHWA's Bridge Program, but in some instances this will need to be accelerated. Highways can be designed and constructed to accommodate various truck sizes and weights. Additional maintenance can be provided to sustain the pavements, capacity and safety of the system. Trucks can be designed to reduce axle loadings, enhance productivity and improve safety. Truck safety can also be enhanced through improved inspection, enforcement and operator safety programs.

Question 4. You mention life cycle costs in your testimony. Can you explain the importance of looking at life cycle costs when selecting infrastructure projects?

Response. The use of Life-Cycle Cost Analysis (LCCA) principles will raise the awareness of clients of the total cost of projects and promote quality engineering. Short-term design cost savings which lead to high future costs will be exposed as a result of the analysis. In the short-term the cost of projects will increase; however, the useful life of a project will increase, and there may be cost savings in operations and maintenance over the long term.

When the cost of a project is estimated only for design and construction, the long-term costs associated with maintenance, operation, and retiring a project, as well as the cost to the public due to delays, inconvenience and lost commerce are overlooked. The increasing use of bidding to select the design team has resulted in a pattern of reducing engineering effort to remain competitive, with the result of higher construction and life cycle costs.

ASCE encourages the use of Life-Cycle Cost Analysis (LCCA) principles in the design process to evaluate the total cost of projects. The analysis should include initial construction, operation, maintenance, environmental, safety and all other costs reasonably anticipated during the life of the project, whether borne by the project owner or those otherwise affected.

Question 5. As a practicing engineer, have you seen highway pavement research results that have been practical and utilized in a beneficial way? How can research help improve the durability and life span of new and reconstructed roads?

Response. Research results have led to many benefits for the nation's surface transportation system including: materials that improve the performance and durability of pavements and structures; design methods that reduce scour (and consequent threat of collapse) of bridges; intelligent transportation systems technologies that improve safety and reduce travel delay; methods and materials that radically improve our ability to keep roads safely open in severe winter weather; innovative management approaches that save time and money; analytical and design approaches that reduce environmental impacts and improve the aesthetic and cultural aspects of transportation facilities; and many more.

In general, pavement research had led to longer lasting road surfaces which have lowered maintenance cost for many road systems. The following are a few recent examples of highway pavement research that has produced useable results.

- A flexible pavement life-cycle model has been developed to yield an optimum maintenance and rehabilitation plan. The model incorporates into the optimization process both performance and cost associated with a life-cycle analysis period for a given pavement structure project. A single life-cycle indicator called "life-cycle disutility" has been introduced and defined as the ratio of cost to performance. The optimum plan is the one associated with the minimum life-cycle disutility value. The model evaluates several potential maintenance and rehabilitation plans generated according to two defined decision policy options. The first decision policy option re-

quires a fixed analysis period, whereas the second one involves a variable analysis period. Both options require a specified number of major rehabilitation cycles. Pavement life-cycle cost includes initial construction, scheduled major rehabilitation cycles, and routine maintenance and added user cost. Pavement life-cycle performance is defined as the area under the life-cycle performance curve either generated from actual pavement distress data or based on an incremental analysis of the American Association of State Highway and Transportation Officials basic design equation of flexible pavement.

- Every year, large amounts of pavement deicing chemicals are used for snow and ice control on Canadian highways and airports. Until recently, urea had been the only pavement deicing chemical in use at Canadian airports, but due to recent concerns about the impact of this deicer on the environment, consideration has been given to replacing it with more environmentally friendly deicers. The test results showed that for all deicers the critical concentration, the one that caused the greatest damage to the aggregate, was in the 1–2 percent range, and for all deicers the quartzite aggregate suffered more damage than the limestone. It was also found that the road salt produced comparable damage to that caused by other deicers to quartzite, while the damage was significantly less for limestone aggregates. In case of asphalt concrete samples, it was found that conditioning asphalt samples using freeze-thaw cycles in the presence of a deicer solution caused a decrease in the indirect tensile strength and modulus of elasticity and an increase in the penetration values of the recovered asphalt cement. In addition, the test results showed that the maximum damage was caused by urea, while the damage due to the other deicers was comparable to that of distilled water.
- Because of the lack of formulas for evaluating the peak value of dynamic vehicle load on rigid pavement, the need to derive a simple closed-form solution to predict the peak load for pavement design is apparent. Researchers developed a theoretical solution for evaluating the probable peak vehicle load on rigid pavement due to the passage of a vehicle moving at constant speed along a rough road surface. Based on the proposed solutions, relations of design vehicle load and traffic volume for discrete risks are constructed for applications of pavement design.

Question 6. Your group's "Report Card on America" makes it easy for us non engineers to understand the State of our infrastructure. You have given our roads a D+ grade and bridges a C grade. Can you tell this committee more about this grader system and why our transportation system is scoring so low?

Response. Led by an 11-member advisory council, ASCE evaluated existing data reports for each infrastructure category. ASCE determined its grades by evaluating the infrastructure's condition, performance, capacity and funding. The grades reflect experts' views of the conditions and performance versus the current and anticipated funding level combined with the expected future needs.

According to ASCE's 2001 Report Card, the nation's roads earned a D+, up from a D− in 1998. According to ASCE's 2001 Report Card, the nation's bridges received a grade of C, an improvement from a C minus in 1998. Almost a third of America's bridges are rated structurally deficient or functionally obsolete.

The major reason for this improvement is that the Congress and State and local governments have begun to address the investment crisis and crumbling infrastructure through the enactment of TEA–21, which provided $218 billion for the nation's highway and transit programs, and additional State and local programs to fund surface transportation infrastructure. But even at these increased funding levels, capital investments fall short of needs by 43 billion dollars a year.

STATEMENT OF WILLIAM BUECHNER, VICE PRESIDENT FOR ECONOMICS AND RESEARCH, AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION

"One of our great material blessings is the outstanding network of roads and highways that spreads across this vast continent. Freedom of travel and the romance of the road are vital parts of our heritage, and they helped to make America great. Four million miles of streets and roads make it possible for the average citizen to drive to virtually every corner of our country-to enjoy America in all its beauty and variety. They also form a vital commercial artery unequaled anywhere else in the world.

"Our interstate system has reduced by nearly a day and a half the time it takes to drive coast to coast. And more efficient roads mean lower transportation costs for the many products and goods that make our abundant way of life possible. But let's face it: Lately, driving isn't as much fun as it used to be. Time and wear have taken their toll on America's roads and highways. In some places the bad condition of the pavement does more to control speed than the speed limits.

"We simply cannot allow this magnificent system to deteriorate beyond repair. The time has come to preserve what past Americans spent so much time and effort to create, and that means a nationwide conservation effort in the best sense of the word. America can't afford throwaway roads or disposable transit systems. The bridges and highways we fail to repair today will have to be rebuilt tomorrow at many times the cost.

"So I'm asking the Congress when it reconvenes next week to approve a new highway program that will enable us to complete construction of the interstate system and at the same time get on with the job of renovating existing highways. The program will not increase the Federal deficit or add to the taxes that you and I pay on April 15th. It'll be paid for by those of us who use the system, and it will cost the average car owner only about $30 a year. That's less than the cost of a couple of shock absorbers. Most important of all, it'll cost far less to act now than it would to delay until further damage is done . . .

"Common sense tells us that it'll cost a lot less to keep the system we have in good repair than to let it crumble and then have to start all over again. Good tax policy decrees that wherever possible a fee for a service should be assessed against those who directly benefit from that service. Our highways were built largely with such a user fee—the gasoline tax. I think it makes sense to follow that principle in restoring them to the condition we all want them to be in.

"So, what we're proposing is to add the equivalent of 5 cents per gallon to the existing Federal highway user fee, the gas tax. That hasn't been increased for the last 23 years. The cost to the average motorist will be small, but the benefit to our transportation system will be immense. The program will also stimulate 170,000 jobs, not in make-work projects but in real, worthwhile work in the hard-hit construction industries, and an additional 150,000 jobs in related industries. It will improve safety on our highways and will make truck transportation more efficient and productive for years to come.

"Perhaps most important, we will be preserving for future generations of Americans a highway system that has long been the envy of the world and that has truly made the average American driver king of the road . . ."

PRESIDENT RONALD REAGAN

Radio Address to the Nation on Proposed Legislation for a Highway and Bridge Repair Program, November 27, 1982

Mr. Chairman, Senator Inhofe, members of the subcommittee, thank you very much for providing the American Road and Transportation Builders Association (ARTBA) an opportunity to testify on highway investment needs and to present its recommendations for the reauthorization of the Federal highway and mass transit programs.

I am Dr. William Buechner, ARTBA's vice president for economics and research and chief economist. Prior to joining ARTBA in 1996, I served 22 years as a senior economist for the congressional Joint Economic Committee, and I have a doctorate in economics from Harvard University.

ARTBA marks its 100th anniversary this year. Over the past century, its core mission has remained focused on aggressively advocating Federal capital investments to meet the public and business community's demand for safe and efficient transportation. The transportation construction industry ARTBA represents generates more than $200 billion annually to the nation's Gross Domestic Product and sustains more than 2.5 million American jobs. ARTBA's more than 5,000 members come from all sectors of the transportation construction industry. Thus, its policy recommendations provide a consensus view.

Mr. Chairman, at the outset I want to express our deep appreciation to you personally and the bipartisan leadership of the committee for its work thus far to maintain the fiscal year 2003 highway program at the current year's $31.8 billion level.

Earlier this morning, the Federal Highway Administrator, Mary Peters, told this committee that an average annual investment of $75.9 billion by all levels of government during the next 20 years would maintain current conditions on the nation's highways and bridges. During the past 20 years, the Federal share of highway investment has averaged about 45–47 percent of the total, which implies that a Federal investment of about $35 billion annually for the next 20 years would meet our highway investment requirements.

You don't have to be an economist to recognize that, if we are currently investing $32 billion at the Federal level, there is something odd about that assessment.

There are three reasons why the $75.9 billion investment figure is understated.

1. The figure is stated in year 2000 constant dollars. Obviously, anyone planning a future investment would consider inflation, which will add significantly to the investment required. We recommend that the Senate mandate that future reports provide estimates that are in both constant and inflation-adjusted dollars.

2. The $75.9 billion figure, as the administrator has stated, will not even maintain the status quo in terms of traffic congestion. Traffic congestion at that investment level would, not maybe, would get worse over the next 10 years. We can't let that happen because of its impact on productivity and the future economic growth of the Nation.

3. The findings of the report are based on the assumption that traffic growth will decline from 3 percent annually during the past 20 years to 2 percent annually over the next 20 years. This assumption reduces investment needs because less traffic means fewer highway and bridge repairs and less need for new capacity. Every Conditions and Performance report has underestimated travel growth. But over the next 20 years, the nation's work force must continue to grow. It will be fueled largely by immigration and upward mobility of lower-income Americans. Research shows that as incomes rise, so does auto ownership and vehicle miles traveled. The chart on the bottom of page A–9 of the Administrator's attachment shows that traditional travel growth would increase annual investment needs almost 50 percent to $120 billion per year.

You will note that the American Association of State Highway and Transportation Officials upcoming 2002 "Bottom Line Report," which is based on the same econometric model and data used by the U.S. DOT, concludes that an annual investment of $92 billion in 2000 dollars by all government levels will be needed from fiscal year 2004—fiscal year 2009 just to maintain current conditions and performance. This is about $16 billion more per year than in the figure Administrator Peters mentioned this morning.

When ARTBA analyzed the data in the 1999 Conditions and Performance report, and adjusted the data with conservative estimates of future inflation and VMT growth, we concluded that a Federal highway program averaging $50 billion per year would be needed for fiscal year 2004 through fiscal year 2009 just to maintain existing structural, safety and travel performance conditions on the nation's highways and bridges.

When the new Conditions and Performance report is issued later this year, the data will inescapably show that it will take a Federal highway investment of at least $50 billion per year just to stabilize congestion at its current level, and more likely a program of $60 billion or even more.

Of course, we must also look at mass transit capital needs which are in addition to the highway investment needs reported by Administrator Peters.

ARTBA has developed a TEA–21 reauthorization funding proposal, which we call "Two Cents Makes Sense," that shows how the Federal share of highway investment requirements during the next 6 years can be substantially met. We are recommending a Federal highway program funded at $35 billion in fiscal year 2004 and then increased by $5 billion per year to $60 billion by fiscal year 2009. This program would bring us to an investment level that would maintain current physical and safety conditions and assure that traffic congestion will not get materially worse over the next 10 years. It would also double mass transit investment to about $14 billion by fiscal year 2009.

Our approach would result in a manageable program for both the State DOTs and the transportation construction industry. The funding levels we recommend should be guaranteed and firewall-protected just as under TEA–21. But we would recommend that there not be a RABA adjustment of the kind that caused the funding uncertainty and political problems we saw in fiscal year 2003.

We are suggesting a fundamental change in Highway Trust Fund cash management to assure that highway users pay no more into the trust fund each year than is needed to cover actual outlays from the trust fund. Under our recommended changes, we calculate that a small annual increase in the Federal highway user fee of about 2 cents per gallon would be needed at most to meet projected cash outlays from the Highway Trust Fund to fund the program we visualize.

About half a cent of this increase would come from permanently indexing the motor fuels tax to the Consumer Price Index, which would preserve the purchasing power of highway user fees even beyond the reauthorization period. The other 1.5 cents would have to be included in the reauthorization legislation.

To put a 2-cent annual increase in perspective, we have included a chart on page 9 below showing that the average weekly change in the retail price of gasoline during the past year and a half was almost 2.5 cents per gallon.

If Congress were to enact any other source of new revenues for the Highway Trust Fund, like transferring the 2.5 cents per gallon of the gasohol excise from the gen-

eral fund to the Highway Trust Fund, the necessary increase in the motor fuels user fee would be even smaller.

Finally, our proposal would include a revenue RABA provision to assure that the Federal highway program does not contribute to the Federal deficit. Under a revenue RABA, if the Highway Trust Fund were to run a deficit during any fiscal year, the user fee would be automatically increased the following year by just enough to make the trust fund whole. Conversely, if the trust fund ran a surplus, then the user fees would be automatically reduced the following year. This would assure that the Federal highway program would be completely budget-neutral and would have no impact on the Federal surplus or deficit.

ARTBA Recommendations for Meeting Highway and Transit Investment Needs in TEA–21 Reauthorization

In March 2001, the American Road and Transportation Builders Association published its detailed proposals for improving the Federal highway and mass transit programs in a 72-page report entitled "A Blueprint for Year 2003 Reauthorization of the Federal Surface Transportation Programs." This report was the culmination of the work of a task force of over 100 ARTBA members. Our refined funding proposal for reauthorization, "Two Cents Makes Sense," was released on July 16.

Mr. Chairman, ARTBA's vision for TEA–21 reauthorization is centered on three goals:

First, cutting the number of deaths and injuries on America's highways between 2004 and 2009 through targeted capital investments.

Second, ensuring that traffic congestion for the American public and business community does not get materially worse between now and 2009; and

Third, ensuring that the structural conditions of federally aided highways, bridges and transit systems do not get materially worse over that same period.

These goals can only be accomplished by providing the capital investments the data from the U.S. Department of Transportation and the American Association of State Highway and Transportation Officials (AASHTO) reports suggest are necessary to, at minimum, maintain existing system safety, physical conditions and performance.

New Assessments of National Transportation Capital Investment Needs: AASHTO, USDOT, APTA

The upcoming AASHTO "bottom line" report uses year 2000 data provided by the State transportation departments and the U.S. Department of Transportation's HERS model to project highway and mass transit capital investment needs over the period 2000 to 2019. The report states that an annual capital investment of $92.0 billion in 2000 dollars will be required during the next 20 years by all levels of government to maintain current conditions and performance on the nation's highways and $125.6 billion will be needed annually to make all of the economically beneficial improvements identified by the model.

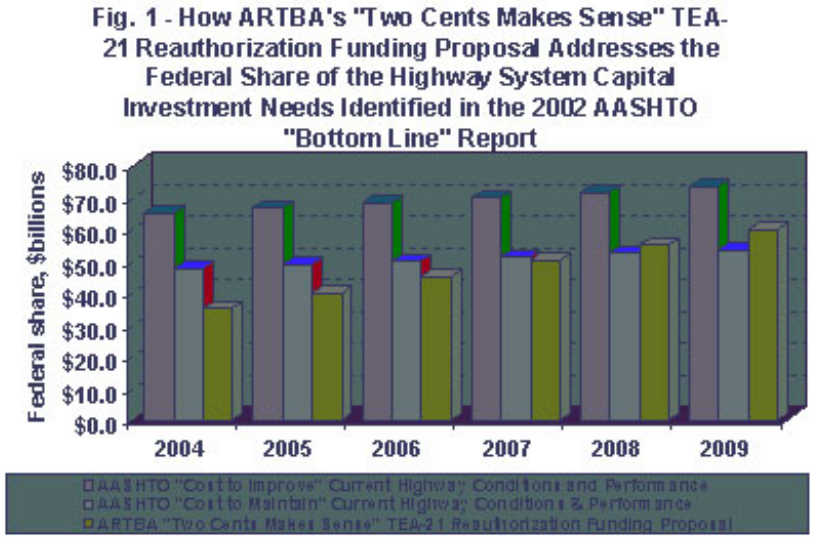
The AASHTO report does not assign a Federal share to these needs estimates, nor does it factor in future price inflation. If one assumes the Federal share of total highway capital investment, fiscal year 2004–09, will continue to be about 47 percent[2]—the average share over the past 20 years—and that annual inflation will be 2.4 percent43-the estimate used in the president's fy 2003 budget—the "bottom line" report suggests:

- The Federal share of the investment needed "just to maintain" year 2000 highway safety, structural and traffic congestion conditions would be $47.7 billion in fiscal year 2004, rising to $53.6 billion in fiscal year 2009.
- The Federal share of the investment needed to make all economically justifiable improvements to the highway system would be $65.1 billion in year 2004, rising to $73.2 billion in year 2009.

Figure 1 graphically depicts how the ARTBA "two cents makes sense" proposal addresses these investment needs estimates suggested by the AASHTO "bottom line" report.

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[2]This is the average Federal share of total public highway capital investment over the past 20 years, including FHWA administrative costs, found in the U.S. Department of Transportation annual publication "Highway Statistics" Table HF–10 for 1995–2001 and "Highway Statistics Summary to 1995" Table HF210 for 1982–1994.



The U.S. Department of Transportation is expected to soon release the biennial surface transportation conditions, performance and investment requirement report it is mandated to submit to Congress. The most recent report, issued in 2000 and utilizing 1997 data, suggested a minimum $50 billion per year Federal investment requirement, when adjusted for inflation and historic traffic use. Annual inflation alone would be expected to drive that reported annual investment need beyond $60 billion by fiscal year 2009.

The American Public Transportation Association (APTA) has stated that a $14 billion per year annual Federal investment is necessary to meet minimum national transit needs.

Existing Revenue Options

Financing this level of investment will require more revenues than highway users are currently projected to pay into the Highway Trust Fund during the next 6 years. Based on information such as current highway user fees, expected population growth, number of drivers, vehicle miles traveled and other factors, the Congressional Budget Office and the U.S. Department of the Treasury currently project that revenues into the Highway Account will grow from $30 billion in fiscal year 2004 to just under $35 billion in fiscal year 2009. Projected revenue growth between now and fiscal year 2009 will thus be far less than needed to meet Federal highway investment requirements during the next 6 years.

Nearly 2 years ago, ARTBA proposed a number of options for enhancing Highway Account revenues. These include:

- spending down the current cash balance;
- indexing the motor fuels excise taxes for inflation;
- crediting the Highway Account with gasohol tax revenues that currently go into the General Fund;
- ending the gasohol subsidy or reimbursing the Highway Trust Fund from the General Fund for the cost of the subsidy;
- crediting interest on the Highway Trust Fund balances;
- eliminating fuel tax evasion; and
- expanding innovative financing programs.

Table 1 provides the latest revenue estimates for each of these options. These figures were computed by ARTBA's economics and research team based on the most recent available data from the U.S. Department of the Treasury, the Congressional Budget Office and other government agencies.

Table 1 - Revenue Options for Financing the Federal-Aid Highway Program, FY 2004 - FY 2009
(millions of dollars)

	Fiscal year					
	2004	2005	2006	2007	2008	2009
Projected Highway Account receipts	30,035	30,981	31,884	32,831	33,803	34,797
New revenue options:						
Spend down Highway Account balance	2,000	2,000	2,000	2,000	2,000	2,000
Index motor fuels taxes for inflation	626	1,330	2,088	2,896	3,752	4,665
Transfer 2.5¢/gallon ethanol revenue from GF	559	611	641	658	671	686
End 5.1¢/gallon ethanol subsidy or transfer lost revenues from the General Fund	1,162	1,247	1,308	1,342	1,369	1,399
Credit interest on the HA balance	758	698	638	578	518	458
Eliminate fuel tax evasion	?	?	?	?	?	?
Innovative financing, public-private ventures	?	?	?	?	?	?
Subtotal, revenue options	5,105	5,887	6,676	7,475	8,311	9,208
Total	35,140	36,868	38,560	40,306	42,114	44,005
Potential Highway Account revenues from each cent per gallon motor fuels excise increase	1,407	1,451	1,491	1,526	1,558	1,590

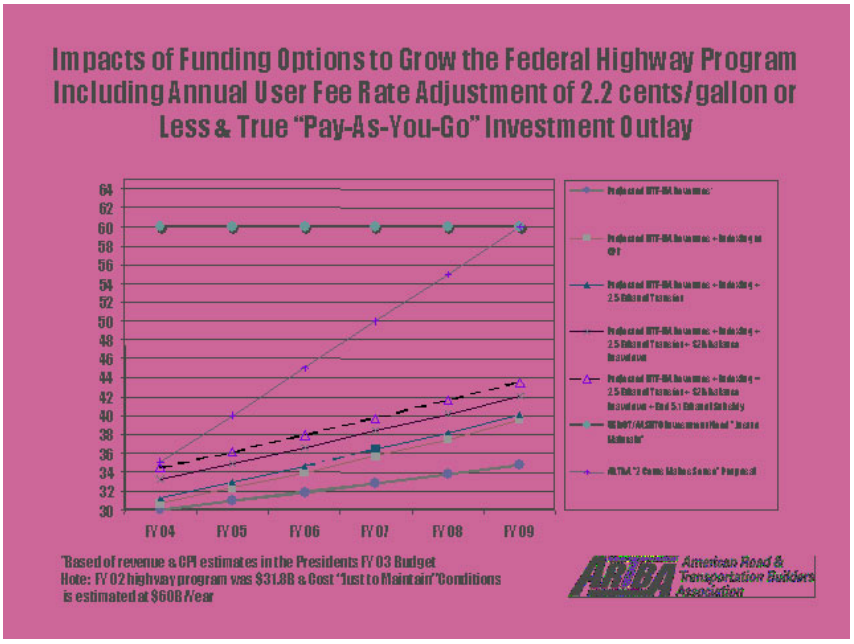
Source: ARTBA analysis of data from U.S. Treasury Department, Congressional Budget Office and FY 2003 Budget of the U.S. Government

If all of these revenue enhancements were enacted by Congress, they would add $5 billion to projected Highway Account revenues in fiscal year 2004. This would gradually rise to $9 billion in fiscal year 2009. This would allow the program to grow to $44 billion by fiscal year 2009, far short of the $60 billion needed just to maintain current structural, safety and traffic conditions.

Whether Congress will, in fact, adopt any, or all, of these options is at this point a matter of conjecture.

What is abundantly clear is that a minimally adequate Federal highway program after TEA–21 will require significant new revenues, beyond these seven options.

The main sources of funds for Federal highway investment are the fees paid by highway users in the form of excise taxes on motor fuels-gasoline, diesel fuel and gasohol. Each penny of the motor fuels excise taxes currently generates about $1.7 billion per year, with about $1.4 billion being deposited into the Highway Account of the Highway Trust Fund and $260 million deposited into the Mass Transit Account.



ARTBA has endorsed an increase in highway user fees as needed to maintain current structural, safety and traffic mobility conditions on the nation's highways and bridges. But highway users should not be asked to pay any more than absolutely necessary. The proposal I want to outline this morning is designed to provide the necessary level of Federal highway investment during the next 6 years at the minimum cost to highway users

"Two Cents Makes Sense"—A Funding Proposal to Meet the Investment Requirements Outlined by the U.S. Department of Transportation and AASHTO

On July 16, 2002, ARTBA announced a needs based financing proposal for TEA–21 reauthorization-"Two Cents Makes Sense." The financing plan is a refinement of the funding recommendations ARTBA published in March 2001.

The "Two Cents Makes Sense" plan would provide the revenue stream necessary to double the annual Federal investments in highways-to $60 billion-and mass transit-to almost $14 billion-by fiscal year 2009. This proposal is the only one currently being discussed that would grow Federal highway investment during the next authorization period to the level the U.S. Department of Transportation (USDOT), the American Association of State Highway and Transportation Officials (AASHTO) and the American Public Transportation Association (APTA) report is the minimum needed just to maintain current safety, traffic congestion and structural conditions.

The "Two Cents Makes Sense" plan would provide steady, predictable and manageable Federal highway program increases-in $5 billion increments-from $35 billion in fiscal 2004 to $60 billion in fiscal 2009. Federal transit investment would increase under our proposal in $1 billion annual increments. This would be achieved through:

- more efficient cash management of Highway Trust Fund (HTF) revenues; and
- a small, annual adjustment in the Federal motor fuels excise user fee rate to assure the revenue stream necessary to cover the government's cash outlay in that year for the highway and transit programs.

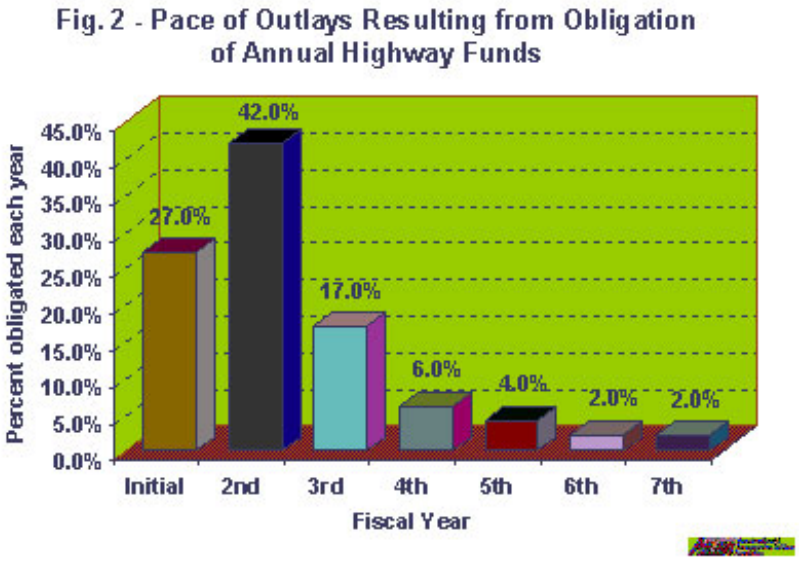
Our proposal is a logical evolution of the concept embraced by Congress in TEA–21 of directly linking annual highway investment to the user fee revenue stream.

Under our proposal, the TEA–21 budget firewalls and protections would be maintained. This would include annual funding guarantees in the authorization legislation and the budgetary protections for the highway and mass transit programs, including the separate budget categories and the point of order in the House Rules that can be raised against legislation that would reduce the guaranteed funding.

More Efficient Cash Management of Highway Trust Fund Revenues

Under TEA–21, as has been the case for several decades, the Federal Government has been collecting more highway user revenue each year than it actually needs to pay the annual bills-or outlays-for the highway and transit programs. As a result, this money is being "warehoused" for up to 7 years before it is actually spent. That's why the trust fund balance continues to balloon. Here's how it happens:

Based on years of analysis, the White House Office of Management & Budget and the Congressional Budget Office have determined Federal highway funds spend out over a period extending 7 years. This spend out rate is unique among Federal programs. Unlike the case with virtually every other Federal program, of every dollar obligated during a fiscal year for the Federal highway program, only 27 cents will actually have to be paid out of the HTF Highway Account during the first year. The next year, 42 cents will be paid, followed by 17 cents the third year and smaller amounts in following years (See Figure 2).



This "lag" between collection of user fee revenue from motorists and truckers to actual complete spend out of those revenues causes the significant annual growth in the Highway Trust Fund balance. Absent changes, the Highway Trust Fund's Highway Account balance would grow steadily through fiscal year 2010.

ARTBA proposes to correct this inefficient money management by returning the Federal highway program to a true "pay-as-you-go" approach.

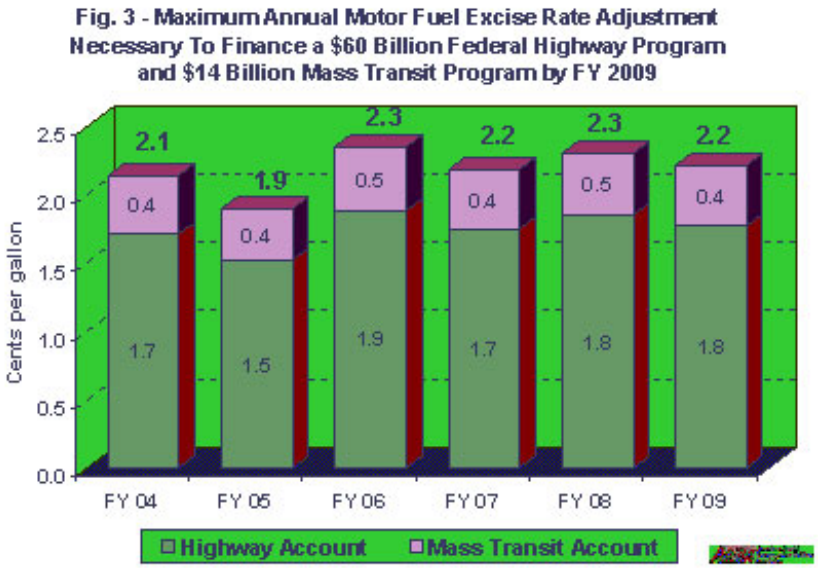
Returning to a True "Pay-as-You-Go" Approach

In the reauthorization, Congress would set annual investment targets to work toward accomplishing needs based performance results. This could be accomplished by starting with $35 billion in fiscal year 2004 and ramping in $5 billion increments annually thereafter to $60 billion in fiscal year 2009. This would similarly be done for transit investment. Once these authorization levels are established, the Congressional Budget Office would determine the annual cash outlay needed to fund the new authorization, plus remaining past authorizations.

The reauthorization legislation would also include authority for an annual adjustment of the Federal motor fuels user fee excise rate to produce the amount of revenue to the HTF needed to meet the highway and transit program cash outlays for the year. This adjustment would have two parts: (1) a base adjustment to protect that purchasing power of the highway and transit programs that would be linked to the annual Consumer Price Index (indexing); and (2) depending on U.S. Treasury revenue projections for the Highway Trust Fund from all sources during the upcoming year (i.e., could include possible recapture of ethanol revenues, interest on the trust fund, prudent use of the existing HTF balance, revenues from innovative financing) an adjustment in the motor fuels rate above indexing that is necessary to provide the revenue needed to meet the outlay target.

By implementing these recommended changes, it is possible to increase Federal highway and transit investment significantly without a large, one time increase in the motor fuels excise user fee rate (which would also exacerbate the HTF balance buildup just discussed).

Funding the annual authorizations we have proposed, would, with implementation of the changes we have recommended, require at most an annual adjustment of the Federal motor fuels excise user fee rate of 2.2 cents per gallon. Approximately one-half cent of that increase would be the result of indexing to the CPI. If the HTF revenue stream were enhanced by redirection and equitable taxation of ethanol, use of the existing HTF balance, more revenues due to a robust economy-any or all-the annual adjustment in the motor fuels excise user fee rate would be lower than 2.2 cents per gallon (including indexing)! (See Figure 3)



Revenue RABA Provision: An Approach that Eliminates Current RABA Political and Program Planning Problems.

The "Two Cents Makes Sense" proposal would also replace the TEA–21's RABA (Revenue Aligned Budget Authority) adjustment with a "Revenue RABA Provision." The necessary user fee increases in Figure 3 were calculated using the most recent Highway Trust Fund projections by the U.S. Department of Treasury and the Congressional Budget Office. When TEA–21 is reauthorized, new calculations, based on the then current data, may indicate user fee increases slightly higher or lower than those in Figure 3.

Under a "Revenue RABA Provision," if revenues into the HTF during any given fiscal year were to fall short of outlays, then the following year the statutory motor fuels excise user fee rate would be automatically allowed (or certified) to increase by the amount required to offset the deficit and make the trust fund whole. This would eliminate the political problems and program disruptions that have occurred with the fiscal year 2003 transportation appropriation caused by the current RABA construct.

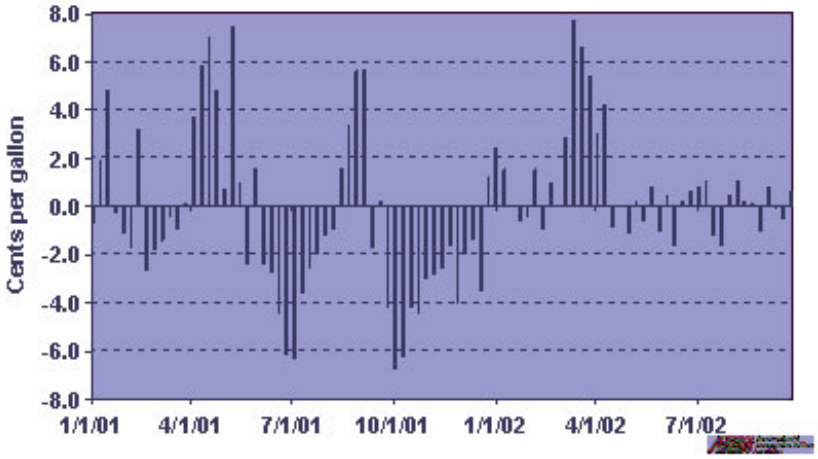
Conversely, if revenues to the HTF were to exceed required outlays during a fiscal year, then the following year the motor fuels excise user fee rate would be automatically decreased by the amount needed to offset the resulting surplus.

This "Revenue RABA Provision" would ensure that the highway and mass transit program does not contribute to the Federal deficit during the next 6 years.

Looking Rationally at the Impact of an Annual Two Cent User Fee Adjustment: The Real World Gas Price Experience

During the past year and a half, the retail price of gasoline has fluctuated by an average 2.5 cents per gallon per week! (See Figure 4). In 14 of the weeks, the average national retail price of gasoline either increased or decreased by 5 cents per gallon or more. In 39 of the 75 weeks shown in Figure 4-or more than half the time-the average retail price nationally fluctuated at least 2 cents per gallon from 1 week to the next.

Fig. 4 - Weekly Change in Retail Price of Gasoline, January 2001 - September 2002



What this means, of course, is motorists are used to paying each week the level of annual adjustment in the Federal motor fuels excise user fee rate proposed by ARTBA to support a $60 billion Federal highway and $14 billion Federal transit program by fiscal year 2009!

ARTBA commissioned Zogby International to conduct a national survey of likely voters July 9–12, 2002, which found almost 70 percent would support an annual 2 cent per gallon increase in the Federal motor fuels tax rate if the money it generated was used exclusively for transportation improvements. A 2-cent gas tax increase would cost the average driver $12 per year, or 6 cents per day. That compares to the estimated $259 each motorist pays per year in extra vehicle repair and operating costs driving on poor roads.

Tables 2 and 3, found at the end of this testimony, provide an analysis of how our "Two Cents Makes Sense" proposal would benefit individual State highway programs, based on both the existing apportionment formulas and in response to proposals to increase minimum State returns to 95 percent.

Maintenance of Effort Provision to Ensure Program Growth in Every State

A key component of financing highway, bridge and mass transit improvements is the partnership between Federal, State and local governments to develop and maintain the nation's surface transportation network. It is critical for all partners to make an appropriate commitment to transportation investment. Unfortunately, a number of States let their own funds for highway and bridge investment lag upon realizing the increased Federal funds they would receive under TEA–21.

To ensure increased Federal surface transportation investment actually results in more funds for transportation improvement projects, ARTBA believes the reauthorization of TEA–21 should include a "maintenance of effort" provision that makes increased apportioned Federal funds contingent on individual State highway and transit program investment levels consistent with, at least, their prior year investment.

Mr. Chairman, thank you again for the opportunity to testify before the subcommittee on this important subject.

I would be happy to respond to questions.

Table 2 - Projected Apportionment of Federal Highway Funds Among the States with a Minimum 90.5 Percent Share under the ARTBA "Two Cents Makes Sense" Proposal

State	FY 2003 apportionment	Apportionment with minimum 90.5% share FY 2004 apportionment	FY 2005 apportionment	FY 2006 apportionment	FY 2007 apportionment	FY 2008 apportionment	FY 2009 apportionment	Percent increase FY 2003 - 9
Alabama	515,376,243	624,158,080	713,323,520	802,488,960	891,654,400	980,819,840	1,069,985,280	107.6%
Alaska	302,964,480	366,912,000	419,328,000	471,744,000	524,160,000	576,576,000	628,992,000	107.6%
Arizona	450,251,827	545,287,680	623,185,920	701,084,160	778,982,400	856,880,640	934,778,880	107.6%
Arkansas	335,979,840	406,896,000	465,024,000	523,152,000	581,280,000	639,408,000	697,536,000	107.6%
California	2,338,238,426	2,831,776,640	3,236,316,160	3,640,855,680	4,045,395,200	4,449,934,720	4,854,474,240	107.6%
Colorado	327,227,533	396,296,320	452,910,080	509,523,840	566,137,600	622,751,360	679,365,120	107.6%
Connecticut	386,111,398	467,608,960	534,410,240	601,211,520	668,012,800	734,814,080	801,615,360	107.6%
Delaware	112,485,274	136,227,840	155,688,960	175,150,080	194,611,200	214,072,320	233,533,440	107.6%
Dist. of Col.	100,573,850	121,802,240	139,202,560	156,602,880	174,003,200	191,403,520	208,803,840	107.6%
Florida	1,200,127,757	1,453,441,920	1,661,076,480	1,868,711,040	2,076,345,600	2,283,980,160	2,491,614,720	107.6%
Georgia	918,577,946	1,112,464,640	1,271,388,160	1,430,311,680	1,589,235,200	1,748,158,720	1,907,082,240	107.6%
Hawaii	131,621,235	159,402,880	182,174,720	204,946,560	227,718,400	250,490,240	273,262,080	107.6%
Idaho	196,227,763	237,646,080	271,595,520	305,544,960	339,494,400	373,443,840	407,393,280	107.6%
Illinois	869,901,235	1,041,402,880	1,190,174,720	1,338,946,560	1,487,718,400	1,636,490,240	1,785,262,080	107.6%
Indiana	599,766,093	726,360,320	830,126,080	933,891,840	1,037,657,600	1,141,423,360	1,245,189,120	107.6%
Iowa	305,631,603	370,142,080	423,019,520	475,896,960	528,774,400	581,651,840	634,529,280	107.6%
Kansas	297,915,072	360,796,800	412,339,200	463,881,600	515,424,000	566,966,400	618,508,800	107.6%
Kentucky	445,590,835	539,642,880	616,734,720	693,826,560	770,918,400	848,010,240	925,102,080	107.6%
Louisiana	407,526,057	493,543,680	564,049,920	634,556,160	705,062,400	775,568,640	846,074,880	107.6%
Maine	133,822,259	162,068,480	185,221,120	208,373,760	231,526,400	254,679,040	277,831,680	107.6%
Maryland	418,479,398	506,808,960	579,210,240	651,611,520	724,012,800	796,414,080	868,815,360	107.6%
Massachusetts	473,893,414	573,919,360	655,907,840	737,896,320	819,884,800	901,873,280	983,861,760	107.6%
Michigan	829,527,104	1,004,617,600	1,148,134,400	1,291,651,200	1,435,168,000	1,578,684,800	1,722,201,600	107.6%
Minnesota	381,217,357	461,681,920	527,636,480	593,591,040	659,545,600	725,500,160	791,454,720	107.6%
Mississippi	331,034,010	400,906,240	458,178,560	515,450,880	572,723,200	629,995,520	687,267,840	107.6%
Missouri	600,439,347	727,175,680	831,057,920	934,940,160	1,038,822,400	1,142,704,640	1,246,586,880	107.6%
Montana	252,444,506	305,728,640	349,404,160	393,079,680	436,755,200	480,430,720	524,106,240	107.6%
Nebraska	197,522,483	239,214,080	273,387,520	307,560,960	341,734,400	375,907,840	410,081,280	107.6%
Nevada	184,290,445	223,189,120	255,073,280	286,957,440	318,841,600	350,725,760	382,609,920	107.6%
New Hampshire	131,284,608	158,995,200	181,708,800	204,422,400	227,136,000	249,849,600	272,563,200	107.6%
New Jersey	668,023,731	809,025,280	924,600,320	1,040,175,360	1,155,750,400	1,271,325,440	1,386,900,480	107.6%
New Mexico	251,305,152	304,348,800	347,827,200	391,305,600	434,784,000	478,262,400	521,740,800	107.6%
New York	1,312,716,608	1,589,795,200	1,816,908,800	2,044,022,400	2,271,136,000	2,498,249,600	2,725,363,200	107.6%
North Carolina	719,501,798	871,368,960	995,850,240	1,120,331,520	1,244,812,800	1,369,294,080	1,493,775,360	107.6%
North Dakota	166,530,464	201,701,600	230,630,400	259,459,200	288,288,000	317,116,800	345,945,600	107.6%
Ohio	894,237,210	1,082,986,240	1,237,698,560	1,392,410,880	1,547,123,200	1,701,835,520	1,856,547,840	107.6%
Oklahoma	392,041,216	474,790,400	542,617,600	610,444,800	678,272,000	746,099,200	813,926,400	107.6%
Oregon	309,774,707	375,159,680	428,753,920	482,348,160	535,942,400	589,536,640	643,130,880	107.6%
Pennsylvania	1,268,437,184	1,536,169,600	1,755,622,400	1,975,075,200	2,194,528,000	2,413,980,800	2,633,433,600	107.6%
Rhode Island	151,482,240	183,456,000	209,664,000	235,872,000	262,080,000	288,288,000	314,496,000	107.6%
South Carolina	428,086,221	518,443,520	592,506,880	666,570,240	740,633,600	814,696,960	888,760,320	107.6%
South Dakota	181,778,688	220,147,200	251,596,800	283,046,400	314,496,000	345,945,600	377,395,200	107.6%
Tennessee	586,741,210	710,586,240	812,098,560	913,610,880	1,015,123,200	1,116,635,520	1,218,147,840	107.6%
Texas	1,987,084,467	2,406,503,680	2,750,289,920	3,094,076,160	3,437,862,400	3,781,648,640	4,125,434,880	107.6%
Utah	199,102,042	241,127,040	275,573,760	310,020,480	344,467,200	378,913,920	413,360,640	107.6%
Vermont	116,265,856	140,806,400	160,921,600	181,036,800	201,152,000	221,267,200	241,382,400	107.6%
Virginia	669,706,867	811,063,680	926,929,920	1,042,796,160	1,158,662,400	1,274,528,640	1,390,394,880	107.6%
Washington	454,498,509	550,430,720	629,063,680	707,696,640	786,329,600	864,962,560	943,595,520	107.6%
West Virginia	287,790,362	348,535,040	398,325,760	448,116,480	497,907,200	547,697,920	597,488,640	107.6%
Wisconsin	505,390,886	613,276,160	700,887,040	788,497,920	876,108,800	963,719,680	1,051,330,560	107.6%
Wyoming	176,729,280	214,032,000	244,608,000	275,184,000	305,760,000	336,336,000	366,912,000	107.6%
Subtotal	25,894,400,000	31,360,000,000	35,840,000,000	40,320,000,000	44,800,000,000	49,280,000,000	53,760,000,000	107.6%
Discretionary and administration	3,005,600,000	3,640,000,000	4,160,000,000	4,680,000,000	5,200,000,000	5,720,000,000	6,240,000,000	107.6%
Total	28,900,000,000	35,000,000,000	40,000,000,000	45,000,000,000	50,000,000,000	55,000,000,000	60,000,000,000	107.6%

Source: ARTBA analysis of FHWA data



Table 3 - Projected Apportionment of Federal Highway Funds Among the States with a Minimum 95 Percent Share under the ARTBA "Two Cents Makes Sense" Proposal

State	FY 2003 apportionment	Apportionment with minimum 95% share FY 2004 apportionment	FY 2005 apportionment	FY 2006 apportionment	FY 2007 apportionment	FY 2008 apportionment	FY 2009 apportionment	Percent increase FY 2003 - 9
Alabama	$515,376,243	627,277,967	716,889,105	806,500,243	896,111,381	985,722,519	1,075,333,657	108.7%
Alaska	302,964,480	327,405,729	374,177,976	420,950,223	467,722,470	514,494,717	561,266,964	85.3%
Arizona	450,251,827	572,401,432	654,173,065	735,944,698	817,716,331	899,487,965	981,259,598	117.9%
Arkansas	335,979,840	407,969,344	466,250,678	524,532,013	582,813,348	641,094,683	699,376,018	108.2%
California	2,338,238,426	2,970,377,618	3,394,717,277	3,819,056,937	4,243,396,597	4,667,736,256	5,092,075,916	117.8%
Colorado	327,227,533	416,001,662	475,430,471	534,859,280	594,288,088	653,716,897	713,145,706	117.9%
Connecticut	386,111,398	417,260,413	476,869,043	536,477,673	596,086,304	655,694,934	715,303,565	85.3%
Delaware	112,485,274	121,559,871	138,925,567	156,291,262	173,656,958	191,022,654	208,388,350	85.3%
Dist. of Col.	100,573,850	108,687,509	124,214,296	139,741,083	155,267,870	170,794,657	186,321,444	85.3%
Florida	1,200,127,757	1,525,712,513	1,743,671,443	1,961,630,373	2,179,589,304	2,397,548,234	2,615,507,165	117.9%
Georgia	918,577,946	1,167,780,561	1,334,606,356	1,501,432,150	1,668,257,945	1,835,083,739	2,001,909,534	117.9%
Hawaii	131,621,235	142,239,600	162,559,543	182,879,486	203,199,429	223,519,372	243,839,315	85.3%
Idaho	196,227,763	212,058,172	242,352,197	272,646,222	302,940,246	333,234,271	363,528,295	85.3%
Illinois	869,901,235	1,034,457,246	1,182,236,853	1,330,016,460	1,477,796,066	1,625,575,673	1,773,355,280	106.2%
Indiana	599,766,093	753,359,028	860,981,746	968,604,464	1,076,227,182	1,183,849,901	1,291,472,619	115.3%
Iowa	305,631,603	346,805,215	396,348,818	445,892,420	495,436,022	544,979,624	594,523,227	94.5%
Kansas	297,915,072	340,451,783	389,087,752	437,723,722	486,359,691	534,995,660	583,631,629	95.9%
Kentucky	445,590,835	566,475,951	647,401,087	728,326,223	809,251,359	890,176,495	971,101,631	117.9%
Louisiana	407,526,067	518,084,526	592,096,601	666,108,676	740,120,751	814,132,827	888,144,902	117.9%
Maine	133,822,259	159,823,381	182,655,293	205,487,204	228,319,116	251,151,028	273,982,939	104.7%
Maryland	418,479,398	532,009,406	608,010,749	684,012,093	760,013,436	836,014,780	912,016,124	117.9%
Massachusetts	473,893,414	535,696,371	612,224,424	688,752,477	765,280,530	841,808,583	918,336,636	93.8%
Michigan	829,527,104	1,054,570,961	1,205,223,956	1,355,876,950	1,506,529,945	1,657,182,939	1,807,835,934	117.9%
Minnesota	381,217,357	411,971,561	470,824,630	529,677,708	588,530,787	647,383,866	706,236,944	85.3%
Mississippi	331,034,010	420,840,804	480,960,919	541,081,034	601,201,149	661,321,264	721,441,379	117.9%
Missouri	600,439,347	740,454,648	846,233,883	952,013,118	1,057,792,354	1,163,571,589	1,269,350,824	111.4%
Montana	252,444,506	272,810,124	311,782,999	350,755,874	389,728,749	428,701,624	467,674,499	85.3%
Nebraska	197,522,483	236,755,872	270,578,139	304,400,407	338,222,674	372,044,941	405,867,209	105.5%
Nevada	184,290,445	211,506,740	241,721,989	271,937,238	302,152,486	332,367,735	362,582,983	96.7%
New Hampshire	131,284,608	141,875,816	162,143,790	182,411,763	202,679,737	222,947,711	243,215,685	85.3%
New Jersey	668,023,731	849,253,056	970,574,922	1,091,896,787	1,213,218,652	1,334,540,517	1,455,862,382	117.9%
New Mexico	251,305,152	271,578,855	310,375,834	349,172,813	387,969,793	426,766,772	465,563,751	85.3%
New York	1,312,716,608	1,418,618,243	1,621,277,992	1,823,937,741	2,026,597,490	2,229,257,239	2,431,916,988	85.3%
North Carolina	719,501,798	901,825,238	1,030,657,414	1,159,489,591	1,288,321,768	1,417,153,945	1,545,986,122	114.9%
North Dakota	166,530,464	180,073,151	205,797,887	231,522,623	257,247,359	282,972,095	308,696,830	85.3%
Ohio	894,237,210	1,136,836,385	1,299,241,582	1,461,646,780	1,624,051,978	1,786,457,176	1,948,862,373	117.9%
Oklahoma	392,041,216	491,814,896	562,074,166	632,333,436	702,592,707	772,851,978	843,111,249	115.1%
Oregon	309,774,707	374,753,733	428,289,980	481,826,228	535,362,475	588,898,723	642,434,970	107.4%
Pennsylvania	1,268,437,184	1,370,766,636	1,566,590,442	1,762,414,247	1,958,238,052	2,154,061,857	2,349,885,662	85.3%
Rhode Island	151,482,240	163,702,865	187,088,988	210,475,112	233,861,235	257,247,359	280,633,482	85.3%
South Carolina	428,086,221	544,222,480	621,968,548	699,714,617	777,460,685	855,206,754	932,952,822	117.9%
South Dakota	181,778,688	196,443,438	224,506,786	252,570,134	280,633,482	308,696,830	336,760,179	85.3%
Tennessee	586,741,210	745,919,257	852,479,151	959,039,045	1,065,598,939	1,172,158,833	1,278,718,727	117.9%
Texas	1,987,084,467	2,526,164,084	2,887,044,667	3,247,925,251	3,608,805,834	3,969,686,418	4,330,567,001	117.9%
Utah	199,102,042	245,150,303	280,171,775	315,193,246	350,214,718	385,236,190	420,257,662	111.1%
Vermont	116,265,856	125,645,447	143,594,796	161,544,146	179,493,495	197,442,845	215,392,194	85.3%
Virginia	669,706,867	851,392,813	973,020,358	1,094,647,903	1,216,275,448	1,337,902,992	1,459,530,537	117.9%
Washington	454,498,509	577,635,607	660,154,979	742,674,351	825,193,724	907,713,096	990,232,469	117.9%
West Virginia	287,790,362	311,007,459	355,437,096	399,866,733	444,296,371	488,726,008	533,155,645	85.3%
Wisconsin	505,390,886	591,527,567	676,031,505	760,535,443	845,039,381	929,543,319	1,014,047,257	100.2%
Wyoming	176,729,280	190,986,675	218,270,486	245,554,297	272,838,108	300,121,918	327,405,729	85.3%
Subtotal	25,894,400,000	31,360,000,000	35,840,000,000	40,320,000,000	44,800,000,000	49,280,000,000	53,760,000,000	107.6%
Discretionary and administration	3,005,600,000	3,640,000,000	4,160,000,000	4,680,000,000	5,200,000,000	5,720,000,000	6,240,000,000	107.6%
Total	28,900,000,000	35,000,000,000	40,000,000,000	45,000,000,000	50,000,000,000	55,000,000,000	60,000,000,000	107.6%

Source: ARTBA analysis of FHWA data

RESPONSES OF WILLIAM BUECHNER QUESTIONS FROM SENATOR VOINOVICH

Question 1. What level of funding could the Highway Trust Fund support over the life of the next highway bill if the Federal gas tax is not increased?

Response. The first line of the attached table shows the latest official estimate of revenues into the Highway Account of the Highway Trust Fund from the Congressional Budget Office and the U.S. Department of the Treasury. It shows that Highway Account revenues will grow by about $1 billion annually, from just over $30 billion in fiscal year 2004 to just under $35 billion by fiscal year 2009. Under TEA–21, Congress established an arrangement where the funding level for the highway program each fiscal year is to be set equal to Highway Account revenues the previous fiscal year. If that arrangement were carried into the next authorization legislation, funding for the highway program would grow to about $33.8 billion in fiscal year 2009, or about $2 billion above the fiscal year 2002 level. Just to maintain fis-

cal year 2002 purchasing power would require program growth to $37.5 billion by fiscal year 2009, assuming inflation matches the 2.4 percent annual increase projected by the President's Council of Economic Advisers. Failure to reach at least this funding level would result in a significant cut in the actual amount of highway construction and repair work that could be performed.

It is also important to note that the Federal motor fuels excise tax is, in fact, a user fee which ensures that the Federal investment in highways is funded solely by highway users. We agree with President Ronald Reagan, who said November 27, 1982 in his weekly radio address to the Nation that "good tax policy decrees that wherever possible a fee for a service should be assessed against those who directly benefit from the service. Our highways were built largely with such a user fee—the gasoline tax. I think it makes sense to follow that principle in restoring them to the condition we all want them to be in."

Question 2. Financing for the Highway Trust Fund is derived from a variety of Federal highway user taxes, including excise taxes on motor fuels (gasoline, gasohol, diesel, and special fuels) and truck-related taxes on truck tires, sales of trucks, and the use of heavy vehicles. Besides increasing the Federal gas tax by 2 cents per gallon, do you recommend any increases to any of the other Federal highway user fees?

Response. ARTBA's "Two Cents Makes Sense" proposal is a program that would increase Federal investment in highway improvements from $35 billion in fiscal year 2004 to $60 billion in fiscal year 2009 through an increase in the Federal motor fuels tax of just over 2 cents per gallon per year, if Congress does not provide for any other new revenue sources. The above table shows the potential revenue impact of some new revenue sources that have been identified. If Congress were to enact any of these, the required motor fuels tax increase would be smaller than 2 cents per year. ARTBA supports the options listed in the table. Increasing the truck use taxes would also be an option, but ARTBA has not examined the potential revenue effect. ARTBA supports the current policy of financing Federal highway investment through fees levied on highway users, including the truck use taxes. As the table makes clear, however, it will be impossible to increase funding for highway investment during the next 6 years without additional revenues. ARTBA's "Two Cents Makes Sense" proposal would fund the Federal highway program at a level that would meet the nation's highway investment needs during the next 6 years at the lowest cost to America's highway users, and we hope Congress will seriously consider it.

RESPONSES WILLIAM BUECHNER TO ADDITIONAL QUESTIONS FROM SENATOR REID

Questions 1. Both your organization and the American Society of Civil Engineers propose raising the Federal gas tax to provide additional infrastructure investment. This hearing has made it clear that additional funding is necessary to improve the conditions and performance of our transportation system. As an economist can you elaborate on the economic benefits of increasing the level of investment in our highway, transit and rail infrastructures?

Response. There are a number of ways increased investment in transportation infrastructure would benefit the American economy.

Jobs.—According to the Federal Highway Administration, each $1 billion of Federal investment in highways supports approximately 47,500 jobs throughout the U.S. economy. This includes onsite construction jobs, jobs in firms that provide products and services to highway contractors, jobs in Federal, State and local DOTs, and jobs induced in other parts of the economy as the resulting wage and salary income is spent for household goods and services. ARTBA has calculated that transportation construction annually supports more than 2.5 million jobs in the construction and supplier industries, and probably well over 4 million jobs when all of the induced jobs in other sectors of the economy are included. An increase in Federal investment in highway, transit and rail infrastructure would generate new jobs and help strengthen the recovery from the recent economic downturn. Standard and Poor's economists calculate that investment in infrastructure and defense procurement are the most stimulative forms of fiscal policy, including tax cuts.

Productivity.—The level of mobility provided by the U.S. transportation system to individuals and freight movements has a significant impact on the productivity and growth of the U.S. economy. Today, the nation's highways are its warehouse. During the 1980's and 1990's, the adoption of just-in-time delivery by manufacturing firms allowed billions of dollars of financial resources that had been tied up in inventories to be invested in more productive uses, which contributed to the strong growth of the economy during those decades. Growing congestion in the U.S., both urban and rural, however, impedes the use of just-in-time delivery. If firms are forced to protect their production schedules by warehousing inputs and products, this process

would be reversed, which would negatively affect productivity. Many service-producing industries also depend on mobility to get employees where they are needed. Time spent maneuvering employees through and around congestion is diverted from more productive uses and economic growth.

Congestion costs.—Congestion also costs households billions of dollars in wasted time and motor fuel, and impairs the quality of life. The annual report on Congestion in America by the Texas Transportation Institute documents the growing cost of congestion to American households. If the Federal highway program is funded at a level that fails to address congestion, the problem will continue to worsen during the next 6 years and the costs will continue to grow.

International competitiveness.—Improving the nation's transportation infrastructure and reducing transportation costs is critical to maintaining the nation's competitiveness in world markets. Other nations are well aware of this and have made significant improvements to their transportation systems to give their industries an edge. With the U.S. trade deficit growing each year, transportation investment becomes increasingly important to U.S. competitiveness, including investment in freight rail, water ports and intermodal connectors.

Federal budget.—As pointed out earlier, each $1 billion of Federal investment in highways supports approximately 47,500 jobs. The average wage of highway construction workers is $812 per week, according to the Bureau of Labor Statistics, or about $42,000 per year. Workers in supplier industries, such as aggregates mining, asphalt and concrete production and equipment manufacturing, earn even more per year. Thus each $1 billion of Federal highway investment supports almost $2 billion of family earnings, and probably much more. According to the Fiscal Year 2002 Budget of the President of the United States, the marginal tax rate on earnings is about 27 percent, include both the personal income tax and both halves of the social security tax. This means $1 billion of Federal highway investment generates about $540 million of Federal income and social security tax receipts. The net budget cost of each $1 billion of Federal highway program funding is thus less than $500 million.

Public health.—Each year, there are more than 42,000 highway traffic fatalities. According to the National Highway Traffic Safety Administration, more than 15,000 of these fatalities involve poor road conditions or out-of-date highway alignments. In addition, more than 3,000,000 people are injured each year in highway crashes. The annual cost of motor vehicle crashes is over $230 billion, including lost workplace and household productivity, medical costs and property damage. Many of the fatalities and costs could be avoided by improvements in highway infrastructure, such as improving shoulders, widening and straightening lanes, installing median barriers and guard rails, and installing traffic signs and signals. Increasing Federal highway investment would be a proven way to save American lives.

STATEMENT OF WILLIAM D. ANKNER, PH.D., DIRECTOR, RHODE ISLAND DEPARTMENT OF TRANSPORTATION

Thank you for the opportunity to submit this statement on an issue that has very serious implications for the quality of our highway infrastructure, and which I understand has already been discussed in previous hearings before this committee. I speak of the issue of truck size and weight and of the disproportionate amount of pavement and bridge damage caused by heavy trucks—and more specifically, of the huge increases in infrastructure damage we would experience if current truck size and weight limits are relaxed, as some are advocating.

Since 1996 I have had the honor of serving as Director of the Rhode Island Department of Transportation. I am also a past president of the Northeast Association of State Transportation Officials, a past member of the Executive Committee of the American Association of State Highway and Transportation Officials (AASHTO), and a member of the Transportation Research Board (TRB) Executive Committee.

I understand the compelling pressures at issue in the debate over truck sizes and weights, with some arguing forcefully that rapidly growing demand for freight transport necessitates legislation to permit the operation of longer and heavier trucks on our Interstate Highways.

While I appreciate the economic arguments for larger and heavier trucks, I could not disagree more strongly with the conclusion. While the advocates of lifting the current restrictions can cite studies, including a recent TRB report, which appear to support their arguments in favor of increased truck sizes and weights, other more authoritative studies and reports—and my own long experience—convince me that if anything, Congress should strengthen the existing limits.

The trucking industry has been masterful in shaping this issue. The incremental increases have been just enough for them to argue that their impact on safety and the infrastructure is similar to current conditions. The problem is that the total culmination of the increases poses a serious threat to safety and the infrastructure, particularly the aging and design-deficient infrastructure in the Northeast and Middle Atlantic States. Congress needs to examine this issue not solely on the basis of what these impacts are compared to current conditions, but where we have come from and where we want to go. In my judgment, the size and weight where we have come from has exceeded the structural and operational capacity of the highway system in Rhode Island. Similarly, I believe that longer and heavier trucks should not be our future in the Northeast.

There are three central reasons for maintaining or strengthening current Federal limits on truck size and weight: bigger trucks would cause massive increases in infrastructure damage, particularly to bridges; they do not fully pay for the damage they cause; and they would make our highways more dangerous both for motorists and for truck drivers.

Heavy trucks are already responsible for a disproportionate amount of pavement damage: at the current Federal limit of 80,000-pounds, a five-axle truck does as much damage as 9,600 cars. Adding weight to the same truck will sharply increase pavement damage: at 100,000 pounds the truck will do as much damage as 27,000 cars. (Calculations are based on AASHTO's Road Test.) Bigger trucks will also cause a massive increase in bridge costs. According to the 2000 US Department of Transportation Comprehensive Truck Size and Weight Study (US DOT Study), national operations of longer combination vehicles—long double and triple trailer trucks—would cost the country $319 billion ($53 billion in capital costs and $266 billion in user delay costs). (US DOT Study, August 2000, Vol. III, p. VI–12.)

Even without building new highways, the US will need to spend $1.132 trillion per year simply to maintain the condition of the current bridge and highway system. (US DOT, 1999 Status Report on the Nation's Highways, Bridges, and Transit, Exhibit 7–1, p. 7–5.) The infrastructure damage and new costs that would result from a weakening of current truck size and weight limits would add considerably to this already staggering figure.

In Rhode Island, 60 percent of our bridges are already structurally deficient or functionally obsolete. For fiscal year 2003, we are faced with $110 million of bridge and highway restoration that we are unable to undertake. Most of my counterparts in other States are also suffering from a lack of funding to cover necessary road and bridge repairs.

Moreover, bigger trucks substantially underpay their share of highway costs, according to the Federal Highway Cost Allocation Study. For example, a five-axle truck registered at 80,000 pounds pays only 80 percent of its highway costs. Long double trailer trucks and triples pay 70 percent. Heavier trucks pay even less of their costs. For example, one 100,000-pound five-axle truck pays 40 percent of its costs. (2000 Addendum to the Federal Highway Cost Allocation Study, unpublished Table 3.)

In addition to these issues of infrastructure damage and cost underpayment, bigger trucks will be less safe.

In the Comprehensive Truck Size and Weight Study, USDOT compared the safety of multi-trailer trucks to single trailer trucks. It found that multi-trailer trucks "could be expected to experience an 11 percent higher overall fatal crash rate than single-trailer combinations." (p. VIII–5.) Heavier single trailer trucks will also be more dangerous. According to the University of Michigan Transportation Research Institute, there is a strong statistical link between higher weights and a greater risk of fatalities. (US DOT Study, Phase 1, Working Paper 1 & 2, 1995, p. 37.) One reason is that heavier singles will tend to have a higher center of gravity, making them more likely to roll over. (US DOT Study, p. VIII–8.)

For all of these reasons, I believe it is imperative that Congress retain jurisdiction over truck size and weight on the Federal System. Proponents of bigger trucks have asked for a "State option" plan whereby the States would be able to set their own truck size and weight limits on the most important part of the Federal system: the Interstate Highways. But any law regarding the national transportation system should have national oversight.

This State option ploy by the industry has been tried before. The trucking industry is only interested in a "State option" so that it can then come back and show how harmful States that have not increased size and weight are to the economy and interstate commerce, and unfair to the trucking industry that has invested 100's of millions of dollars in new equipment that they cannot optimally use. The industry will then call upon Congress to use the Interstate Commerce Clause to correct the

inequities and allow the bigger trucks. They did with doubles. They are trying to do it again.

Congress should reject any proposals to increase truck size and weight. But Congress should also take it one step further. There are loopholes in the current law that allow trucks to get longer and heavier, and weights on the National Highway System (NHS) are being ratcheted up. The Safe Highways and Infrastructure Preservation Act, H.R. 3132, which has been introduced in the House of Representatives, would put a stop to these backdoor increases. The bill would freeze truck size and weight limits on the National Highway System and close loopholes in the law that allow longer and heavier trucks. The Senate should consider a similar measure.

In Rhode Island as elsewhere in the Nation, highway users have grown all too accustomed to the delays and hazards that have become commonplace on our aging highway system. As the committee prepares to reauthorize the Transportation Equity Act for the 21st Century and to reinvest in maintaining and improving the highway infrastructure, I hope you will also maintain or strengthen the current, common sense limitations on truck size and weight.

1. Cambridge Systematics, Freight Impacts on Ohio's Roadway System, 2002, ES 4.

43 Council of Economic Advisors, the President's "FY 2003 Budget of the U.S. Government."

