ENERGY REDUCTION AND ENVIRONMENTAL SUSTAINABILITY IN SURFACE TRANSPORTATION

(111–3)

HEARING

BEFORE THE

SUBCOMMITTEE ON
HIGHWAYS AND TRANSIT

OF THE

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TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

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CONTENTS

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May 8, 2009

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SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Aviation

FROM: Subcommittee on Aviation Staff

SUBJECT: Hearing on "The Economic Viability of the Civil Reserve Air Fleet Program"

PURPOSE OF HEARING

The Subcommittee on Aviation will meet at 10:00 a.m. on Wednesday, May 13, 2009, in Room 2167 Rayburn House Office Building to receive testimony on the Economic Viability of the Civil Reserve Air Fleet Program.

BACKGROUND

The Civil Reserve Air Fleet (CRAF) is a voluntary program through which the nation's passenger and cargo airlines provide stand-by commitments to support the mobilization of troops and equipment in the event of a major military contingency. The CRAF program was established in 1951 by President Truman to augment the Department of Defense's (DOD) fleet of military transport aircraft during times of high demand for airlift services.

In 1987, President Reagan issued the National Airlift Policy, which declared that military and commercial resources are "equally important" and "interdependent" in meeting wartime airlift requirements:

> The commercial air carrier industry will be relied upon to provide the airlift capability required beyond that available in the organic military airlift fleet. It is therefore the policy of the United States to recognize the interdependence of military and civilian airlift capabilities in meeting wartime airlift requirements, and to protect those national security interests contained within the commercial air carrier industry.[1]

[1] National Airlift Policy, National Security Decision Directive 280 (June 24, 1987).

According to the U.S. Transportation Command (USTRANSCOM), during a period of national mobilization (i.e., if the military had to fight more than one major theater war at the same time or operate in a larger crisis), CRAF would meet approximately 93 percent of DOD's passenger and approximately 37 percent of DOD's cargo requirements.

CRAF is also an extremely cost effective program. A 1994 RAND study stated that, at that time, replacing the CRAF capability with military aircraft would have cost DOD about $1 billion to $3 billion annually over the past thirty years.[2] This equates to a $30 billion to $90 billion cost avoidance reported in 1994 dollars. USTRANSCOM, using Office of Management and Budget cost-of-living figures, estimates the cumulative total in 2009 dollars to be in the range of $43 billion to $128 billion in cost avoidance.

Under the CRAF business model, U.S. commercial air carriers contractually commit aircraft and air crews to be activated for use by DOD, at predetermined rates, during times of crisis. In exchange for that commitment, DOD makes "CRAF peacetime business"[3] available to carriers that participate in the program. Carriers are entitled to peacetime business in proportion to the mobilization capacity that they have committed to the program. Most peacetime CRAF missions are flown by charter airlines that share revenue with large scheduled airlines and integrated cargo carriers (e.g., Federal Express (FedEx) and United Parcel Service (UPS)), which have the greatest entitlement to CRAF business because of their committed capacity (these arrangements are known as "teaming arrangements," which are explained further below).

CRAF has been formally activated only twice: the first instance occurred for Operations Desert Shield/Storm from August 18, 1990, through May 24, 1991; the second activation, during Operation Iraqi Freedom, lasted from February 8, 2003, through June 18, 2003.[4] However, since September 11, 2001, the annual business tendered to CRAF carriers has been more than four times the average annual CRAF business prior to September 11. As required by section 356 of the Fiscal Year (FY) 2008 National Defense Authorization Act (P.L. 110-181), the Institute for Defense Analyses (IDA) published a report on CRAF last August, in which it stated:

> Projected CRAF mobilization commitments from the large scheduled carriers will meet planning targets in DOD warplans. Both cargo and passenger charter airlines will provide capacity sufficient to meet DOD's ongoing requirements in support of OIF, OEF, and other routine operations. However, given the long-term downward trend in the commercial passenger charter business [as well as a projected decrease in military business], action will likely be needed to ensure sufficient DOD access to passenger airlift capacity to meet unexpected surges in military requirements without requiring activation of CRAF.[5]

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[2] RAND, Finding the Right Mix of Military and Civil Airlift, Issues and Implications Volume 1. 21 (1994).
[3] The term "CRAF peacetime business" generally refers to DOD charter cargo and passenger airlift contracts required to meet DOD's airlift needs outside of formal CRAF activation. So while the U.S. is currently engaged in armed conflict in both Iraq and Afghanistan, airlift contracts in support these operations (and elsewhere) are still often referred to as "peacetime business."
[4] William Knight and Christopher Bolkcom, CRS Report for Congress: Civil Reserve Air Fleet (CRAF) 3 (2008).
[5] The Institute for Defense Analyses, Civil Reserve Air Fleet: Economics and Strategy ES 1(2008).

A July 2008 report by the Council for Logistics Research (CLR)[6] and an October 2007 Congressional Budget Office (CBO)[7] report also both expressed concerns that an anticipated decrease in DOD commercial airlift requirements, due to the winding down of Middle East operations, could adversely impact CRAF carriers. Passenger charter carriers in particular, which have experienced a shrinking civilian commercial market and which provide over 90 percent of DOD's peacetime passenger airlift (in FY 2008, six passenger charter airlines provided 93 percent of DOD's passenger airlift, three of which provided 77 percent), would be particularly vulnerable.[8]

Should the passenger charter industry continue to decline, or even disappear, the immediate effect would be airlift shortfalls and delays within the DOD transportation system. This concern was heightened last April when ATA Airlines (ATA), which at the time provided approximately 10 percent of DOD's passenger airlift, declared bankruptcy and abruptly ceased operations resulting in temporary service delays of two to six days. In the longer-term, as IDA suggests, DOD may become more reliant on CRAF activations to meet passenger airlift requirements. In turn, more frequent CRAF activations could potentially have a disruptive affect on scheduled airlines and adversely impact long-term CRAF participation.

IDA put forward a series of recommendations as part of an overall "assured supply model," the thrust of which is to improve CRAF incentives and business practices to assure the industry's long-term commitment to DOD's peacetime, surge and mobilization requirements. Section 1033 of the FY 2009 National Defense Authorization Act (FY 2009 NDAA) (P.L. 110-417) provides USTRANSCOM with "assured business" authority to further incentivize the CRAF program by enabling USTRANSCOM to increase the amount of guaranteed business it offers CRAF carriers each year. In addition, the FY 2009 NDAA requires the Secretary of Defense to incentivize CRAF carriers to use newer, more efficient aircraft and to improve the predictability of DOD charter requirements. USTRANSCOM is reviewing and taking action to respond to both IDA's recommendations and the requirements of the FY 2009 NDAA.

I. The Structure of the CRAF Program

Thirty-four carriers (1,083 aircraft) participate in the CRAF program. All CRAF participants must be U.S. carriers fully certified by the Federal Aviation Administration (FAA), and meet the standards of the Federal Aviation Regulations pertaining to commercial airlines found in 14 Code of Federal Regulations (C.F.R.) part 121. Moreover, all carriers must demonstrate that they have provided substantially equivalent and comparable commercial service for one year before submitting their offer to fly for the DOD.

In addition to maintaining certification as a part 121 air carrier, CRAF participants must also undergo a comprehensive onsite technical evaluation that assesses an air carrier's ability meet all DOD Quality and Safety requirements, as outlined in title 32 C.F.R. part 861. After it is determined an air carrier meets all requirements, the carrier is approved by the Commercial Airlift Review Board to provide air transportation services to the DOD.

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[6] Council for Logistics Research, Inc., Civil Reserve Air Fleet Study Report (2008).

[7] Congressional Budget Office, Issues Regarding the Current and Future Use of the Civil Reserve Air Fleet (2007).

[8] *Id.* at 6; *see also*, IDA *supra* note 5 at ES 1.

To join CRAF, a carrier must commit at least 30 percent of its CRAF-capable passenger fleet, and 15 percent of its CRAF-capable cargo fleet. Air carriers must also commit and maintain at least four complete crews for each aircraft in CRAF (crew members must be U.S. citizens not encumbered with military commitments - i.e., military reservists).[9]

CRAF has three main segments: international, national, and aeromedical evacuation. Assignment of aircraft to a segment depends on the nature of the requirement and the aircraft performance characteristics needed:

- **International**: Most of the aircraft in the CRAF are committed to the international segment, which is further divided into the long-range and short-range sections. The long-range international section consists of commercial airliners capable of transoceanic operations (a range of at least 3,500 nautical miles (nm)). Medium-sized passenger and cargo aircraft make up the short-range international section supporting near offshore airlift requirements.

- **National**: The much smaller national segment of the fleet also has two sections: a domestic section for most transportation within the U.S. and a small Alaska section that provides airlift within U.S. Pacific Command's area of responsibility, specific to Alaska needs. The domestic section includes only passenger aircraft, and the Alaskan section, only cargo aircraft.

- **Aeromedical Evacuation**: The aeromedical evacuation segment assists in the evacuation of casualties from operational theaters to hospitals in the continental U.S. Kits containing litter stanchions, litters, and other aeromedical equipment are used to convert civil Boeing 767 passenger aircraft into air ambulances.[10]

The commander of USTRANSCOM, with the concurrence of the Secretary of Defense, has the authority to activate CRAF, which can be called up incrementally in three stages. During a crisis, if the U.S. Air Force Air Mobility Command (AMC) has a need for additional aircraft, it would request the USTRANSCOM commander to take steps to activate the appropriate CRAF stage. Each stage of the CRAF activation is only used to the extent necessary to provide the amount of civil augmentation airlift needed by DOD:[11]

- **Stage I** covers minor operations or operations in which adequate time is available so that a small augmentation of the military's fleet is sufficient to move the required people or cargo. A Stage I CRAF activation of long-range international cargo and passenger aircraft occurred from August 1990 to January 1991 in support of Operation Desert Shield, and a Stage I activation of long-range international passenger aircraft occurred from February to June 2003 in support of Operation Iraqi Freedom.

- **Stage II** is tailored for a major theater war that requires rapid deployment of forces. From January through late-May 1991, the long-range international segment was activated to Stage

[9] U.S. Air Force (USAF), CRAF: Fact Sheet, July 2007, at http://www.af.mil/factsheets/factsheet.asp?id=173.
[10] *Id.*
[11] *Id.*

II for both passenger and cargo aircraft in support of Operation Desert Shield/Desert Storm.

- **Stage III** is a period of national mobilization. A Stage III CRAF activation has never occurred. It was seriously considered after the Desert Storm air war began, in late January 1991, but was rendered unnecessary by the short duration of the conflict.[12]

When notified of a call-up, the carrier response time to have its aircraft ready for a CRAF mission is 24 to 48 hours after the mission is assigned by AMC. Carriers continue to operate and maintain the aircraft with their resources; however, AMC controls the aircraft missions.[13]

Aircraft in the Different Stages and Segments of CRAF

CRAF Stage			I	II	III
International	Long	Passenger	43	123	458
		Cargo	31	73	232
	Short	Passenger		10	292
		Cargo		11	24
National	Domestic	Passenger		23	36
		Cargo			0
	Alaskan	Passenger			
		Cargo		2	2
Aeromedical Evacuation				25	39
TOTAL			74	267	1083

Source: USTRANSCOM

II. CRAF and the Industry

a. Contractual Relationship: Mobility Value (MV) Points, Entitlements, Rate Structure and Other Incentives

To incentivize CRAF participation, the DOD's $2.5 billion a year peacetime charter airlift business for moving personnel and cargo, is allocated exclusively among participating carriers. A CRAF carrier earns "entitlements" to peacetime business in direct proportion to the capacity that carrier commits, as measured by MV points, vis-à-vis the total mobilization commitments provided to the government.

Upon acceptance, the CRAF carrier's aircraft are assigned MV points and are assigned to a specific segment of the program. MV is based on the range, payload, and productive utilization rate of aircraft compared to the baseline aircraft, the Boeing B-747-100. MV point bonuses are awarded for aircraft assigned to CRAF Stage I, the Air Evacuation segment and for certain range and payload

[12] CBO, *supra* note 7, at 3.
[13] USAF, *supra* note 10.

characteristics.[14] According to USTRANSCOM officials, the Command will revise the MV point process in FY 2010 to give even more points to those aircraft in Stage I. The new system will further incentivize carriers to commit aircraft to Stage I where there is a higher risk of activation.

The current ratemaking procedure sets rates separately for several classes of aircraft (e.g., large, medium and small passenger aircraft; large, medium, and combination cargo aircraft). Within each class, a rate is established based on:

- The prior year's average operating costs of the aircraft serving that class (weighted by each aircraft's share of revenues in the class);
- Escalation clauses adjusted for fuel prices; and
- A rate of return based on the larger of either: 1) 10 percent of average operating costs; or 2) 11 percent of invested capital (prorated to the share of business a specific aircraft does for DOD). Rates of return are paid out in fees; participating airlines are currently earning about $250 million in fees.[15]

In addition to CRAF peacetime business, other incentives for CRAF participation include:

- **The Fly America Act (49 U.S.C. § 40118),** which requires the use of U.S. carriers to transport personnel and goods if the government pays for such transportation, and the service is: *available*, if between the U.S. and a place outside the U.S.; or, *reasonably available*, if between two places outside the U.S.. Exceptions are authorized if pursuant to bilateral and multilateral agreements.

- **The Fly CRAF Act (49 U.S.C. § 41106),** which requires all DOD agencies to use CRAF carriers if the service is: *available*, if between two places inside the US; *available*, if between the U.S. and a place outside the U.S.; or, *reasonably available*, if between two places outside the U.S..

- **The General Services Administration (GSA) City Pair Program** that provides approximately $2.4 billion a year in business to CRAF carriers. The GSA city pairs program is an annual contract with commercial scheduled airlines for official government-wide travel that provides individual ticketed passenger seats at discounted airfares on over 5,000 routes. CRAF participation is a prerequisite for contract award. Since most scheduled service airlines do not want to participate in peacetime charter business, the GSA City Pairs program provides an additional incentive for scheduled airlines to participate in CRAF.

- **The DOD's Worldwide Express Cargo (WWX)** program provided approximately $115 million in business to CRAF carriers in FY 2008. WWX is for international small package express door-to-door delivery of urgent letters and packages weighing up to and including 300 lbs. In addition, **DOD Tenders** cargo program for international heavyweight (more than 301 lbs.) freight delivery provided $417 million in business to CRAF carriers in FY 2008.

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[14] CLR, *supra* note 6, at 19.
[15] IDA, *supra* note 5, at 13.

b. Teaming Arrangements

Scheduled carriers, which provide the bulk of CRAF mobilization capacity commitments (thus earning the most entitlements to DOD business), are not well organized to operate charter flights, which make up the bulk of CRAF peacetime demand. Therefore, industry teaming arrangements are a major feature of the CRAF program. The charter airlines (such as Omni Air International, Gemini, North American, Evergreen International, Polar, ASTAR, and Atlas) that currently provide over 95 percent[16] of the CRAF peacetime flying are teamed with major, scheduled airlines and integrated cargo carriers (such as United, American, Delta, Northwest, Alaska, FedEx, and UPS that provide most of the mobilization commitments (83 percent in 2006).[17]

According to USTRANSCOM, three industry teams currently handle approximately 90 percent of CRAF peacetime business: the Alliance team, managed by Evergreen International and World Airways, handles approximately 43 percent; a team led by FedEx handles between 38 percent and 39 percent; and a team led by UPS handles approximately 9 percent.

CRAF Carriers and Teams[18]

Alliance Team	FEDEX Team	UPS Team	Independents
American Airlines	Air Transport Int'l	ABX Air	AirTran Airways*
Arrow Air	Atlas Air	Alaska Airlines	Allegiant Air*
ASTAR Air Cargo	Northwest Airlines	Kalitta Air	Continental Airlines
Delta Air Lines	Omni Air Int'l	National Air Cargo	Frontier Airlines*
Evergreen Int'l	Polar Air Cargo	Ryan Int'l Airlines	Hawaiian Airlines
North American	Tradewinds Airlines	Southern Air	JetBlue Airways
United Airlines	Federal Express	United Parcel Service	Lynden Air Cargo
US Airways			Miami Air Int'l
World Airways			MN Airlines
			Northern Air Cargo
			Southwest Airlines*

Source: USTRANSCOM

Airlines are free to form teams, join teams, or operate independently.[19] Teaming agreements are negotiated annually, and the composition of teams changes yearly. Through teaming arrangements, charter carriers effectively pay commissions from the fees they earn to the scheduled

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[16] *Id.* at ES-2.

[17] *Id.*

[18] Asterisk represents aircraft committed to the national segment only.

[19] Independent carriers often sell MV points to one of the three teams. For example, the FedEx team has purchased the MV points earned by Continental Airlines and Hawaiian Airlines. CLR, *supra* note 6, at 29.

carriers for their entitlements to DOD business.[20] Scheduled carriers, in turn, do little peacetime CRAF flying, but are accepting the risk that their aircraft will be activated in exchange for payments from their other team members.

DOD does not regulate fee sharing within CRAF teams. However, DOD does hold team members jointly and severally liable for: 1) Mission Award – the actual peacetime CRAF flights that contractors have committed to; 2) CRAF Commitment – aircraft obligated to perform by carriers during a formal activation of CRAF Stages I, II or III; 3) and Schedule Reliability – USTRANSCOM requires an 85 percent on-time departure rate, and if a contractor does not perform, contractual remedies can be sought against other team members.

IDA notes that CRAF teams are generally composed of both cargo and passenger carriers, and that this system has evolved to grant CRAF teams maximum flexibility in obtaining and using MV points.[21] IDA states that teams may need to specialize in either passenger or cargo services, and that doing so would provide greater depth and more assured service should one team member cease operations or otherwise not meet its service commitments.[22] According to IDA, its point was demonstrated last year when ATA declared bankruptcy in April and abruptly ceased passenger operations. The team leader FedEx, a cargo carrier, was unable to quickly muster replacement aircraft from within the team resulting in shortfalls and service delays of two to six days for several weeks.[23]

USTRANSCOM officials generally support teaming arrangements, stating that they provide large carriers the incentives they need to enroll large numbers of their aircraft into the CRAF program. USTRANSCOM officials also believe that the teams, as currently structured, have sufficient depth to absorb mission award shortfalls should one team member cease operations. With regard to the ATA bankruptcy, USTRANSCOM officials believe the Command's ability to work with carriers to fill airlift gaps over a period of weeks actually demonstrated its strong partnership with industry to support the members of the armed forces.

c. Fixed Buy, Expansion Buy and Assured Business

CRAF peacetime business is divided into a "fixed buy" and an "expansion buy." The fixed buy covers airlift support that can be specifically identified for the coming year. For example, a base in Germany might require a known number of transport flights each week to carry out its routine operations. The expansion buy covers other airlift needs that may arise, especially support for contingency operations, for which specific requirements are not known in advance.[24]

The distinction between the fixed buy and the expansion buy is important because the government guarantees payments to CRAF program participants in the amount of the fixed buy at the beginning of each fiscal year. Those guaranteed minimum payments are a particularly attractive incentive to carriers to participate in CRAF because they can count on those funds in formulating their annual business plans.[25]

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[20] IDA, *supra* note 5, at 2.
[21] *Id.* at 8.
[22] *Id.*
[23] *Id.*
[24] CBO, *supra* note 7, at 4.
[25] *Id.*

To strengthen this incentive, USTRANSCOM sought and obtained "assured business" authority in the FY 2009 NDAA. With this authority, USTRANSCOM can increase the contract guaranteed minimum past the level of the fixed buy in years with excessively low requirements. Specifically, DOD can base its annual guaranteed minimum on forecasts, up to 80 percent of its average annual expenditure for charter air transportation services during the previous five years (omitting years of unusually high demand). Because this would allow guaranteed payments to be based on expected rather than known requirements, the government would run some risk of having to pay for services that it might not use.[26]

As an initial benchmark, USTRANSCOM officials indicate that the Command will seek to maintain a guaranteed minimum payment of approximately $400 million per year. Due to continued high wartime requirements, USTRANSCOM will not exercise the assured business authority in FY 2010, which will have requirements estimated to exceed $2.3 billion. It is worth noting that USTRANSCOM projects a sharp decline in CRAF peacetime business around FY 2012.

(in $ millions)

	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09[27]	FY10	FY11	FY12
Fixed	347.4	504.8	439.7	424.0	274.1	395.8	583.0	377.0	346.1	650.0	663.0	265.0
Expansion	216.4	775.5	1922.0	1554.1	2148.9	2052.2	2000.0	3040.0	1826.3	1653.0	1684.0	671.0
Total	563.8	1280.3	2361.7	1978.1	2423.0	2448.0	2583.0	3417.0	2172.4	2303.0	2347.0	936.0

Source: USTRANSCOM

As part of its "assured supply model," IDA recommended DOD adopt multi-year contracting to strengthen its assured business to, and lock-in multi-year supply commitments from, CRAF carriers.[28] At least one integrated cargo carrier has expressed concerns with this proposal, stating that requiring a carrier to commit to the potential activation over multiple years (as opposed to the current 18 month periodic commitment) would present too much risk and could have a detrimental impact on the program. In any case, multi-year contracting would require additional legislative authority and improved forecasting capability. Section 1033 of the FY 2009 NDAA also requires DOD to improve the predictability of charter airlift requirements. USTRANSCOM is conducting a process review with the goal of improving its forecasting ability.

d. Passenger Charter Airlines

DOD's peacetime passenger airlift capability is highly concentrated among a small group of passenger charter airlines. According to USTRANSCOM, in FY 2008, six passenger charter airlines provided 93 percent of DOD's passenger airlift, three of which provided 77 percent.[29]

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[26] *Id.* at 2.

[27] FY 2009 through April 20, 2009.

[28] IDA, *supra* note 5, at 18.

[29] FY 2008 Percentage of DOD Passenger Lift: ATA Airlines (no longer in operation) - 9.85 percent; Miami Air - 1.75 percent; North American - 23.69 percent; Omni Air - 23.98 percent; Ryan International - 4.85 percent; World Airways - 29.15 percent; Passenger Charter Carrier Total - 93.27 percent.

HEARING ON ENERGY REDUCTION AND ENVIRONMENTAL SUSTAINABILITY IN SURFACE TRANSPORTATION

Tuesday, January 27, 2009

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 2167, Rayburn House Office Building, Hon. Peter A. DeFazio [Chairman of the Subcommittee] presiding.

Mr. DEFAZIO. The Subcommittee will come to order.

Welcome, everyone, to the 111th Congress and to the first hearing in the Subcommittee of the 111th Congress. We held quite an extensive list of hearings in the last Congress, leading in anticipation of and leading up toward reauthorization. This is a continuation of that effort.

Today, we are going to attempt to flesh out some ideas that could lead us to a more sustainable and more environmentally friendly transportation system for America that would lead us toward what I call the ″least-cost transportation future,″ one where we assess all of our needs. Then, I would hope, without regard for all the myriad silos out there of funding, we would work with local communities and MPOs and with States to come up with the least-cost solution—the least cost in terms of dollars to taxpayers, the least cost in terms of impact on the environment, the least cost in terms of moving us toward a more fuel-efficient future with less contribution to carbon emissions.

There is a lot of room for improvement in the system.

We are going to do the hearing a little differently today after we hear from the Ranking Member, Mr. Duncan. My idea is, you have all submitted your written testimonies, and the Committee Members who are interested have read them. Rather than have you read back to us that which we have already read, it will be entered in the record. I thank you for those contributions. It will be a permanent part of the record.

What I am going to ask every panel member to do is to think of the best parts in your written testimony and summarize them in 1 minute. You can either summarize your best ideas, your most cogent idea, or you can even respond to something someone else on the panel has raised or something that did not occur to you at the time you wrote your more lengthy treatise.

So we will see how this format works. Hopefully, that way, we will get a little more interaction between Members and panelists and will come up with some great ideas.

So, with that, I will turn to Mr. Duncan from Tennessee.

Mr. DUNCAN. Well, thank you, Mr. Chairman for calling this hearing today on some of the challenges facing our transportation system. I certainly agree with you that we all need to seek the most cost-effective or least-cost methods of handling some of our work that needs to be done.

I also want to thank all of the witnesses for being here today, but I especially want to welcome the member of the second panel who is from my home state of Tennessee, Mr. Tommy Hodges. Mr. Hodges served twice as Chairman of the Tennessee Trucking Association and has chaired the American Trucking Association Sustainability Task Force. He will be testifying today on the trucking industry's effort to reduce its carbon footprint.

Our transportation system, everyone on this Committee and everyone in this room knows, is the backbone of our entire economy; and we need a successful and vibrant transportation system to provide the safe, efficient and reliable movement of people, goods and services.

Also, as we know, our transportation system is facing many challenges, including increasing concerns about the decline in system performance, energy dependence and the environmental consequences of our system. We have got to look at all different types of solutions to these problems.

We also need to take a look at the fact, as the National Journal reported several months ago, that two-thirds of the counties in the U.S. are losing population. There is tremendous growth in the circles around the urban areas, but outside of those circles, most of the small towns and rural areas are having real difficulties, and that is going to have consequences for our environment and for transportation policies.

I do not think we want to force everyone into 25 major urban centers and leave the whole rest of the country totally empty. I think it would be better for our environment if we help people spread out and if we help some of these small towns and rural areas. They are not the kind of areas I represent. The area I represent happens to be one of the fastest growing in the country, but that provides challenges also.

I think, overall, though—what I would say is that in regard to these things, we need mainly balance and common sense. I remember several years ago when I chaired the Aviation Subcommittee, we had testimony that the newest runway at the Atlanta airport took 14 years from conception to completion. It took only 99 construction days, which they did in 33 days, because they were so happy and relieved to get all of the final approvals, and it was almost entirely because of the environmental rules and regulations and red tape.

Two years ago, on this Subcommittee, we had a hearing on a road project in California that was nearing completion in 2007. It started in 1990. There were these same types of problems.

We all want to do good things for the environment. On the other hand, most of the people on this Committee want to see these

projects completed in a cost-effective way and completed in shorter amounts of time.

We had another hearing a few years ago on all of the things we do in this Committee, and we had witnesses in all of the different areas testify that all of these infrastructure projects were taking about three times as long as they were in other countries and were costing about three times as much, primarily because of the environmental rules and regulations and red tape. So we need a little balance and common sense because we cannot afford in today's economy for these projects to be delayed for too long or to cost three times as much as they should.

So that is the kind of thing that we really need to look at and find if there is a faster and more cost-effective way that we can do all of the good things for the environment that everybody wants done.

This is a very important hearing, and I thank you for calling it, and I look forward to hearing from the witnesses.

Thank you very much.

Mr. DEFAZIO. Okay. Thank you.

With that, we will proceed to the 1-minute succinct and pithy summaries of our panel. So I will go first to the Honorable John D. Porcari, Secretary of Transportation for Maryland.

TESTIMONY OF HON. JOHN D. PORCARI, SECRETARY OF TRANSPORTATION, MARYLAND DEPARTMENT OF TRANSPORATION; FRED HANSEN, GENERAL MANAGER, TRIMET, PORTLAND, OREGON; ROHIT AGGARWALA, DIRECTOR, NEW YORK CITY OFFICE OF LONG TERM PLANNING AND SUSTAINABILITY; DERON LOVAAS, FEDERAL TRANSPORTATION POLICY DIRECTOR, NATIONAL RESOURCES DEFENSE COUNCIL; AND SAMUEL R. STALEY, Ph.D., DIRECTOR, URBAN AND LAND USE POLICY, REASON FOUNDATION, LOS ANGELES, CALIFORNIA

Mr. PORCARI. Thank you, Chairman DeFazio and Ranking Member Duncan.

In 1 minute, what you pointed out is the least-cost transportation future, this kind of all-of-the-above solution where we should be looking across modal lines, whether it is freight movement or people movement, and finding the most efficient way to do it.

The same is true of the environmental and mitigation side of it, whether it is decarbonizing fuel, reducing vehicle miles and travel growth, doubling transit ridership, doubling fuel efficiency or being smarter or more innovative at the State level on mitigation. As to how we spend our mitigation dollars, that all-of-the-above approach is really what we need to do. Every piece of that has a place in the process.

Mr. DEFAZIO. Excellent.

Mr. Hansen, see if you can top that.

Mr. HANSEN. Thank you, Mr. Chairman and Ranking Member Duncan. It is a pleasure to be able to be here.

From the public transit standpoint, the future of our Nation in many ways does rely upon a dramatically expanded public transportation system. As Mr. Duncan pointed out, as we are seeing this country urbanize more, we need to be able to have that system

really provide high-quality transportation options for all of our citizens. It must help reverse the threat of global climate change, and it must facilitate the integration of land use and transportation.

From a public transit standpoint, we also need to be able to make sure that our operations are as sustainable as possible. The efforts that I am leading at APTA are really trying to be able to make sure those systems actually are sustainable as well. Thank you.

Mr. DEFAZIO. We are really doing pretty good here. We are getting a lot out very quickly.

Mr. Aggarwala, again, you either can summarize or you can begin to respond to other points and whether you agree or disagree. Go right ahead, sir.

Mr. AGGARWALA. Thank you, Mr. Chairman and Mr. Ranking Member.

From the perspective of a large city like New York, which is already happily possessed of a highly sustainable transportation infrastructure that gives us a very low per capita carbon footprint, I think there are two key lessons and two things that we are working on as much as we can locally. But we need Federal help, and we look to a thoughtful reauthorization to help us with this.

One is in integration. As Mr. Hansen pointed out, land use, vehicle policies, transit investments, all of these things have to fit together. What we really need in many ways are Federal policies that encourage that kind of performance-outcome-based thinking on the local level.

The second, quite simply, is funding. One of the things that we tried in New York was congestion pricing. Well, it did not pass our State legislature. Whatever you think about it as a policy, it highlights the need that we need more investments if we are going to have a sustainable transportation future. Thank you.

Mr. DEFAZIO. Excellent.

Mr. Lovaas.

Mr. LOVAAS. Thank you, Mr. Chairman.

Mr. DEFAZIO. Did I pronounce that correctly?

Mr. LOVAAS. ″Love-us.″

Mr. DEFAZIO. ″Love-us.″ Sorry.

Mr. LOVAAS. In transportation, this sector drives our oil dependence, and it drives up our carbon emissions. As such, we need to change course. The best lever with which to do that is Federal assistance, and the best policy solutions are ones that are going to combine a variety of approaches, as Secretary Porcari said.

Among those that I focus on in my testimony are requiring that regional blueprints be established in order to coordinate land use and transportation policy, recognizing that transportation drives development and that they are inextricably linked anyway and that they should be planned in conjunction with one another.

Road pricing is another policy that we favor so long as the revenues go to fund transportation alternatives, which is the third part of our policy solution package. We need a lot more investment in transportation alternatives to build out the second half of our system now that we have completed a world-class system of interstate highways.

Thank you.

Mr. DEFAZIO. Okay.

Dr. Staley.

Mr. STALEY. Thank you, Mr. Chairman.

Really, I think there are two points that are central to my testimony. One is that, at the end of the day, transportation policy has to be about improving mobility; and we cannot lose sight of that even though we have other goals that we want to accomplish, including environmental mitigation and sustainable transportation. If we lose sight of mobility, we expose ourselves to serious risks in terms of economic competitiveness, not just among cities, but globally.

The second point is, we need to recognize that these solutions to sustainable transportation are going to be very localized, very city-and-State specific. We are going to find that some metropolitan areas are going to need a lot of investment in transit and other types of alternatives. Other metropolitan areas are not going to need the same types of investments. So we need a framework that allows local areas to calibrate their response to sustainable transportation to particular needs.

Thank you.

Mr. DEFAZIO. Okay. So, just launching off that, then I think there would be some agreement here that we really need to move toward Federal direction that sets goals that are outcome-based, but that are less prescriptive.

What are the worst barriers any of you perceive with our current transportation policy? I think there is a spread of ideological viewpoints here, but there seems to be a pretty good consensus on where we need to be moving.

What are the principal barriers you see? What should this Committee be addressing? How can we move toward something that is more outcome-based and more flexible?

Mr. HANSEN. Mr. Chairman, I think that you hit upon it when you mentioned least-cost planning. I think all us know how successful it has been within the energy field to be able to move toward conservation, but also to be able to have least-cost planning work well.

Our governor in Oregon, Governor Kulongoski, has proposed that as part of the way to be able to think about transportation investments, it must not only evaluate across or within modes, whether it be road or public transit. It must include going across modes; and it also must look at the land-use connection, that is, the very ability to be able to see if, in fact, smarter land-use decisions can lower the demand for some of that transportation mechanism.

It is certainly something we have been able to see in the Portland region that has been very successful when we have implemented it.

Mr. DEFAZIO. Mr. Porcari, you offered the idea of a Federal investment to help States better coordinate. I think you said $100 million per year for the better coordination of transportation and land use. What are you really thinking about there? How would that work?

Mr. PORCARI. As has been pointed out, the nexus between transportation and land use is a really critical part of this equation. If the goal is mobility for people and goods, you cannot separate that

from that planning. Whether it is through MPOs or whether it is done on a more intermodal basis at the State, or even at the local level, we need that performance-based planning where we are looking at the outcomes.

We have performance measures for how we get there, and there has to be a feedback part of that cycle where it is integrally tied to local land use; and that means things like more density in some places for transit-oriented development and explicitly saying that you will not be able to provide the kind of transportation access in other places that people may want. It is about choices.

Mr. DEFAZIO. Would the Federal government do that with inducements or with penalties or with bonuses? Or maybe if you did that, would we grant more flexibility to the spending of funds among programs for a jurisdiction? How would we get there?

Mr. PORCARI. We would respectfully ask for the flexibility to begin with. With the performance standards, hold us to those performance standards; and perhaps above a formula allocation, there could be an additional distribution based on that performance.

Mr. DEFAZIO. So, if a local jurisdiction or an MPO or a State has developed outcomes-based, multimodal approaches to resolve what we look at as our Federal objectives here in dealing with congestion and lowering the cost and pollution and all that, perhaps there would be, outside the regular formula, competitive money or additional money—or maybe even within the formula—that would give you the opportunity to break down some of the silos?

Mr. PORCARI. That would be one opportunity, Mr. Chairman.

Beyond that, even with existing programs, with the New Starts transit program, for example, they get past the singular kind of gatekeeper focus.

Mr. DEFAZIO. That is going away really quickly. Do you mean on the cost-effectiveness factor?

Mr. PORCARI. On the cost-effectiveness.

Mr. DEFAZIO. Maybe it has been repealed by now. I have assurances from the Administration. It should go away soon.

Mr. PORCARI. That is exactly when we get to the larger goals.

Mr. DEFAZIO. Other members of the panel?

Yes, sir, Mr. Aggarwala.

Mr. AGGARWALA. I think—in terms of thinking about formulas, one of the things I think we should consider is that traditionally we measure demand or the need for mobility in miles traveled, whether it is vehicle miles traveled or passenger miles traveled. In fact, as the Secretary points out, if we are really doing a smart job, we are reducing that demand for movement without actually changing, as Dr. Staley suggests, the actual facilitation of mobility.

I think that is a critical thing that should be considered, ideally within the formulas themselves, as well as on top.

Mr. DEFAZIO. Trips avoided. Is that what you are talking about?

Mr. AGGARWALA. Or perhaps it is something as simple as percent GDP in a local economy or something like that, because if you can facilitate economic growth, population growth, quality of life with a lower demand for movement, you still almost by definition have high mobility; and that is really what we should be promoting.

Mr. DEFAZIO. Excellent.

Mr. LOVAAS. I agree with that. I think we are at an historic point where we could see something happen with vehicle miles traveled that we saw happen a few decades ago with energy intensity in terms of our economic growth. We were able to decouple growth in energy use from economic growth, and people still got the same services that they required to make a living and to have a decent quality of, life, using a lot less energy.

I think we are at the same kind of juncture with travel, where we can moderate travel demand, yet people are still able to thrive and economies are still able to thrive.

Mr. DEFAZIO. Excellent.

Dr. Staley.

Mr. STALEY. I am a little bit more of a skeptic on the land use and transportation connection. It actually speaks to, I think, a bigger issue I would like to put on the table.

One is that while I do believe that there is an important transportation and land use connection, it varies in a much more complicated fashion than, I think, many of us think. Just the investment in roads, in and of itself, does not produce growth. I mean, we have got lots of examples that I use across the Nation about roads that have been built to nowhere that serve no function and that are really wasteful. So, again, that is speaking to the issue of performance.

The other point is that a lot of these land use and transportation connections, this nexus, are really going to be local solutions because so much of our understanding how travel patterns change based on the availability of certain types of transportation will literally be determined at the neighborhood level; and there are ways you can support that.

The larger question, I think, for me and the biggest reform that could set in motion a whole sea change in terms of the way the transportation and land use connection comes together, as well as moving toward a more sustainable transportation system, is completely moving to a different form of transportation finance, which is based on distance-based travel.

Mr. DEFAZIO. Based on what?

Mr. STALEY. Distance-based travel. A mileage tax. This is actually an area where I think there is substantial agreement across the ideological spectrum, because what will really call for the users of transportation to face the true cost of their travel.

I think we are automatically going to see the demand for different transportation modes as well as changes in land use immediately become apparent on the local level. We are going to see some changes, and Portland has led in some of that as well.

I think it is important that a broad-based change like the change in the way we fund travel and in the way we fund that infrastructure investment will have these ripple effects, which are national in their impact. Granted, that is a long-term solution.

Mr. DEFAZIO. I was going to say, if we cannot get there in this reauthorization, how do we begin to move in that direction? How do we begin to facilitate these changes in policy without that?

Mr. STALEY. Yes. I think this is the real point because I think this is the reauthorization process where we begin that movement. I am afraid, if we do not start that movement now, it is going to

be decades before we do move in that direction. So there are some practical things that can be done at the Federal level—encouraging pilot projects, also encouraging States to cooperate—because we now know of the interoperability of these different road pricing networks. We know the solutions are there. We see them in Santiago, Chile, and we see them in Europe, but we need to see them applied and developed in the U.S.

So there is an awful lot of strategic investment that can occur with Federal encouragement that will begin to overcome these obstacles, and that needs to happen now.

Mr. DEFAZIO. Does anybody have a quick thought on that? My time is about up here.

Mr. LOVAAS. Just in terms of the revenue generated, there are two pieces to this equation. I agree with Sam about this idea of shifting to more use of the road pricing as a tool, but it is one in a basket of policies, and we should decide where the revenue goes. Mostly, we believe it should go to transportation alternatives so that you can get a double bang for the buck in terms of that policy, in terms of moderating travel demand, which we believe should be a national goal.

Mr. DEFAZIO. Great. Thank you.

Mr. Duncan.

Mr. DUNCAN. Well, Mr. Chairman, since I gave an opening statement, I am going to yield my time for questions, at least at first, to my Members. So I will yield to Mr. Coble at this time.

Mr. COBLE. I thank the gentleman, Mr. Duncan.

It is good to have you all with us. Many good ideas have been presented this morning, and I may be repeating them, but let me revisit them if I can.

The gentleman from Maryland, many of the suggestions point to intermodal solutions for our transportation problems. How can we better connect our surface transportation options to other modes to ensure an efficient transportation system?

Mr. PORCARI. That is an excellent question.

We tend to focus on moving people. Moving goods is an important part of what we do as well. We have a great advantage in Maryland in that we have an intermodal Department of Transportation at the State level where everything—aviation, ports, highway, transit—are all under one roof. It gives us an opportunity and an obligation to think intermodally.

There is a kind of hierarchy, for example, on the goods movement side where we would want to keep the goods movement on water as long as possible, because it is cheapest and most environmentally efficient, then on rail and then on truck for the final part of it. We need to be thinking about that in terms of goods movement nationally.

We also need, in moving people, to have less emphasis on the modes and more on the outcome. Again, I think performance measures in the goal, which is mobility, is one way we will get there.

Mr. COBLE. Thank you, sir.

Let me go to the gentleman from the Rose City way out west. Mr. Hansen, because transit agencies oftentimes cannot cover their operating expenses from the fare box, it would follow that the more

transit services that are afforded, the more a transit agency runs into red ink.

Does this mean that we have to resign ourselves to an ever-increasing Federal subsidy in order to increase the transit market share? I do not mean to sound like a pessimist as I am coming at you, but talk to me about that.

Mr. HANSEN. Thank you, Congressman Coble.

The issue is that no transit system within the country operates their full cost off of the fare box.

Mr. DEFAZIO. Excuse me. How about in the world? I am not aware of one anywhere in the world——

Mr. HANSEN. Certainly not in the world, not that I am aware of.

Mr. DEFAZIO. —or in the United States. Thank you.

Mr. HANSEN. The issue, though, is that this is a public investment from which we are, in fact, receiving substantial benefit whether it be in air quality, whether it be in the mobility needs of our citizens, particularly of those who are unable to afford it and in terms of being able to address more effectively greenhouse gas emissions as well. So, to me, the issue is really that it is a very appropriate and necessary public investment.

Now, at the same time, the more we can make our public transit systems deliver transportation needs, not just for that work trip, not just for the AM and PM peaks of Monday through Friday, but all day long, into the evenings and on Saturdays and Sundays, essentially what we are doing is filling more empty seats and making that more efficient.

In fact, in the Portland region, over the last decade for which statistics are available, we have seen our ridership grow by 46 percent and yet our service hours, only by 16 percent. It is really a threefold more efficient operation of the services.

I think that is something that we always need to be able to do within the Nation, but to be able to ever think that we are not going to have investments, to be able to keep operation going, let alone the capital investments, I think, is something that would be very shortsighted for this Nation.

Mr. COBLE. I thank you, sir.

Mr. Chairman, I think I have time for one more question. Let me visit with my friend from New York.

Some of us, perhaps many of us, on this Committee represent rural areas. You suggest that many of the policies that New York City has implemented could be used around the country to ensure sustainability in surface transportation.

What applications would these policies have in rural areas?

Mr. AGGARWALA. Thank you, Congressman. That is a very interesting question.

There is one thing that we have to think about. First of all, there are many things that I think the rural parts of the United States can learn from major cities because, while we are different, we are not completely different.

It is important to note that most of the rural towns in the United States developed well before the automobile came into widespread use, so they started out as being walking towns at their origins. While it may not be that walking or cycling can get to quite the share of total trips in a rural community as it can in Manhattan,

for example, I think the idea of promoting density, promoting clustering and using the car only when necessary is certainly a viable approach.

Mr. COBLE. I thank you, sir. I thank the gentleman from Tennessee. I will yield back to him to reclaim.

Mr. DEFAZIO. Thanks.

Just one point also on Howard's questioning:

I live in the second city of Oregon, and we had a private bus system which the city had to take over because it was not making money. I do not think that is uncommon, is it? Aren't a lot of our now-public systems derived from formerly private systems?

Mr. HANSEN. Absolutely. Certainly, in the city of Portland as well, it was a company that went bankrupt in 1969. It was taken over by the public.

Mr. DEFAZIO. All right. Thank you.

We are going to go in the order of arrival from a list given to me by staff, and that would take us to Mr. Baird.

Mr. BAIRD. I appreciate very much the input from the gentleman. It is good to see my friend from Oregon as well.

The key that we are going to be debating in the next couple of days is the degree to which the infrastructure stimulates the economy, and that is part of the theme here. But in terms of the energy savings, as well, could you gentlemen offer your input?

It seems to me there are two aspects to the infrastructure, to the economic stimulus: One, we create jobs by building things, but two, to the extent that we reduce our dependence on foreign oil, save money on transportation. I would welcome open comments on the synergy between those two.

Mr. PORCARI. If I may start, first, on the immediate stimulus part, every $1 billion of transportation investment is about 34,000 jobs. It clearly will, first, preserve and then add jobs as part of it.

It is important to remember that transportation is an enabler; it is a means to an end. For our economic development goals, for sustainability or for any other policy goals, this is the way to get there. The choices we make really determine the balance in the transportation system; and I would argue the balance is different in different places—highway or transit, for example. Transportation can serve those goals. We just need to be explicit about them.

Mr. HANSEN. Congressman Baird, I would also add, each time we have somebody who is, in fact, taking public transit rather than somebody who is in his individual automobile, we are, in fact, addressing environmental goals. So, by the stimulus investing in those very services, to be able to invest in neighborhoods that, in fact, can become more walkable or more bikable, we are addressing long-term sustainability by making that the pollution that is coming from those individual auto uses be less, not to take away mobility needs, but in fact, to be able to, as you have heard from the whole panel, meet those mobility needs, but in a more environmentally sustainable fashion.

Mr. LOVAAS. Congressman, the transportation sector is responsible for the lion's share of our oil consumption at 11 million barrels a day, and it is a sector that is 95 percent dependent on petroleum-derived products. Getting off of oil is not going to be ad-

dressed by dealing with pollution or with sources of energy in our electricity sector, which only uses about 3 percent of the oil we consume nationally. It is all about transportation.

You heard that—fortunately, yesterday the new President announced that he is going to raise fuel economy standards more quickly than the previous administration would have. Performance standards that are technology neutral are the main ways that we are going to wean ourselves off of oil.

It is such a monumental challenge that we need to complement that with other ways to moderate demand, and that includes a robust investment in public transportation alternatives. We need that as a complementary strategy. And that, I think, in addition to job creation, is a laudable objective for the investment of Federal dollars in transportation.

Mr. BAIRD. Do we have figures indicating how much we could save if people took available transit, in other words, if people would just say, ″Look, I am not going to drive to work. I am going to either car pool, or let's stick just with transit for now.″

How much could we save in terms of dollars in the economy, but also in terms of carbon output energy consumption?

Mr. LOVAAS. I do not know. Fred might know better than I do. As far as I know, that analysis has not been done, and I have actually been wondering that myself recently. If transit systems across the country were running at capacity—rail, bus, you name it, and if people were taking advantage of other alternatives such as biking and walking—how much oil could we potentially save?

I am not sure that analysis has been done. I think it would be useful to do because it would make a contribution to reducing our oil dependence.

Mr. STALEY. There are also other trade-offs involved.

The one thing is, if we would move people to transit. But on the other hand, in most cases that involves an increase in travel time; and there are other negative aspects of that that would also have to be factored in.

I would like to speak specifically to the two points. One is that I think we need to be careful about how we use numbers like every $1 billion spent on transportation creates 35,000 jobs. In fact, we are only going to see those impacts if those investments in transportation are making a meaningful impact on the transportation network's performance. It is not a matter of simply laying asphalt and expecting those jobs to be there.

Now, in the short term, you might see a blip, but what these numbers do not really take into account is the extent to which those investments are, in fact, productive in improving the system performance.

The other thing I think we need to keep in mind is that there will be a short-term cost, a higher cost, of trying to move us off of oil. Right now, oil is cheap compared to the availability of the alternatives, so we are talking about a long-term shift as opposed to the short-term cost. That still means that we are going to have to address those issues over the 5-to-10-to-15-year period in which we are going to wean us off of oil. I agree that the CAFE standards are, most likely, the most effective practical means for doing that.

Mr. BAIRD. Thank you.

Thank you, Mr. Chairman.

Mr. DEFAZIO. I thank the gentleman.

There was a study that APTA did, the staff reminds me—and it was referenced, I believe, in our briefing materials on mode shift—which talked about, with a 10 percent mode shift towards transit, we could save all of the oil we import from Saudi Arabia. Now, obviously, it is fragmentary and somewhat dated, but it would be worthwhile to ask for it. I am glad that has been suggested.

I think we should ask to have that updated by the administration and have them make some estimates.

With that, I would turn to Mr. Petri. He is not here at the moment. He stepped out. Okay.

Next on the list will be Mr. Latta. We are going by the order of the names given to me by staff on either side. It is in order of appearance, so you are up.

Mr. LATTA. Thank you very much, Mr. Chairman, and thank you very much to our panelists for being here today.

I would just like to follow up on what Mr. Coble brought up a little bit ago. I come from a kind of interesting district in northwest—north central Ohio. It is the number 1 agricultural district in the State, and it is also probably the number 1 manufacturing district in the State of Ohio.

If I am listening, especially when you are talking about land use planning and also getting into some other areas involved about where the dollars are going, my problem is this: I cannot have people walk to work. I cannot have people ride their bikes. When I go to a lot of the factories in my area, the first question I usually ask is: How far do your people have to come in from? It is not unusual for people to drive anywhere from 25 to 50 miles. I have got people from Michigan coming into Ohio. I have got people coming from Indiana into my area. So the idea of our having any mass transit is out. So, you know, I am listening a little bit, especially on the land use planning ideas.

What do we do in our area? If we do not have our automobiles or our pickup trucks, we are unemployed.

So I would just like to throw that out to you all because I know there are districts like that all over. In fact, one of the cities in my district outside the city of Toledo, right now, it is petitioning to get out of the, TARTA, the Toledo Area Rapid Transit Authority, because the ridership there, the study has been given that it would be cheaper for us in that area to give people a used car than to have the taxpayers pay for the system.

So if I could just throw that out to you.

Mr. STALEY. Representative Latta, I know your area very well because I am in Ohio, and I have spent a lot of time up in that area. Actually, I think it is important because the point you are making is broader.

There are a lot of urbanized areas in the U.S. that do not have the densities that either have been created through an urban growth boundary as in Portland or of a New York or a Chicago. Here, the mobility that is going to be most important to the economy as well as to life style is primarily through the automobile.

That is one reason why the research that we have done at Reason Foundation is showing that, if we are looking at sustainable

transportation or reducing oil dependence, then improving the gasoline mileage is, by far, the most important and has the most effective impact. Land use changes, all of the other alternatives pale in comparison to what those effects will be just from that alone. I have got a table in my testimony which breaks that out.

So that is another reason that I think it is important. We need to recognize that and we have got to make sure, at the end of the day, that mobility is a central part of how we think about transportation policy.

Even in Arlington, Virginia, only 20 percent of those who live in that very urbanized county are within walking distance of a Metro station. So we are talking about, of the 80 percent who might have access to a bus, most are using automobiles. That option still needs to be a central part of this discussion, I think.

Mr. AGGARWALA. I think, Congressman, your question is very well taken. It is one of the reasons that, I think, several of us have talked about the need for local flexibility for performance-based outcomes, because clearly what will work in a big city is not necessarily the only answer for a rural or a manufacturing area. But allowing localities—metropolitan areas, local planning associations—to set their priorities and to demonstrate that they are making the right decisions and are therefore working towards performance will ideally suit us all.

Mr. HANSEN. Congressman Latta, I would also add that public transportation is not the alternative for everyone. It is really to give people choices. Particularly as we look at this summer, when gasoline was over $4 a gallon, as for those individuals whom you referenced—and we certainly have them in our community as well—who have long driving trips to be able to get to a job, were paying disproportionately high costs to be able to have that transportation.

What we have found when we, in fact, integrate that kind of broader approach in the Portland region is that we have been able to see a 7 percent reduction in the amount of what individuals spend on transportation. That is 7 percent that gets to go for housing or for other expenses.

Now, it does mean that there are people who are traveling long distances because that is the life style they want, but it ultimately means that we need to give people more choices.

Thank you.

Mr. LATTA. If I could just follow up really quickly, I guess my question, though: You are looking at Portland. Again, in my area, there are no cabs, there are no buses, there are no subways; it is your vehicle. If your vehicle breaks down, you are unemployed. So I guess one of my concerns is that, you know, we are talking about the local areas being out there with their own planning with what they are supposed to be doing in the future. My concern is that we have to think about all of these rural areas that do not have those abilities.

One hundred sixty years ago, my relatives came down the Ohio River by barge, and went up by canal to Olmsted, and that is where they settled, and that is where they are, but there is just nothing up there.

Mr. DEFAZIO. Thank you, Mr. Latta.

Mr. Latta, my district is the 38th largest in land area in Congress. I understand your dilemma. There was something we had in the energy bill stripped out by the Senate that would have helped people capitalize like vans for people who live somewhat proximate to one another in dispersed rural areas so that they could, you know, car pool essentially.

I mean, we have got to start thinking about how we serve rural areas, too, and how we can allow them to be more cost effective and more fuel efficient. Any ideas you have got, I am open to them.

Mr. Boswell.

Mr. BOSWELL. Thank you, Mr. Chairman. I can join others in appreciating your having this hearing.

It seems to me like for some length of time now—and you have all confirmed that very much—that intermodal is something we have got to seriously consider, and we have probably done as well as we can do. Also, I heard you make, I thought, very potent remarks about the pollution needs and also about the fact that we are 95 percent dependent on oil for all of our transportation needs in our economy.

Mr. Chairman, I will just say this, and it will sound like I am being self-serving, I suppose: In the Midwest—and there are the several States there—we have gotten heavily into alternatives. I also understand that in the heavily populated Northeast the homes, the factories and everything pretty much runs on fuel oil; there is a big need, a big consumption and a lot of pollution. But we cannot get the biodiesel or the soy diesel or the ethanol out there except by rail, and it has got to go through Chicago. There are big delays there which we hope someday we can do something about, and we certainly know about it.

Yet we cannot deliver this alternative because of transportation. You have to get it either on a truck or on rail. It has been suggested that maybe a pipeline would be a good idea—$1 billion spent, 34,000 jobs. It cannot be exported. It will fulfill a need.

I would like for you to comment about that. Is this just a pipe dream or is this something we ought to be putting some effort into? I would like to hear your expertise on that. Thank you.

Mr. LOVAAS. I am not certain about the pipeline proposal. I can say that the oil consumption in transportation is a product of three factors—the efficiency of our vehicles, how much we travel in those vehicles, but then what goes into the tank or, hopefully, increasingly, what goes into the battery.

As such, we need to consider that third piece thoroughly. What are alternative liquid fuels that make sense? How do we make those more available? How do we promote the commercialization of plug-in hybrid technology as well? Basically, how do we fuel our transportation sector differently, setting aside demand?

Of course, from NRDC's perspective, this is a matter not just of saving oil, which is in the national interest, but also of reducing carbon emissions, which is in the national interest. So we would want to make sure that, on a life cycle basis, whatever alternatives we are putting into the tank or into the battery help to address both of those goals, which we see as complementary.

Mr. BOSWELL. I appreciate that.

Anybody else? We do have, in fact, alternatives. We cannot get to the places that have a need. It would seem like transportation is the only solution that I know of, Mr. Chairman.

I would hope that we might give that some thought. Well, I have talked to you; I know you have.

Mr. STALEY. I think that raises a really important question about the need for additional capacity and also about upgrading the capacity in commercial freight, both in multimodal as well as in rail. That is something that has been neglected over the years. I know looking at freight corridors has been important, but it is also important for handling bulk shipments. So all of that, I think, would be wrapped into that as well.

The other thing to keep in mind is that one of the reasons we are facing this dilemma is that oil remains the most efficient as a source of energy for propelling vehicles. So what we are trying to do is move to another source, but the hurdle is trying to figure out what that alternative is and doing it in a cost-effective way. We are still at the infancy of really trying to understand what that is going to be at this point.

Mr. BOSWELL. Thank you very much.

I have just got a few seconds left here. I would just like to give a recommendation to all of us on this side of the panel and the panel, too: You might just take a moment and pick up Thomas Friedman's latest book, ″Hot, Flat, and Crowded.″ Take a minute or a little bit of time to read it. It is riveting. I think it says a lot about where we are nationally and internationally, and I highly recommend it.

Thank you.

Mr. DEFAZIO. I thank the gentleman.

Leonard, that is what I want people to do is to think outside the box and to think of all of the aspects of things that relate to transportation fuels, to fuel efficiency and to movement, and to start thinking about what are alternate solutions to the traditional way we have been doing it. So I appreciate your contribution there. Thank you.

Mr. Shuster.

Mr. SHUSTER. Thank you, Mr. Chairman. I thank all of you for being here today.

When I look at the population growth in America, I think it was 2005 that we crossed over the 300-million-person threshold. As I was reading about it, it took us 60 or 65 years to go from 200 million to 300 million, and in the next 35 years, we are going to go from 300 million to 400 million. When you look at the charts, to show you where the growth is occurring, not everybody is moving to the West or to the South. It is still those corridors, the Northeast corridor being the example, the density just becomes even greater.

When we are talking about transportation and land use, my view is that a big part of the solution is to encourage people to move out of the urban areas because, with technology today, they do not necessarily need to be in Washington, D.C., or in Baltimore or in New York. They can be out in places in rural America, but we still need that transportation link. If we are going to build a factory, that product still has to get to the East Coast.

So one of the concerns I have is, if we continue to build our infrastructure up around the big cities rather than in places like Iowa where they have had manufacturing facilities, those plants are just going to move to the east coast, I believe, because there is going to be less cost for them. So we have got to continue to build that infrastructure.

How do we encourage companies to put those jobs into the heartland, into the rural areas to make better use of our land there, and to decongest our major urban areas?

I grew up about 30 miles from Cumberland, Maryland, and over the last 30 years, I have seen Cumberland, Maryland's population decline and its industry move out.

So first, Mr. Porcari, How do we get those people to go back to Cumberland and to stop them all from moving to the Baltimore, Maryland, suburbs?

Mr. PORCARI. Actually, Cumberland is a great example. It was once the second largest city in Maryland, and it was built as a transportation hub to the Midwest.

Again, I think, whether you are talking about the highway network or rail in that case—and before that, canals—transportation is an enabler for the kind of growth that a region may want. It is a different solution in different places, but with the interstate network essentially finished on the goods movement side, I think one thing we need to do, as part of a larger solution and for some balance, is to make sure on the rail movement part of it, where the bulk goods movements are happening and where it is far more efficient, that we are paying attention to that.

Actually, we have a national policy related to that that works with, not against, our highway system, and it essentially preserves capacity at our highway system. That would be one way.

The key word here, I think, is ″balance″ overall. For each area, each jurisdiction, that balance is going to be a little bit different, and the kind of flexibility that we need in a transportation program at a national level would give us that balance.

Mr. SHUSTER. Do all of you agree to disagree that part of the solution is to try to encourage people not to move into the urban areas, which is making the population more dense? That would help to solve some of the problem.

Mr. AGGARWALA. Well, I think one of the things that we have to think about, Congressman, is that density, itself, in fact, is part of the solution.

So, in New York, you know, where we are looking at growing from our current 8-1/4 million people to over 9 million people by 2030 in a city that is not growing—you know, we do not have space for any new roads or things like that—we basically have to grow upwards in terms of density. The fact is, we will have a more efficient transportation system because, as Mr. Hansen pointed out, transit by its very nature, walkable cities by their very nature, are, in fact, more and more efficient by density. Now, that does not mean that there is no room for a future, in our view, of the rural or less densely populated parts of the countries.

Again, I think what we keep having to go back to is a sense of a performance-based standard for how we think about this. Factories and other things like that make a tremendous amount of

sense in lower-density areas where they might be objected to by some of the neighborhoods that I work for.

Mr. HANSEN. From the Oregon standpoint, I might add, clearly one of the things that is most important to the eastern part of our State, where there is lots of wheat grown and other commodities, is the movement of those commodities efficiently and effectively through our urban areas, which is really where they are being shipped out either around the country or around the world. It is what will keep those rural areas economically viable.

So it does seem to me that the connection and the balance that the Secretary referred to and to be able to understand how that has to be connected is, in fact, the best strategy we can pursue.

Mr. SHUSTER. Thank you. I see my time has expired.

I want to say to the Chairman that I appreciate the efficiency and the fairness of your hearing today. So I will yield. I have no time left. Thank you.

Mr. DEFAZIO. Thanks.

Mr. Hall.

Mr. HALL. Thank you, Mr. Chairman, and thanks to our panelists, especially to Mr. Aggarwala from my home State of New York. Welcome.

My question first is to Mr. Lovaas. I was struck by the testimony of your detailing the effect of stormwater runoff from roads on aquatic environments. You say statistics that are staggering. For example, when only 10 percent of a watershed is covered with such surfaces, the rivers and streams and that watershed become seriously degraded. Furthermore, you cite a study that found that an acre of parking lot yields 16 times as much runoff as an acre of open meadow.

Another study found that a storm producing 1 inch of rain will lead to 55,000 gallons of polluted stormwater runoff for every mile of highway that that rain falls on. Most disturbingly, a study by USGS found that concentrations of pollution in U.S. watersheds had reached a low point in the 1970s and 1980s due to improvement in wastewater technology, but by the 1990s, this trend had turned around due to an increase in miles traveled by automobiles and trucks, due to tire wear, crank case oil, roadway wear, and car soot and exhaust.

As someone who represents not only the Hudson River Valley but also substantial portions of New York City's water supply, these statistics alarm me. So my question is whether the funding levels for water infrastructure in the House recovery package that we are slated to be debating and voting on this week will be significant enough to help reverse that decline. Or do we need an even larger effort on water infrastructure?

Mr. LOVAAS. Thank you, Mr. Congressman.

The funding that is in the package currently is outstripped by the need, and we prefer the original level that Chairman Oberstar proposed in December, which is twice the level that is currently in the bill.

This is a huge additional fact of our transportation sector, and there are basically two ways of addressing it. One is rather counterintuitive. One is actually more density, particularly around watersheds so that you have a lower ecological footprint or pave-

ment footprint per capita, so interestingly, by clustering development, you actually end up with less runoff.

Then the other is to actually design projects, whether they be highway projects or transit projects or bicycle or pedestrian projects, so that you reduce how much runoff there is into our water bodies. That second piece is especially where we can use a lot more money.

As a matter of fact, there is an opportunity in the reauthorization of the transportation law. The last time around, the Senate debated the idea of a stormwater pollution control set-aside in the STP program of 1 percent. That is the kind of innovative program that we would favor revisiting in this next reauthorization in order to get a handle on our increasingly worsening stormwater pollution problem.

Mr. HALL. Thank you.

Mr. Aggarwala, would you like to add something to that?

Certainly. Thank you, Congressman. I think we certainly see a tremendously greater need for water infrastructure investment than is currently countenanced. Whether it is appropriate in this stimulus or as part of a broader thinking on infrastructure, I am not 100 percent sure, but I think no question we need to invest as a Nation in our water infrastructure which has allowed us to make dramatic improvements over the past 30 years, but unlike the early years of the Clean Water Act, today the Federal Government has more or less distanced itself from the investments in water infrastructure that are imposed on localities and on States, and I think it is time to reconsider that.

As Mr. Lovaas pointed out, designing transportation infrastructure is a key component of that. We are working in New York to think about how we redesign our streets in ways that will capture stormwater as it runs off. We have put in a zoning requirement on the local level to require that all new parking lots in New York City actually have green swales and trees, to ensure that that kind of thing is designed in, and whether there is a role for a Federal set-aside or for Federal standards, I think those things need to be considered

Mr. HALL. Thank you.

I only have a little bit of time. I wanted to ask again to Mr. Lovaas, in your testimony you cite a statistic showing that public transportation has only just now returned to the level of boardings of 50 years ago, and statistics show that in the U.S., for every 1 transit trip, there are 44.5 auto trips. By contrast, Canada, Great Britain and Germany have a different ratio, much less lopsided, 7.6:1, 4.6:1 and 3.1:1 respectively, many fewer auto trips per transit trip.

How can we narrow that gap down and actually move beyond the number of boardings we have now? Is it simply more money, or do we need to fundamentally change land use planning?

Mr. LOVAAS. Well, we need to do both. We need greater investment, and we need blueprints for our regions especially that actually maximize how much use people make of transit, and we need road pricing. We need to put a price on the use of roads to encourage people to use alternatives and also to generate revenue that can be invested in those alternatives. This is what London did, and

a lot of European countries are actually setting targets for a better mode split, and that is something I think we should consider as a Nation in addition to this idea of moderating travel demand in order to reduce VMT, or vehicle miles traveled, intensity of our economy as we have done with reducing energy intensity over time

Mr. HALL. Thank you very much.

Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you.

Mrs. Miller.

Mrs. MILLER. Thank you very much, Mr. Chairman. I appreciate you holding this hearing. I think it is an interesting subject.

And this is not really a question, but just a comment on the last question. My colleague from New York mentioned about the stormwater runoff and some of the problems that we have. He and I have talked a lot about Great Lakes issues and various things, and that is something I think, unfortunately, in the Great Lakes States, in our basin there, we have not taken enough into consideration in our planning over the last number of decades about some of the various transportation modes as we have built them and all the stormwater runoff that has gone into the Great Lakes and caused us pollution, et cetera. So it is a critical component, I think, of urban planning and rural planning or what have you, particularly when you are in one-fifth of the fresh water of the entire planet, and some lessons learned, I suppose, on that

But my question is in regards—and a couple of other Members have already talked about this a bit. But in regards to mass transit, my district in Michigan has a suburb—some of the suburbs of Detroit and then run up to the tip of the thumb, so I have what used to be the explosive growth suburbs—now we have no growth going on with the economy—but also a lot of rural area. And I think we are the largest metropolitan—I have heard this anyway—the largest metropolitan area in the Nation that does not have a mass transit system.

And perhaps that is, again, some of our own problem because of the automobile culture that we have there and everybody wanting to have their own car and not really utilizing mass transit, but it has had an impact, and we are trying to address that. However, you know, when people see large diesel buses going up and down the main arteries with just a handful of passengers on them, it is difficult to talk to people about how important it is to have mass transit. It looks as though it is almost more polluting with some of these large diesel buses that are going than even individual automobiles, et cetera.

I guess I am wondering what—I am not sure who I am addressing this question to, perhaps the secretary from Maryland, about what your experience has been in some areas about getting people to support mass transit, or do you have any suggestions on an area like the Detroit metropolitan area, not having any mass transit other than sort of a secondary bus system, of how we might access public support and public dollars as well to actually incorporate something in an area that has really already been developed?

Mr. PORCARI. It is a very good question. In Maryland, we have a little bit of everything. We operate one of the largest transit systems in the country in the Baltimore metro area. But on the East-

ern Shore in the more rural areas of the State, what has been successful for us as a transit strategy has been very much an employment-linked one, where some of the major employers we have worked with directly through our local transit partners, with partial State and local funding, where if you don't have a car, you can't have a job unless you have that rural transit link. And these services are very much directly linked to the major employers, and so it has been a critical part of the economic development strategy.

It also tends to build the service over time, and we have encouraged counties to work together on regional systems, which we have in the lower Eastern Shore, for example. Three counties combined their systems into one, again working from the major poultry and other employers in the rural areas. That has been a very successful strategy.

Mrs. MILLER. Thank you.

Mr. HANSEN. I might add that to be able to provide not just the transport, not just the physical movement, to be able to provide people information about how they, in fact, can access that, when is the next vehicle arriving, is it the real-time or is it the scheduled time, the other elements of things that really make that trip be able to be used by individuals, particularly as we are so time-sensitive, is important.

Last thing I might stress is as we see the population growing older, the rural needs are as great, if not greater, than in urban areas to be able to provide elderly and disabled access to essential services within their communities. And the need to be able to have that be in something other than their own automobile is a growing need, as I said, both in rural and in urban, maybe even more significantly within rural areas.

Mrs. MILLER. Yes. I appreciate that.

I just have 30 seconds left, so maybe I only have time for a comment here, but I wanted to bring up something here called carbon fiber, since you are all involved in the transportation industry. And, you know, with technology happening in every industry, I do think the transportation industry has been a bit behind on utilizing new technology in construction and reconstruction of our Nation's highways and our States' highways.

And if you look at some of the various technologies that are available on the market now, some of these composites—again, we see this in the automotive industry where pretty soon you are going to have a plastic car practically. If you look at some of these various components that can be utilized in building our Nation's infrastructure, carbon fiber rerods, which are much lighter, much stronger, the sustainability, the lifetime of these; even composites for an entire construction, reconstruction of a bridge, some of these things that are available now—I know I am out of time here, but I just ask you to really look at that, because I think that is going to change the face of what is happening. Particularly as we get into our reauthorization of our transportation bill here, we are going to be looking at a lot of new technologies in the construction of our transportation grid.

Thank you, Mr. Chairman.

Mr. DEFAZIO. Anybody have a really quick closing response to that?

Okay. We will move on. Mr. Michaud would have been next. He had to step out. So we go to Mr. Carney.

Mr. CARNEY. Thank you, Mr. Chairman.

Like many of my colleagues here, I represent a large rural district, you know, 1,100 square miles, larger than Connecticut, biggest city is about 32,000 people, that sort of thing, so we face the very same issues of transport in the rural area.

A couple of questions. First of all, Mr. Lovaas, what is the future, for example, for CNG, in your opinion?

Mr. LOVAAS. I am not certain what the future of CNG is, Congressman. Our whole approach to fuels and alternative energy sources is technology neutral and fuel neutral and what kinds of performance standards that help to push us where we need to go.

Natural gas, whether in CNG or other forms, is likely to play a role in the transportation sector. I am not sure how big. One of the challenges with it is, of course, that it is a gas, and we have a tremendous retail delivery system for liquid fuels with 170,000 stations across the country which deliver, for the most part, gasoline. Very few of them deliver high-blend ethanol alternatives, which I know was discussed earlier.

So liquid fuels are likely, because of the infrastructure chicken-and-egg question, to have a leg up on alternatives in gaseous form, and that also is true because onboard storage of liquid fuel is less of a challenge, and it is less expensive than with gaseous forms of energy. So I am not sure how big a role it will play. I do know that it faces more challenges than liquid fuel alternatives.

Mr. CARNEY. So many of the cities' bus systems around the country who do use CNG, what kind of investments would they have to make in order to——

Mr. LOVAAS. Well, that is actually, I think, a different matter, because what I was talking about is a fleet of light-duty vehicles; but if you are talking about public transportation, if you are talking about buses, then you can have a centralized station where you actually can deliver the energy, and you can actually design the buses so that you are able to store as much as you need on board. So I think there is less of a challenge with shifting to CNG with our mass transit buses. Fred might know better, but that would be my take on it.

Mr. CARNEY. Mr. Hansen.

Mr. HANSEN. All I would do is just echo the idea if you have a centralized fueling operation, which most transit systems do, you can. Most CNG has been utilized by transit systems as a way to be able to address conventional pollutants, not necessarily the challenges of greenhouse gas. It does seem to me that ultimately we are going to have see the battery and electricity as being the alternative that is really the future investment that is going to be very critical.

Mr. CARNEY. I understand. Now, I brought that up listening to Congresswoman Miller's discussion of the partially filled buses that are diesel. So we do have alternatives to that.

But the question I did have, is light rail a solution for districts like mine for transportation, or is it just getting folks from home to the job?

Mr. Porcari.

Mr. PORCARI. Light rail can be a very effective solution, and we are in the middle of three major new starts projects in the planning process right now. We are in the midst of making the decision between bus rapid transit and light rail. I point out one of the driving forces in the decisionmaking process for us is long-term capacity, not the day it opens, but you can make a reasonable assumption that that system will be there 100 years from now. We need that kind of long-term capacity.

The other great advantage of light rail, in my opinion, is when you are linking together land use planning and transportation, and you are asking for multimillion-dollar investments by the private sector in transit-oriented development, you are much more likely to get it in a fixed rail system than you will with bus rapid transit, and that is a key decision point for us.

Mr. HANSEN. I would also add, we have been one of the leaders certainly in light rail. Light rail works exceedingly well when you are looking at high capacity over long corridors. But other systems work better when you are using feeder systems or major arterials, whether it is a bus rapid transit or high-capacity frequent service that we oftentimes use.

I think the answer is—I don't mean to be too quippish here, but it is not a silver bullet; it is more like silver buckshot. You have to find a series of different answers depending upon the nature of the community which you serve and such.

My guess is the more rural areas will not work as well, but commuter rail may, in fact, be an element. Certainly high-capacity bus transit may as well

Mr. CARNEY. Thank you.

Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you.

Mr. Boozman.

Mr. BOOZMAN. Thank you, Mr. Chairman.

I am very supportive of transit. In the studies we have done at home in trying to increase ridership, it seems like everybody, you know, believes in transit, but they want their neighbor to ride it.

I am not going to make everybody raise hands here, but I saw that the vast majority of the audience here, in an area that works really pretty conducive to public transit, again out of this group there is probably not much ridership.

It seems like the thing that really determines who rides and who doesn't is the availability of parking. You know, if you have got good parking, and it is easy to get there and park—it is very difficult to peel people out of their cars.

On the other hand, I agree with you, Mr. Hansen. Single moms, the elderly, keeping them independent versus institutionalized, it has got a lot of other reasons that we need to support, but I appreciate somebody threw out the thing about the going to jobs, you know, things like that. That is great. So that is something that we need to do a better job of.

Dr. Staley, you mentioned that one of the big deals is cutting consumption as far as the fuel usage, CAFE standards and things like that. We have been visiting with some of our truckers, and one of their frustrations is a little bit—there are some things such as V-shaping the back of trucks that would improve wind resistance

so that you get increased mileage; the technology of the units that instead of having to make your truck idle, you know, when you are sleeping and things, you go to the others. One of the problems that they are facing, though, is that if they put that falsetto on the back, that it increases the length of the truck a foot, and then they don't have as much, you know, truck space, and this is all a dollars-and-cents deal. The same is true with maybe increasing 3-, 4-, 500 pounds on the unit that allows them to shut down their truck and not burn as much energy. Again, that decreases their load capacity.

Do you have any comment about things like that? I mean, is that something that you would be in favor of maybe working with in the sense of pushing some of those things, or can you-all comment on that as far as a mechanism to increase fuel efficiency, but, again, you know, kind of working at a commonsense approach?

Mr. STALEY. I think the solutions for commercial truck traffic are going to be different, and we have been talking mainly here about passenger light rail and automobiles. And, Congressman, I think raising that point is really critical, and I think it is also important to recognize that commercial truck traffic is really operating on a completely different set of constraints than passengers are, particularly when you look at commercial truck traffic in terms of the segmentation within the industry itself where you have got a lot of independent contractors who are really operating on very, very thin margins and can't spread out these costs that you find with larger trucking companies.

And so I think it is really important to start looking at what those solutions are, and we might find that there are some interesting tradeoffs, but allowing for longer length and heavier trucks may allow us to optimize certain other aspects of commercial truck traffic that will allow us to meet some of these goals.

Unfortunately, I don't have any specific recommendations, but they definitely need to be in the mix. That is really something we have been hearing a lot more about as we have been talking with the trucking industry about how we try and address that.

Mr. HANSEN. It does seem to me that the issue you are really asking is can technology make us more fuel-efficient, less polluting, and less carbon-intensive, and the answer is yes. In the transit world, a typical transit bus, 285 horsepower, about 45 of those horsepower are used to power mechanical things on the bus. If, in fact, we are able to electrify those demands, that so-called parasitic load, we are able to increase fuel efficiency for those vehicles. That type of technology is now being available for retrofits on existing buses.

Those sorts of things and many, many more ought to be able to be used to make sure our systems are as efficient as possible, knowing that in the long run that won't be enough to be able to address global climate change or other things, but we need to be doing it.

Mr. LOVAAS. I was just going to say that the 2007 energy bill does actually require that the National Academy of Sciences study heavy truck fuel economy and then shortly thereafter that the U.S. DOT establish standards for the first time ever for heavy truck fuel economy. So that rulemaking and that NAS study are certainly

worth keeping an eye on, and I am sure the industry is going to be deeply involved in shaping both of those.

Mr. BOOZMAN. Thank you, Mr. Chairman. I hope that maybe we can work on some of those things that do seem like fairly common-sense approaches, again not dramatically increasing rates and things like that, but if you have a tradeoff of a tiny bit of weight increase for significant fuel reduction, it does seem like it would make sense.

Mr. DEFAZIO. I thank the gentleman.

The second panel will have an opportunity to delve into some of those issues, both technological in terms of increasing efficiency and also some suggestions which we can discuss regarding operations. So, if the gentleman hangs around for that, that will be great.

Mr. Ortiz, the newest Member of the Committee, although certainly not—shall we say, he is a veteran of Congress, but a new Member of the Committee. So Mr. Ortiz.

Mr. ORTIZ. It is nice to become young again and become a freshman.

You know, I represent a district way in south Texas, which is Corpus Christi by the Gulf of Mexico, and the testimony I hear today is that we have put a lot of money in the bigger cities 30, 40 years ago, and that infrastructure has become old, and you need to fix that up, bring it up to standard, whether it is metro or whether it is rail or whether it is shipping.

I come from an area that has never been able to benefit from any of this because we just opened up a freeway to south Texas about 5 years ago. My district, I represent two deepwater seaports, which is Brownsville and Corpus Christi, and four minor seaports. The area 15, 20 years ago was maybe 300,000. South Texas now has about 1.5 million people, and within the next 8 to 10 years we are going to have 3- to 4 million people in two, three counties, not counting the population from Mexico, which we trade because my district borders Mexico.

I was just wondering, you know, we need to put both money in the infrastructure that has become old and needs to be repaired, but we also need to take care of communities and cities and counties that have never had this type of infrastructure. And when I talk about seaports, the silt, stuff that needs to be cleaned up, we are now beginning to lose ships from coming in because it is not deep enough, the channels. So what do they do? They go to other ports in Mexico or someplace else. And now we are beginning to see a lot of trade coming from China utilizing Mexico because it is cheaper and because the west coast is becoming very congested.

We talk about land rail, and I was just wondering what kind of formula should we apply in trying to be fair not only to the areas that have never been able to benefit from some of these projects, but to those areas as well that are growing old and they need to bring up the standard. Maybe some of you could touch on that a little bit.

Thank you, Mr. Chairman.

Mr. PORCARI. Congressman, if I can start, we share some of the same port issues. For example, in the Port of Baltimore with silting, this combination of waterborne goods movement, rail, and

highway and interrelationship between them is an important balancing act in the transportation system.

I think in the interest of fairness, since the needs are so diverse around the country in different areas, if it is part of a larger plan—and again, there are performance measures, whether you are moving goods or people—I think the solution is different in every part of the country, and that kind of flexibility, which typically you don't have now because you are talking about the Water Resources Development Act for dredging needs, you are talking about a surface transportation program that has a lot of siloed programs, doesn't really give us the flexibility for those local solutions.

Your two seaports are major employers. They are a major part of the economy in that sense, and I would think as part of a larger economic development plan for the region they are probably a pretty big part of the emphasis. It would be interesting to see if your transportation plans can reflect that through how the funding is applied. My guess is it is probably difficult to do that.

Mr. HANSEN. I might add just very briefly, and as the Chairman noted in the very beginning, we need to be able to look across all transportation modes and really evaluate what is the most cost-effective, what is the most efficient way to be able to move goods and people into different settings and then make the investments in that.

It seems to me that the issue around the ability to be able to move by ship or by rail, we need to be able to see those as part of a national interest for those places where that is most efficient and then other systems in other places. And I think that will produce the quality of investment in older areas needing refurbishment, as well as in new areas that have not had that investment at all.

Mr. ORTIZ. Let me just make one short statement. The problem with rail is, since we trade with Mexico, to move a rail car 10 miles will cost you $350, but you can move it to Chicago for $150, and this is one of the reasons why we can't be competitive. And I know this is not the railroad Committee, Mr. Chairman, but I thought I would just bring that out.

Thank you so much. Thank you.

Mr. DEFAZIO. I thank the gentleman.

I turn now to Mr. Duncan.

Mr. DUNCAN. Mr. Chairman, let me just say this: I don't want to ask any questions, but the Republicans are going to have to leave here in just a few minutes because we are supposed to meet with the new President. But I do wish that the panel members, if you have any thoughts in these regards, there are two things that really concern me. And I mentioned both of them in my opening statement when I mentioned that two-thirds of the counties in the U.S. Are losing population, and there are some extremists, I suppose, that wish we could put everybody into 20 or 25 urban centers and turn the whole rest of the country into some type of protected wilderness. But really, I think when you force people into urban areas, you create congestion, you increase crime, you create traffic problems, housing problems, cost of housing goes up. So I think we should be doing things that give people incentive to move back to

or stay in the small towns and rural areas and spread people out a little bit.

And, Dr. Staley, I support, I think, most of the things that I have seen from the Reason Foundation, but I do have a little concern that if you go to the vehicle miles traveled type of financing, that you would put the final nail in the coffin of some of these small towns and rural areas because most of those people are lower-income people, and most of them have to drive further distances to go to work.

And while I mentioned that my district is 80 percent urban/suburban, I do represent about 20 percent rural areas, and whether I represent them or not, I have a great concern about the small towns and the rural areas. And I wish you would tell us how we solve that dilemma.

And then the other thing I mentioned was the fact that these projects, because we have gone so far overboard on some of these environmental rules and regulations and red tape will tell you, I want to do everything we can for the environment, but when you are making these projects cost three times as much and take three times as long to get done, when most of the people in this Committee, I think, want to see these projects get done, and especially now we are talking about needing to spend some of this stimulus money in a faster way than ever before, we are not going to be able to unless we have a little balance and common sense on some of these environmental rules and regulations and speed some of those approvals up that in the past have taken so long.

So I am concerned about those things, and I will be reviewing the record after this hearing. I am going to leave now, but if any of you will submit some comments or some solutions to those problems, I would appreciate it very much. Thank you.

Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you.

We would now turn to Mr. Schauer.

Mr. SCHAUER. Thank you, Mr. Chairman, for the opportunity to speak.

I represent a seven-county district in southern Michigan. It is the I-94 corridor from the Ann Arbor city line west to my hometown of Battle Creek; also the I-69 corridor. Obviously our State and our region is wracked by unemployment. The latest State figure was 10.6 percent unemployment. Yesterday I learned that GM will be cutting a shift at one of its assembly plants along I-69, eliminating 1,200 jobs.

I also want to add that the district includes both long and short rail freight transportation. There are two Amtrak lines. The Wolverine line, which runs along the Detroit-Chicago corridor, and the Blue Water line from Port Huron to essentially Chicago both run through my district.

Communities in my district are very interested in intermodal transportation. Some are further along than others, but they are looking at this as a way to boost their local economies, position them for long-term economic growth, and, frankly, create jobs as well.

So my questions have to do with how should we position this surface transportation bill within the context of a couple other things.

One is, could you talk about the sort of short-term and long-term cost-effectiveness of linking our communities with commuter rail, high-speed rail? I understand this isn't the railroad Subcommittee, but I think it is germane here. Talk about sort of the economics of linking our communities together.

And as an aside, there is a project that is going to start soon between Detroit and Ann Arbor that will also link airports in a high-speed commuter rail corridor. There is another north-south line as well. I would like to see the Detroit-Chicago corridor really become a functioning high-speed-rail intercity passenger line.

So I want you to talk about the short-term and long-term economics, including the economic impact for those communities particularly where there are stops, and these are—the largest city in my district is Battle Creek, 53,000 people. These are some small, urban core communities that are hurting.

The second is—and Mr. Chairman, I know this is something you are interested in—is the ″Buy American″ provision. In my State, we certainly have the capacity to build some of these things, and we certainly have a workforce that is ready to build some of these things. So there is also that sort of economic impact.

I wonder if you could talk about those two things in terms of how we position this bill. Thank you.

Mr. HANSEN. Maybe just a few quick comments, and I know others will want to add.

I think that we, as a Nation, must understand that intercity connections are equally as important to the intracity, and certainly although the intracity is the area that I focused on, it is absolutely critical to be able to make those kinds of connections, whether it be commuter rail, whether it be heavy rail connections.

Our citizens throughout this country, I believe, want choices in how they can get around, and they want that for the longer trip as well as the shorter trip. They want that to be able to have for their convenience. They want to be able to save money. They want to be able to have it as a way to spend more time with families and other things, and I think those investments are absolutely critical, and I think we can, in fact, see those investments.

Number two is the ability to be able to have jobs created not just in the construction of the line, but also in the vehicles. Certainly something that Chairman DeFazio has been a leader on in terms of modern streetcar we ought to be able to apply to all different modes of transport, and how do we really make those be American jobs.

Thank you.

Mr. AGGARWALA. I think, Congressman, your idea of using high-speed rail, particularly to help the smaller and medium-size cities, is very well taken. I think if you look in the Northeast or Europe or Asia, that has been one of the things that has disproportionately shown up; that if you look at the Northeast corridor, for example, as a share of its overall intercity transportation, Providence, Rhode Island, gets much more out of the north end electrification of the Northeast corridor than Boston does because you have hourly and half-hourly flights from New York to Boston, but you don't have hourly and half-hourly flights from New York to Providence, but

they get the benefit of hourly and half-hourly train service, and I think the same thing happens.

But one thing I would point out, hearkening to my background in rail policy rather than urban sustainability, is that we sometimes misapply our focus to only super-high-speed rail, whereas thinking about the extent to which incremental improvement can often be the way not only to be most cost-effective, but to generate that usage base that builds for the future.

Mr. STALEY. I think first with skepticism at high-speed rail mainly because—well, although I will say this: That among the rail alternatives, what we were able to see is that when we run the estimates and the forecasts of high-speed rail, intercity connections can generate a higher cost recovery at the farebox than any other rail alternatives.

However, in terms of economic development, I think there is an awful lot of skepticism we need on this. I have looked extensively at the economics and development around many of the Amtrak stations and the Northeast corridor, and it really is underwhelming. And when I have looked at high-speed rail economic impact studies, specifically working on a team in Ohio and the Midwest rail corridor, what we found is the impacts are marginal at best.

Maybe you might generate enough volume to create a new office building, but nothing like extensive development. It is more important to think about the high-speed rail, in my view, as a component of the transportation system and providing, in this particular case, a Detroit-Chicago alternative, which is really a competitive substitute to a short-haul airline.

Mr. SCHAUER. Thank you.

Mr. DEFAZIO. I thank the gentleman.

The gentleman's questions go back to my opening remarks. Try and break down, look at the modes of travel, look at the least-cost solutions, and I think there are areas, particularly if you look at the European experience with high-speed rail, which is more dependable than Amtrak, and that is a big factor if you have got a job you have got to be at. So if we can have a dependable high-speed rail system, you might find different patterns of development.

Mr. STALEY. Actually that is a very good point. In fact, one of the communities we are looking at was adamantly opposed to any kind of rail because of their Amtrak experience. That is why when we did this analysis in Ohio, we were careful to look at the Downeaster, we were careful to look at the Hiawatha Line, which had very high dependability, also had really high ridership, too. So we are really trying to take a look at the best in the Amtrak system.

Mr. DEFAZIO. Thank you.

With that, Mr. Dent. Hopefully I did not violate the order here.

Mr. DENT. Thank you, Mr. Chairman.

Secretary Porcari, in your written testimony you mentioned a triple bottom-line approach. Could you kind of expand on that concept further?

Mr. PORCARI. Yes, I would be happy to.

When AASHTO has been looking at how transportation system fits into a larger strategy, it is in three ways, and that is really

where the triple bottom-line comes from. It is an enabler of economic growth. It is certainly a component of quality of life; that is, the choices the transportation system provides for people to get to and from work, school and other things.

And the third part of it—it does get overlooked, but is very important—is transportation is an opportunity to improve the environment, whether it is through some of the things that have already been mentioned, different vehicle technologies, better fuel mileage, but also in a more literal sense, some of the mitigation work that is done with highways, it could be very directly tied to—and in Maryland, for example, Chesapeake Bay restoration goals where we used our mitigation projects—and you have an example of it here—to literally recreate wetlands, remove an illegal landfill, and directly impact water quality in a positive way.

The triple bottom line is the recognition that if we do this right, we can do all three of those things.

Mr. DENT. Thank you.

I just want to follow up. What policies do you think that would help jurisdictions support robust economic growth, and does limiting transportation options help?

Mr. PORCARI. Rather than limiting transportation options, if you have—for a specific community, if it is part of a local planning process, for example, if the transportation plan really has some balance in it and looks at the different approaches, and there is a consensus built as to what mix of—and it almost always is a mix—of highway usage, of transit and other modes, that is really how it becomes the kind of enabler for economic development and long-term growth that you are looking for.

Mr. DENT. Thank you.

And to Mr. Hansen, your testimony says that transit saves about 37 million metric tons of carbon emissions per year. That sounds like a very substantial number, but can you put into some kind of context for the Committee what percentage of the total annual carbon emissions does that figure represent?

Mr. HANSEN. I would be guessing at it. I would rather get it back to you for the record. It is overall—in terms of overall carbon emissions from the Nation as a whole, it is a relatively smaller amount from the transportation sector, but it is the most ability for us to make the kind of investments to be able to move more and more people to that public transit and thereby do have significant reductions. But I would be happy to get that for the record.

Mr. DENT. Thank you. I would like to see that.

Mr. Chairman, I yield back my time.

Mr. DEFAZIO. I thank the gentleman.

With that we turn to Mr. Sires.

Mr. SIRES. Thank you, Mr. Chairman.

Secretary Porcari, I want to share something with you. I was sort of involved with the light rail in New Jersey. It is called the Bergen-Hudson light rail. And I know you mentioned before that you are trying to decide whether to go with light rail or bus lanes. You mentioned that in your comments before.

I can tell you the light rail is much better. Of course, I come from a very congested area. Just to give you an idea, my town is about nine-tenths of a square mile, and I have 50,000 people in the town.

So it is very congested. So it is very successful. They move about 37,000 people a day.

And one of the issues that we found, anytime you have a bus lane, we also brought in these gypsy cabs, the gypsy vans, which the idea of taking cars off the road actually created more problems because they created more congestion in terms of picking people up in the middle of the street and so forth.

So areas like mine, urban areas, I would recommend to you really look at the light-rail system, because even after 9/11, it turned out to be a godsend.

Mr. PORCARI. It is a very good point, and we actually have looked at the Bergen-Hudson line as one of the examples.

One of the opportunitiesthat transit mode gives us is to weave it into the community in a way where, as opposed to some of our existing subway systems where we have very large parking lots and commuting to it, these are much more neighborhood stations. It is our intention to make all three of these lines connected to existing transit, both heavy rail and bus systems, and in that way I think it will provide some valid and very desirable transportation choices.

Mr. SIRES. I can tell you that along with the light rail, the economic growth, I think, has been really something to see, and the air quality obviously is much better.

Mr. Lovaas, I have a question. In one of your articles you want to create a national freight planning board. How would that work?

Mr. LOVAAS. Well, we would be open to, you know, different structures, but the idea is that this would be a public and private venture to take a look at the freight needs in the Nation and how we address those freight needs in an intermodal and energy- and carbon-smart way. And of course, this has to do with what we were talking about earlier in terms of the increasing traffic into our ports, how do we increase that further, and then how those goods move from those ports to other parts of the country in the most efficient way possible, and the lowest polluting and most energy-efficient way possible as well.

So the point is it is not on the passenger side where we need some national objectives and a real plan. We are also lacking a set of clear national objectives and a real plan for freight traffic, and that is something that we desperately need. So setting up a board to come up with such a plan is the first step towards a different way of approaching that in terms of policy.

Mr. SIRES. I represent both the ports of New Jersey, and the biggest concern always is how do we get some of these trucks off the road. And the New Jersey Turnpike is like I-95 in Maryland; it is a parking lot many times. And it is just a big problem.

The other issue is moving this freight, you have to have a place where you can put this merchandise. New Jersey has many warehouses that have been built due to the growth of the port, and they are going to grow supposedly, when the economy changes, another 20 percent. I am not quite sure how a national board would work because we work with the Port Authority of New York on making sure that some of these things, you know, some of the freight is moved.

Mr. LOVAAS. Well, we need—I mean, the short story is that the board would come up with some sort of——

Mr. SIRES. How much power would this board have? How much power would you give this board to implement some of these ideas?

Mr. LOVAAS. Oh, I mean, it would be up to the Department of Transportation to implement the ideas in coordination with regions such as yours as well as with the State departments of transportation. I mean, the point, though, is to come up with—and this would be a useful change of pace—to come up with a plan with clear national objectives for dealing with growing freight traffic so——

Mr. SIRES. Okay. Sorry.

Mr. STALEY. Just real quickly, we are not familiar with the proposal of the national freight board, but this area of the Federal Government being involved in coordinating and helping meet these freight needs is really a unique role, I think, and an important one for the Federal Government because it involves interjurisdictional cooperation in many cases. So the question is how can you use Federal policy to create a structure in which win-win situations can be identified and resolved? Most of those are freight.

So I would imagine even if you had some sort of a national freight board, a key component of that might be sort of helping facilitate dialogue and win-win solutions among different jurisdictions, and that is actually something that can be done. We have run into those problems in many States before, and this might be a framework in which that could happen.

Mr. AGGARWALA. I think the issue of poor congestion also highlights—and whether it is the exact proposal from NRDC or not, I don't know, but the need for a sense of national projects of national importance and focusing resources on things—because as you point out, that truck traffic in northern New Jersey not only has the local impacts, but it also raises the prices of goods across the United States and hurts our overall competitiveness.

Mr. SIRES. Thank you very much.

Mr. DEFAZIO. Thank you.

Ms. Hirono.

Ms. HIRONO. Thank you, Mr. Chairman.

The reauthorization of SAFETEA-LU does provide us an opportunity to think outside of the box as we make decisions on transportation needs, and I am particularly interested in those processes that would encourage thinking about intermodal considerations and making these decisions.

Mr. Lovaas had mentioned that there is a process called participatory scenario planning that seems to work, and, Mr. Hansen, since you are from the State that pioneered this, could you talk a little bit about this process, whether it is mandated by statute, how are decisions made, who participates, how it is working?

Mr. HANSEN. I will start.

Because of our comprehensive land use requirements, we end up having a very robust process to involve our citizens in the planning of any of our transportation investments, and for us, that transportation and land use connection is an element of it. And so when we are looking at it and the plans that are put out even in draft form on which then people can comment, which there are numer-

ous citizen advisory committees to help us with, are really looking at that, the whole picture of how a community or a neighborhood may develop.

So it is not just the transportation investment that is somehow isolated from the land use decisions or isolated from the economic development strategies, but rather an integration of that. It really allows people to be able to think differently about how their community is going to develop.

I might give you one specific example, and it is really around the concept of what is referred to as the 20-minute neighborhood, and it is a concept that really says how do we really develop a neighborhood that is not about different transportation options, but really is centered around the individual; that is, how can they get to their essential services, whether it is the corner coffee shop or grocery store, within 20 minutes by either public transit, by walking or by bicycling. And the concept is to be able to have it really be peoplecentric.

And so our processes are very, very much involving our citizens in how to be able to develop that neighborhood, how to be able to put all the pieces together and make choices about it.

Mr. LOVAAS. More and more jurisdictions, Congresswoman, are adopting this approach, Salt Lake City and Sacramento, just to name two others, and the idea is thanks to improving technology both in terms of land use modeling and travel demand modeling, and in terms of being able to increase participation through the Internet of a broader set of citizens, you can engage in a participatory process whereby you choose futures for your region based on preferences in terms of what happens with land use, what happens with transportation, and what happens with performance outcomes like air quality or oil dependence or carbon emissions.

We think that especially for large metro areas, which have quite a bit of planning capacity, there should be a requirement that this becomes the norm in exchange for Federal assistance across the board.

Ms. HIRONO. And do the decisionmakers have to follow whatever the outcomes are of this whole process?

Mr. HANSEN. From the Oregon standpoint, they don't have to, but it is at their own peril.

Ms. HIRONO. Yes. That is good.

I just wanted to mention, Dr. Staley, that you talked about distance-based travel as a way to decide what you are going to spend your money on, and I do want to mention that in my district, of course, which isn't rural, I represent seven inhabited islands, and most of those islands do not even have any kind of a transit system. So this kind of a way to make decisions would definitely impact negatively the people in my State.

So what I want to do is promote intermodal choices in our rural areas, as well as to make sure that what we are doing with our scarce resources is truly to promote, as Mr. Hansen said, the best way to move goods and people.

So that is just a statement. If you would like to comment, but that is fine.

Mr. STALEY. Yeah, real quickly, because this is an issue that has come up on a number of different statements.

The road pricing—the distance-based road pricing proposal really is largely geared toward an urban system, and that is really where most of our congestion and traffic is.

I think it is also important to recognize that the rural solutions are going to be different. There are many characteristics of rural networks and highways and roads that really require a different decisionmaking process; although I still think that, with limited-access highways in particular, there is a very important role for road pricing to play.

But just to acknowledge that those concerns, I think, are real, and I think they have to be addressed, and that is something that needs to be fleshed out as part of this proposal.

Ms. HIRONO. Thank you.

I yield back, Mr. Chairman.

Mr. DEFAZIO. I thank the gentlelady.

Mr. Kagen.

Mr. KAGEN. Thank you, Mr. Chairman.

I have some larger vision questions. I would prefer in the interests of time if each of you would provide the Committee and my office with your three most important recommendations that are necessary not just for in-house politics, but also for our country's development of our highways and bridges.

And then I want to get each of your comments about incentives, because when I met with our economic advisory committee back in northeast Wisconsin, each community leader had something to say. They said, look, Kagen, unless you provide us with incentives, we can't afford to purchase the mass transit vehicles, we can't afford to invest in these things. So I would like to hear your comments briefly on the incentives necessary for localities and municipalities to invest in mass transit.

And finally, I would like your comments about what incentives you think would be most especially useful for converting each and every truck that we have in America to natural gas. I have prepared such a bill to help incentivize private industry to convert to natural gas for any number of reasons.

So I will pitch those two questions to you and hope to see your written comments, shall we say, at the speed of business rather than the speed of government.

So let us start over here.

Mr. PORCARI. In terms of most important recommendations, Congressman, flexibility within the surface transportation program; second, performance measures that will give you and everyone else an accurate way to judge our performance on those; and third, if we are going to actually rebuild and expand our transportation infrastructure, we are going to need to vastly ramp up the program that we have.

Mr. HANSEN. Mr. Chairman, Congressman, I would echo much of what my colleague from Maryland said. I do believe that we fundamentally need to be able to have, though, a least-cost planning kind of approach that really brings the level of discipline to be able to look within modes, across modes, and really looking at that land use connection to be able to make the best investments that were the most cost-effective.

Number two, I would just echo the fact that we do need to be able to have substantial investments in the public transportation side, as APTA and others have brought forward. We have not made those investments, and I think this Nation is paying the price for that both in terms of dependence upon foreign fuel and not giving our citizens choices about how they are able to get around.

Mr. AGGARWALA. I think I will echo on at least two of the themes that I have heard here, one in terms of performance-based decision-making. I think one of the things that we have heard from a number of the Members of the Committee, as well as from the panel, is that different localities, different areas are going to have different decisions. And a light-rail or a heavy-rail line that may work in New York or New Jersey doesn't necessarily work elsewhere, could not be the most cost-efficient.

The funding, as you point out, the incentives have to be aligned so that localities and States don't see that they would lose further Federal money, that they would wind up having to have a higher match or anything like that for making these kinds of investments.

And then it is interesting, your question about natural gas, because I would also add as my third thing, I don't think we should be shy about imposing requirements. One of the reasons we got the Interstate Highway System built was that the Federal Government actually said this is the goal, and we will all be better off as a result, and whether it is natural gas trucks or more efficient vehicles, sometimes you just have to tell people to do it.

Mr. LOVAAS. Well, I will certainly agree with that last part about we need a national set of objectives, which I don't think we have had since the visionary sort of objectives established in 1956. Here we are 50 years later. We built an Interstate Highway System, and what is next?

And among the objectives should be building a system that is more multimodal, so building out the second half of the system, public transportation specifically, based on how much oil is saved and how much pollution is reduced. And then that can be translated down to the regions where most of the traffic occurs, as Sam rightly says, can be managed through establishment of regional blueprints with similar objectives that feed into the national objectives.

And then lastly, the best incentive—you asked about incentives for greater use of mass transit and investment in mass transit—is to increase Federal assistance for it and to boost that both proportionally and absolutely within the Federal program.

Mr. STALEY. A couple of things that I think are really important is, one, I think it is important to move as much of the decision-making to the State and local level as possible, because I think that is where the priorities can be set, and part of that is a performance-based system.

Second of all, I am going to reiterate I think that moving to a distance-based road-pricing system will solve a huge number of these problems, including providing transparency in the system and the funding incentives necessary to think about alternatives, outside-the-box ways of looking at it.

And I think—thirdly, I think we haven't talked much in this panel, but we need to think about new ways of bringing revenue

streams in other than just Federal financing. That includes the private sector, tapping into equity, looking at public/private partnerships both on the transit as well as the highway side, because it also brings us a certain amount of discipline and innovation. Many of the innovations in the carbon, the composites, for example, often come in through design build and other types of systems in the private sector, and we can do that much more with properly structured PPPs.

Mr. LOVAAS. Actually, just very quickly, to help Sam out here, the road pricing is a policy that we also agree is a useful one to consider as part of a basket of policies that regions should adopt, and it should be targeted at metropolitan areas. And the applications to rural areas areprobably more limited because of how burdensome such a pricing technique would be.

Mr. KAGEN. Well, thank you, Mr. Chairman.

Mr. Chairman, I represent a large rural district, perhaps not as large as yours, but we do have particularly specific problems because of the rural setting that we live in, and any Federal assistance and incentives would be greatly appreciated for the rural district I represent.

I yield back my time. Thank you very much.

Mr. DEFAZIO. I thank the gentleman.

Mr. Hare.

Mr. HARE. Thank you, Mr. Chairman. Thank you very much for holding the hearing.

And I just have three questions of two of the panelists here. And my apologies, I missed the testimony, so if you have already addressed it, I apologize.

Mr. Hansen, you said in your testimony that TriMet has tested equipment developed by the military and by NASCAR to improve fuel economy. I wonder if you could explain what kind of technology you are testing.

Mr. HANSEN. Thank you, Mr. Chairman, Congressman Hare.

Specifically, what our frontline workers are—I really do stress this—have just been key in this development. When you look at a typical city bus, transportation bus, about 285 horsepower engine, diesel engine, about 45 of those horsepower are being used to power things such as the water pump, air conditioning and other things. In a combination with CALSTART, an alternative energy nonprofit, as well as with a corporation, we developed ways to be able to—the military have actually been using this as well—how do you take some of that parasitic load off of that engine by electrifying it, by, in fact, having electrical motors to be able to power the water pump, to be able to power the air conditioning and so on. And by the way, the NASCAR element is a clearly—all of their power goes into their wheels. We want that power not having to be using more fuel.

We have seen over 5 percent fuel economy when we have been able to accomplish that. Most importantly, it is a strategy that is relatively inexpensive, about $15,000 per vehicle, and it can be retrofitted to existing fleets. So the ability to be able to have for us a bus fleet that maybe lasts 15 years, be able to become cleaner, less fuel-demanding is very important.

Mr. HARE. Thank you.

You discussed the process of what you called greening your transit operations. Is this something that can easily be done within the current Federal transit programs, or, you know, what are the changes that need to be made so the transit agencies can easily invest in energy-reduction processes?

Mr. HANSEN. Mr. Chairman, again, Congressman Hare, from the standpoint of the efforts that we have under way at APTA right now—and that is an effort towards sustainability—we are asking all properties that are a member of APTA, as well as our business members, to sign up to a sustainability commitment and in that to be able to take on a whole series of different steps at various levels, kind of like a lead like in that regard.

In terms of being able to address this, there are less Federal roadblocks to it, very frankly, but there is not much Federal incentive to be able to do it. It really is an effort that is being funded out of our existing operations.

Now, if you look at the return on investment, I think many of these investments do make sense, but the up-front costs can oftentimes be a prohibition for properties or for businesses to take on. I think that would be very helpful to be able to be addressed in Federal action.

Mr. HARE. Thank you.

Lastly, Mr. Porcari, in your testimony, you proposed a new transportation and land use program to be funded at $100 million per year to support the better coordination of transportation and land use policies between State DOTs and local governments.

Do you see the Federal Government playing a role or their leaving this up to the States and to the MPOs?

Mr. PORCARI. In this case, it would not be the Federal Government directly setting land use policies. This would be, essentially, capacity building for the metropolitan planning organizations that do not currently have that capacity for the kind of State, regional, local cooperative planning that you do not typically see on those projects. The performance-based aspect of it, where you can look in a mode-neutral way of the best way to move people and goods, would be an essential part of it.

If we are going to address some of the other policy goals that are important to transportation, including environmental preservation and sustainability, we need that capacity to do that. At least from my perspective, I see it as a bottom-up approach.

Mr. HARE. Thank you very much.

Thank you, Mr. Chairman. I yield back.

Mr. DEFAZIO. I thank the gentleman.

Mr. Boccieri.

Mr. BOCCIERI. Thank you, Mr. Chairman. I appreciate the testimony of our panel and also of the Chairman holding this hearing.

We are talking about diversifying our modal systems. I guess a question that I have contemplated over this discussion is, is the demand there? We talked a lot about rural settings and about some of the areas that I represent in Ohio. If we built a modal facility that transited some of our rural areas, would they use it?

I mean, we have a car culture that is pretty evident. Would the consumers, in your estimation, transition easily if we built this type of supply side of transportation modal system?

Mr. LOVAAS. Just very briefly—and this is in my testimony—I think we do face a discontinuity in terms of demand both for transportation and for development alternatives. We see more of an interest, particularly among aging baby boomers and also among younger people coming into the marketplace, in development alternatives and in transportation alternatives. There is evidence that they are underserved right now by the housing market and that that problem is only likely to get worse if the development industry continues to provide the product lines it does.

Now, the reason those product lines are provided is that often that is all that is permitted under local rules. Hopefully, some of those local rules would be revisited as part of these regional blueprint processes. Regardless, people are looking for more development choices, and that is likely to continue in the future, and it looks like the same is true with transportation.

The Brookings Institution actually looked at vehicle miles traveled and vehicle miles traveled per capita. They found, as the outgoing Secretary of Transportation has been saying month after month over the past year, that this is a trend. This is an emerging trend that predates the increasing gas prices, but the increasing gas prices, especially in 2008, boosted the trend.

I do not think anybody believes that gas prices are going to stay low forever, so we are also likely to see increases in demand for transportation alternatives as well as for development alternatives. So I do think consumer preferences are changing, and I do think that Federal investments should change to meet the future demand.

Mr. BOCCIERI. Do you believe that is an alternative for transportation or an alternative for fuel?

Mr. LOVAAS. Well, actually, I think it is both. I think just the sheer scale of our demand for fuel in transportation necessitates that we provide choices in transportation options and choices in terms of vehicles—so, more efficient vehicles for consumers—and choices in terms of fuel, so that, yes, when you pull up to the gas pump, for example, you have more than one choice in terms of what you fill your car with or you can plug in your car at home increasingly in the future.

I think, given the scale of the problem, we need to scale up the solutions, and I think in all three areas it is appropriate.

Mr. HANSEN. I would add that our citizens and our rural citizens, as well, want to be able to have transportation choices.

Now, the answer is, it is not one size fits all. We are not going to put a light rail line into a very rural area unless it is somehow destined for high-density development, but we should be able to use van pools or be able to use other voluntary connections. People want that. Particularly with the aging of our population and the inability for individuals to be able to continue to drive or to drive at all hours of the day or even at night, it is something that I think is going to demand this to happen.

Our citizens are asking for it. We just need to be creative in finding different solutions.

Mr. STALEY. I am looking at the data of reductions in VMT and at the increasing transit use. I do not see any fundamental changes in travel behavior. It is true that VMT has been falling, and that

was largely a response to the increase in gas prices; and I agree that gas prices are going to go up. But if we look at the amount of passenger miles going to transit, we are finding that transit has been barely able to keep its market share. In many cities, like Cleveland, for example, which has had multiple modes for many years, we are still seeing a significant erosion of market share in the major areas of transit.

The real task before most transit agencies—this is not true in Portland or even, for that matter, in Denver—is to try and maintain their market share, let alone increase it.

So I think that while I do agree that there is going to be an increase in demand for transit—and I am actually optimistic about the future of transit—I do not see the numbers fundamentally changing travel patterns.

So, again, we are looking for and we are talking about sustainable transportation. We are looking at technology-based solutions to these issues as opposed to mode-shift solutions.

Mr. AGGARWALA. If I could add, actually one of the things that I think that misses is the idea of integrating land use and transportation. This is not just about starting out with somebody who wants to take a trip and whether they take their car or whether they take a van pool or whether they take transit. Part of what we have to think about—and this is a generational change that we are going to have to begin—is whether they have to get in a vehicle at all.

Can you begin to plan even rural communities so that people can walk to the store even if they have to drive to work? Only 17 percent of trips nationwide are journeys to work. We have to think holistically like that.

Mr. BOCCIERI. I agree that it would be driven out of necessity.

Mr. DEFAZIO. I thank the gentleman for his questions.

Mrs. Napolitano.

Mrs. NAPOLITANO. Thank you, Mr. Chairman. Thank you for holding this very important session with this panel.

As you well know, I am from California. L.A.County has 12 million to 13 million people with no mass transit. I mean, at New York, I marvel. I marvel at Washington. Yet we are stuck over there with that.

There is a law in California that they will reduce emissions by a third by 2016. That is something. We pay higher gas taxes for that in California to be able to clean the air.

Essentially, do we have a program that is going to try to educate the children at the school level as they grow and become drivers about the impacts that emissions have and about the transportation gridlock that we face all over the Nation? It is not just in our area. I can tell you, in talking about Mr. Hansen's solar panels on trucks, the R&D in Pueblo, Colorado, has already begun to put solar panels on hybrids, increasing the mileage from 50 on a Prius to 100 miles per gallon.

Now, are we looking at technology that is going to help us do that?

In L.A., the Long Beach and Los Angeles harbors, the EPA has gone in and has told the boards, both boards, either you start cleaning up the air or we are going to do it for you. Now they have

a plan in process that is going to cut down. And all of these things are being done.

However, in our specific case, the Los Angeles Metropolitan Transit Authority believes buses are the answer. I am totally not against buses, but we need to move people to work, to school, to the doctor, and we have gridlock. If you put people on a bus and you have an accident, it is going to be sitting there just like any other car.

How do we begin to look at not only urban, suburban and agricultural areas where you have very little transportation capability? In other words, mass transit as you were talking, Mr. Hansen—but how do we begin to look at the needs of every different area so that we can begin to invest in that infrastructure?

There is the mind-set that you cannot put a double deck on a freeway in Los Angeles because you are going to be looking at somebody's backyard. Now, I challenge anybody to go 55 miles an hour and find out who is cooking steak on a barbecue. It is a mentality, and it is convincing people to get out of their cars and to use either mass transit or carpools. I have been on carpool since back in the 1970s when I worked for Ford Motor. That did not work. It still is not working as well.

So how do we begin to change mind-sets? How do we convince the Federal Government transportation to begin to look at alternatives and to put them all together, including hybrids, including the usage of new technology—the solar panels, all of that? Anybody, please.

Mr. HANSEN. Let me begin.

First off, it does seem to me that the issue you have heard from many of us already, and that is to be able to break down some of the Federal silos, is an important part of allowing neighborhoods, communities—really metropolitan areas—to be able to make better choices that fit for them.

In California, you have done a lot to lead the way. My friend and former colleague, Mary Nichols—head of the California Air Resources Board, the Chair of that—is really doing much to be able to accomplish those goals: how to be able to bring in more technology, to be able to provide more alternatives and how to educate our young people. I do believe that we are not realizing how much the next generation is, in fact, demanding those very options, and we need to be able to do a better job of delivering alternatives to that single-occupant vehicle.

It seems to me from afar, you have made real progress in the L.A. basin. Obviously, there are still a lot of needs to be met, but it does seem to me that you have made progress both on the land use side as well as on the fuel and on the vehicle sides.

Mrs. NAPOLITANO. Thank you.

Mr. LOVAAS. California has also made great progress in terms of increasing the efficiency of appliances, which may not sound relevant. However, it is in the sense that what we are talking about is providing the same services that people currently enjoy in order to have a high quality of life and to have a variety of job options and to have access to jobs, but without having to drive as much. We have managed to do that, to decouple the services that people

receive from technology from how much energy that technology uses.

We need to do the same now with our transportation system. Of course, in transportation, the closer applicability is in our automobiles and in that they are now going to become more efficient, thanks to Congress' enacting higher fuel economy standards in 2007.

The average American will not see much change besides the lower amount that they pay at the gas pump, in terms of what they are driving, because of improving technology in the vehicle marketplace. We need to do something similar with our transportation system, and basically, we need to provide similar services to people without requiring them to drive so much to enjoy those services.

Mrs. NAPOLITANO. I will yield in a second.

Mr. Lovaas, in L.A., we have San Bernardino and other counties, and you have a quarter that has not expanded. Some of those people drive 2 hours a day from those counties into Los Angeles, and yet we have not focused the funding to be able to allow them to have access to mass transit. That is important to understand.

I am sorry. Somebody else wanted to speak?

Mr. DEFAZIO. Anyone on the panel can briefly address this. Then we are going to move on. We are not going to solve L.A.'s problems with this panel today. They are too big for us.

Mrs. NAPOLITANO. I am looking for ideas, Mr. Chair.

Mr. DEFAZIO. I know. We are all looking for ideas, and they can submit them afterwards.

Mrs. NAPOLITANO. Sorry.

Mr. DEFAZIO. Quickly, does anyone have a further response?

Mr. STALEY. Yes.

Very quickly, I think the 91 express lanes are a good example. Again, it is going back to road pricing, but we forget that the Orange County Transportation Authority is able to fund transit in that corridor by using the road pricing example on 91 express lanes.

So part of it is finding new funding for providing the transit, and that can be done. In fact, L.A. has the density and it has the mixed use. We have alternatives. The question is finding the right mechanisms to, one, fund those alternatives and, two, to deliver those alternatives.

As you, I am sure, know, a lot of that has to do with local implementation, as it has to do, in my view, with anything else.

Mrs. NAPOLITANO. Thank you.

Mr. DEFAZIO. Thank you.

Ms. Edwards.

Ms. EDWARDS. Thank you, Mr. Chairman.

I apologize that I missed your testimony in person, but I did read part of it.

Mr. Hansen, I know that you touched on this a little bit earlier, and I think that I would agree. I mean, we want to try to double our market share for public transportation in the coming years. The question is, I think, how you encourage rural communities that they have as much at stake in public transit investments as we do in suburban and in urban communities because it is a sort of shared value.

So I address that question to you.

Dr. Staley, I think you touched a bit on this as well.

Then, Secretary Porcari, because you are from my home State, I will ask you this as we are going forward: What ideas do you have about ways that we can make investments in sort of short-term kinds of transportation projects that have long-term value, where you might invest, for example, in a rail project or in another transit project in a suburban area—say the Chesapeake Bay watershed—and convince those people in the outer rural communities that it is in their best interests to prioritize transit projects that may not be anywhere near them, precisely because you are trying to protect where it is that they live and work and play?

So I will leave that to the three of you.

Mr. HANSEN. Let me begin.

First, it seems to me that all citizens of this country, whether they are in rural areas or are in urban areas, are vitally interested in sustainability and specifically in the challenges of climate change, because certainly a ton of carbon from our urban areas or from anywhere in the world has the same effect on climate change, and needs to be able to be addressed.

Maybe more specifically to the issues of rural citizens and what is needed, I think the forefront of that debate is going to really come into focus when we look at our elderly and disabled populations within those urban areas. How do we really provide movement and mobility needs for them, sometimes to be able to get them to the urban areas for medical or for other essential services, but also just to get them to places within that same community?

I think what we need to be able to do is to find different scales, different approaches, to be able to provide for that transit component, that alternative. The rural communities oftentimes were founded long ago. Even in the rural areas—and my colleague from New York City mentioned this earlier—the ability to be able to walk within those neighborhoods, within those communities, was very important. We need to be able to either establish or to reestablish that same capability.

Ms. EDWARDS. Thank you.

I am going to run out of time so, Secretary Porcari, if you could, please address that because it becomes a question of how you prioritize. You know, we can say all of us want sustainability, but then when it comes down to setting those priorities, that rural community may say, ″No. No. No. Do the roads in my area,″ not recognizing the deep impact that some other kinds of investment might have on their living area.

Secretary Porcari.

Mr. PORCARI. Congresswoman, if there were unlimited funding, we obviously would not have that question. We would be able to satisfy all of the needs. We have what we call one Maryland approach: We have very rural areas and some of the most congested areas in the country. The balance, the mix, of what we do for transportation projects, both rebuilding and new construction, is different in each of those. Part of that is having an honest dialogue with our rural communities and with our more urban communities about the priorities, and they tend to naturally sort themselves.

So a major transit project in our Baltimore-Washington corridor, for example, is the only new capacity solution that we can do in that corridor. Conversely, in our rural areas, although we have transited every part of the State, it tends to be more of a highway solution.

Having that straight-up, honest dialogue with the communities, I think, is a very important part of it. Then directly listening to the quality-of-life components from our citizens and in our urban areas, again on the transit side, can directly benefit quality of life; and making sure that in our rural areas we are attending to the highways and to other transportation needs is one way we do that.

Ms. EDWARDS. Thank you. I think my time is about up.

Mr. DEFAZIO. Yes. Thank you.

Mr. Michaud.

Mr. MICHAUD. Thank you, Mr. Chairman. I would like to thank the panel as well.

The topic is Energy Reduction and Environmental Sustainability in Surface Transportation. In hearing the Chairman's opening remarks about the least-cost impact on the environment and in hearing the Ranking Member's remarks about balance and common sense, I have got three different areas I will just briefly talk about. I would ask for anyone who would like to, to respond.

When this Committee had a hearing last year dealing with the truck weight issue, there was a mismatch across the country dealing with truck weights. We heard one of the panelists at that time talk about, if they were bought at the same level with 100,000 pounds, going from a 5-axle to a 6-axle to prevent the impact on the foot imprint, this one company actually could save $73,000 a week in fuel costs as well as take out 130 pounds of C02 plumes in the air.

So my question would be: Do you favor having some type of uniformity in that truck weight issue?

The second issue is: You have heard from Members from different States. I am from Maine. We are a very rural State. What do you think we can do as far as passenger rail? Clearly, in the northern part of the State, the population is not there. It probably does not warrant it. Do you think that the Federal Government should be proactive in looking at freight rail of which the capacity is not consistent? Should freight rail and passenger rail work more collaboratively to provide that type of mode?

My third comment or question: When you look at land use planning and the discussion in Congress that deals with energy, here again, some States are going to have to build capacity as far as when you look at transmission lines.

Do you think this is an opportunity, particularly in rural areas, when you look at environmental impact, for the States to actually use the median strip on the interstate as a way to actually put in ground transmission lines and where the rental fees on those transmission lines can be put back into transportation projects?

When you look at the electric rates, one of the costs is the transmission line. That is a good area when you look at low impact, and this might be an opportunity to raise money to help our infrastructure needs.

So, with that, I will just open it up for anyone on the panel who might want to address these three different areas.

Mr. LOVAAS. Congressman, in terms of transmission lines, that is something that we have not studied, but you know, we would certainly be interested in it if there is a synergy in terms of infrastructure investments there.

In terms of trucks, we do not have a position on that. All I can say is that there is a countervailing safety concern that I have heard voiced by some, so that is something to remember.

In terms of rail, I think you have hit the nail on the head about the need for passenger rail and freight rail to come together and to advocate for an investment plan, a national investment plan, that meets the needs of both and that expands the capacity of both as opposed to some of the competition that has occurred in the past.

As a matter of fact, NRDC is part of a new coalition, the One Rail Coalition, which brings together for the first time passenger rail providers and businesses and freight rail providers and businesses. We are working, and we will continue to work with the Chairman and this Committee as well as with the T&I Committee generally on that issue because we do feel it is high time for there to be one plan for rail, both passenger and freight, in terms of a Federal investment.

Mr. PORCARI. If I may, Congressman, first, in terms of the use of the median and of the right-of-way in general, that may be a possibility. We have not looked at electricity. Essentially, we use the medians as a piece of the information superhighway. We have throughout the State used it to lease fiber, and it is one way we are bringing fiber at no cost to some of the most rural areas of the State, so it is as much an economic strategy as anything else.

The points that were made on passenger and freight rail are important. In some ways, the most precious transportation asset we have is right-of-way, and where we can share rail right-of-way, where we can coinvest in new technology to increase capacity, not just in our urban areas, but throughout the country where the ridership is there, the two can coexist very well. You get into this virtuous circle where the freight rail investments that have not been made over the years can be partially made through the passenger rail investment.

Mr. HANSEN. On the passenger rail, I think we in the Pacific Northwest too easily fall into the trap of looking at travel times by air between Portland and Seattle, which are a half-hour to 40 minutes of flight time. Yet, when you look at the amount of time it takes to get to the airport through security and then from Seattle from the airport and into downtown, the rail—the Cascades—which is our Amtrak-run passenger rail, really is about equal in time. Yet we have not even taken into account the overall cost to the society as a whole of investing in additional runway capacity or in other things; and can we, in fact, move some of that passenger airway off of flights and into that passenger rail and really be a more efficient overall investment.

I think that overall sense of how do we integrate these modes is tremendously important. Certainly, California, in looking at their high-speed rail opportunities, is exciting as well.

Mr. DEFAZIO. Thank you. I want to thank this panel. I think you have given us some good information. As to any further ideas you have about how we could move in the least cost direction, how we could begin to break down the silos and how you could address the other concerns you have heard from some of the other Members here, we always welcome your comments, and we would be happy to take credit for the best ideas you have.

With that, I thank this panel, and would ask the next panel to come forward.

Mr. DEFAZIO. Okay. Let us get started, Ms. Banks. I understand you have a 2:40 flight. I know how hard it is to get to the west coast, so we might just depart a little bit because the weather is pretty funky outside. Why don't you give us your 1-minute, and we will let people briefly address questions to you, and we will get you out of here. Then we will go to the rest of the panel if we could.

TESTIMONY OF SHARON BANKS, CHIEF EXECUTIVE OFFICER, CASCADE SIERRA SOLUTIONS, COBURG, OR; TOMMY HODGES, CHAIRMAN, TITAN TRANSFER, INC., SHELBYVILLE, TN; DAN SCHAFFER, PRODUCT MANAGER, TX ACTIVE ESSROC ITALCEMENTI GROUP, NAZARETH, PA; AND DAVE TILLEY, PRESIDENT, CRAWFORD GREEN SYSTEMS, WILMINGTON, DE

Ms. BANKS. Thank you, Mr. Chairman.

Mr. DEFAZIO. If you were here for the first panel, I am asking you to summarize your testimony to 1 minute, and then we will ask you some questions.

Ms. BANKS. Okay. Thank you.

My name is Sharon Banks. I am the CEO and founder of Cascade Sierra Solutions. We are a nonprofit organization that operates a program on the west coast to upgrade tractor-trailer trucks with fuel-saving technologies.

We operate outreach centers that are collocated with truck stops to provide a convenient place for truckers to come and to learn about fuel-saving technologies. We bring together more than 60 products that can help save fuel and that can reduce emissions. Our organization is compromised of a number of public and private partners dedicated to our mission.

Today we have upgraded about 2,000 trucks, and we have about 1,200 more in process. With the proper upgrade, we can save about 5,000 gallons of fuel per truck per year, or about 50,000 gallons over a 10-year life cycle.

Our organization would like to grow and to replicate this nationally, but we feel that the program really needs to be part of the national strategy.

Mr. DEFAZIO. I will go first.

As to 5,000 gallons per truck per year, what is the potential market out there? How many unretrofitted trucks are there that could benefit from this technology?

Ms. BANKS. Well, everything that was manufactured prior to 2007 is a potential candidate for a retrofit, both for diesel particulate filters, which help reduce toxic diesel emissions, but also for the different strategies that we have in idle reduction, better tire technology and in light-weighting.

There are about 40 different things that we can do to upgrade a tractor-trailer truck. I think there are about 600,000 long-haul trucks on the road, and probably about 5 to 10 percent of them have been upgraded at some level, but the vast majority of them have nothing upgraded on them.

Mr. DEFAZIO. All right. Now, you are not saying that all trucks post 2007 come with all of these accoutrements.

Ms. BANKS. They do not. Very few of the salespeople even at the brand-new truck OEM level are trained in how to get the best fuel economy. You really need trained technical people that know the vocation, that know the operating speeds and the climate, and that know the vehicle miles traveled and the terrain that they are operating in to provide a really proper upgrade of that piece of equipment.

Mr. DEFAZIO. Since we know the technology exists and we know it works, what is the biggest barrier? Is it the cost to the trucker, particularly if you are dealing with other than large trucking companies or even some large trucking companies who today, in this market, may not have the money? Or is it more a lack of knowledge that these technologies are out there? Which is it?

Ms. BANKS. Well, there is a huge awareness barrier, and there is also a lot of equipment that does not really work very well that people try to sell.

Mr. DEFAZIO. Which has given some of this technology a bad name?

Ms. BANKS. Exactly. There is a huge capital cost barrier. Even though the driver could save as much as $700 to $1,000 a month in fuel for a $300 loan payment, the banks just do not see it that way. They just look at the financials, and they are very, very wary of trucking companies to begin with. They have the most difficult time getting financing. So we have taken it upon ourselves to create a revolving loan fund, and we have raised about $11 million so far.

Mr. DEFAZIO. What is your default rate?

Ms. BANKS. We have had nine defaults out of more than 1,200 loans.

Mr. DEFAZIO. That is pretty good.

Ms. BANKS. From seven of those, we have recovered the equipment and have installed it in another vehicle, so we have very, very low losses. And we are looking to expand the loan program because we do not need grants, we need loans. We need loan capital so that we can loan the money out, collect it back, and then loan it out again to someone else.

Mr. DEFAZIO. Okay. Thank you.

Do other members of the panel have questions? Anybody?

Yes, Mr. Hare.

Mr. HARE. I will not keep you, Ms. Banks.

If the Subcommittee can provide you with one thing other than with unlimited funding, what would that be? If you could have on your wish list what we could do for you other than give you unlimited funding, what would that be?

Ms. BANKS. With funding I think we could expand very, very easily. Everybody wants to have clean air, everybody wants to save

fuel, but we just need to enable that process to be able to allow truckers to step up to the plate.

Mr. HARE. Thank you, Mr. Chairman.

Mr. DEFAZIO. For instance, California has adopted idling restrictions. What has the State done to facilitate and to help people deal with that—with APUs or with anything else? Have they done much down there?

Ms. BANKS. Well, unfortunately, once it is a law, then none of the funding is available to help. You have to be an early mover to get funding. So now that it is a law, there is no funding for APUs in California.

Mr. DEFAZIO. Can you explain that? Now that they have to have it, they cannot get the money; but before, if they had wanted it and they did not have to have it, they could have gotten the money?

Ms. BANKS. That is the way it works. If you are an early mover and you move prior to the regulation, then you can get assistance.

Mr. DEFAZIO. Where does this money come from that has this restriction?

Ms. BANKS. That is pretty much the Moyer programs and Prop 1B both. If it is a requirement for you to be upgraded, then you can no longer qualify for the funding. So it is important in California that we push people to take advantage of the opportunities prior to the rule.

Mr. DEFAZIO. Okay. We have some good news and some bad news for you. You are not going anywhere, so I guess you can sit through the rest of the panel.

Ms. BANKS. Okay. Great. Then I guess I can stay all day.

Mr. DEFAZIO. All right. We will proceed.

Are we working to get her an alternative? Great. Her flight was canceled. It is snowing.

Mr. Hodges.

Mr. HODGES. Thank you, Mr. Chairman.

I will begin by saying I am a trucker. I am Tommy Hodges. I am chairman of Titan Transfer out of Shelbyville, Tennessee. I would like to thank the Committee for allowing me to come and to offer this testimony. I hope you have had the opportunity to read and to review the testimony.

I currently come to you not only as a trucker but also as a representative of American Trucking Associations, mostly as the chairman of our sustainability task force, which is almost 2 years old now, to address the very issues of our carbon footprint.

Out of that task force, we recommend to our members a six-point effort that is proven to reduce our carbon footprint. I hope that the Committee will take time to read those things because what they do, in essence, is provide a commonsense, low-cost way to reduce our carbon footprint and to green up the air that we all breathe commonly, and also to save our individual companies money.

Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you.

Mr. Schaffer.

Mr. SCHAFFER. Thank you, Mr. Chairman.

Mr. Chairman and Representatives, good afternoon. My name is Dan Schaffer. I am the United States-based product manager for ESSROC's line of photocatalytic cements.

ESSROC Italcementi Group was commissioned to develop this breakthrough cement technology as a way to abate the ever-increasing pollution in our urban areas and as a way to keep our concrete pavements and surfaces cleaner and more aesthetically pleasing without exterior maintenance, ultimately to contribute to a better way of life.

The use of this unique cement technology, when used in concrete, does not only resist the buildup of the atmospheric compounds that will tend to discolor concrete over time, but also and more importantly, the technology will actually absorb and reduce primary pollutants—pollutants that are harmful to human health and pollutants that are harmful to the environment—pollutants such as nitrogen oxide gases, NOx, SOx, VOx, particulate matter, ultimately urban smog, ground-level ozone.

So, with that, I thank you, and I welcome any questions anyone may have regarding this technology.

Mr. DEFAZIO. Okay. Thank you.

Mr. Tilley.

Mr. TILLEY. Thank you, Mr. Chairman.

In reading the summary of subject matter that the Committee presented for this hearing, they mentioned looking at several strategies for meeting emerging energy and environmental goals, and some of their strategies involved more efficient lighting. Our company has the technology to address better controlling street lights across the country. There are 50 million street lights across the country, so it provides a huge opportunity for savings.

On the first panel this morning, there was a lot of discussion about things that would have immediate results and about things that would be cost effective. Our technology would have immediate results because, as soon as you start better controlling street lights—that is, turning them off when they are not needed—you are going to save energy. When you save energy, you reduce C02 emissions. We talk about cost-effectiveness. This switch, this technology, could pay for itself in as little as 4 months.

Again, thank you for the opportunity.

Mr. DEFAZIO. Okay. Thank you.

I will start first.

Just to come back, Ms. Banks, I am still confused. Some of the money you are talking about is Federal money, and some of it is State money for the loans, right?

Ms. BANKS. For the loans, we have received $1.13 million from EPA, and that is available nationally. We have leveraged private-sector capital through very few means.

Mr. DEFAZIO. But the EPA money has this restriction on it that you cannot use it to meet a legal requirement?

Ms. BANKS. No. That is more referring to California grant money.

Mr. DEFAZIO. All right. Okay. I was confused by that.

Ms. BANKS. As for the funding that we have for the loan program now, some of it is State-specific, but a smaller amount is nationally available.

Mr. DEFAZIO. Okay. I would just point you toward, depending upon the final construct within the so-called stimulus package, there is a small amount of money dedicated to anti-idling another

that might become available in the future. So it would just be something to follow.

Mr. Hodges, when I look at your testimony, what I find is that if I look at your various impacts, congestion is the greatest single contributor. The reduction of congestion, if it were to be eliminated, which would be very difficult, would contribute the most in terms of fuel savings. The second was idling, and then the last was the idea of speed limiting.

I guess my question is: Do you have any sort of innovative ideas on idling? You might have been here or your associate may have been represented. We did a hearing where we looked into the issue of shipping freight-forwarding brokers and that, obviously, they have no regard for the efficient use of a trucker's time or of their resources in terms of their bidding system, particularly for smaller, independent truckers.

I wonder if you have any thoughts about that. I mean, if we want to deal with at least that sort of waste in the system and get people to move with fuller loads and get them to move in more efficient routing and get them to move more towards some kind of ″just in time,″ don't you think we are going to have to deal with the total deregulation of that industry?

Mr. HODGES. Well, probably to answer your question, Mr. Chairman, about the brokerage side of it, I heard two, or three maybe, sub-questions in that comment, but that is a very difficult animal to get your arms around.

First of all, the marketplace pretty well takes care of the balancing act through those various mediums that you talked about. What we lose concept of in the real world is that each load that we haul has its own separate requirement from that shipper or from the receiver of the goods to not only balance the movement of goods from one point to another, but it also has to match up the needs of when they want it delivered and of when they want it picked up. Now you begin to be a very, very complex system, and a national planning board or some obscure agency out here that is going to try to monitor this and to allocate the loads really is beyond my comprehension.

Mr. DEFAZIO. So you somehow made them factor that into their business equation. It is not a factor in their business equation? They could care less if there were an incentive or a disincentive for them to develop and/or program people in a more efficient way.

Mr. HODGES. Well, that certainly would be the most efficient goal that you could accomplish where there were no empty miles.

Our company began doing business with Nissan, the first Japanese transplant, who not only does ″just in time″ and ″just on time,″ but a 5-minute window, and they do not mind paying for that truck to come back to them empty. So, basically, we have got a 50 percent empty mile factor in there. They pay for that, but they do not want the interruption in the transfer of their raw materials coming to their plant that goes straight from the back of our truck to the assembly line. No warehouse.

So, to be able to factor that in and to try to put on a load and make 50 percent of those empty miles, now loaded miles, you know, the shipper is not going to allow you to do it. So, as I see it, you

have got those kind of factors that also enter in, that become prohibitive to that kind of a system.

Mr. DEFAZIO. Right. I was here through the speed-limit debate, and it was a little more contentious. In fact, it was my job to tell Mr. Roe, then Chairman, that I could not support his double nickel, my being a westerner. I remember that very well.

You are proposing that there could be savings with truck governors. I have heard from safety advocates and from others that rear-end collisions are a big problem, and if you were moving trucks slower, that would be a big problem. Of course, cars would not have governors, but I assume you are saying everybody would be limited to 65 miles per hour; is that correct? We would be again preempting the States, which we have given them jurisdiction to go higher, and that would be preempting them back.

Is that what you are proposing?

Mr. HODGES. Yes, sir. The short answer is, yes, sir.

We have proven not only in theory, but in the practical application of our fleet, for every tenth of a mile that— for every mile per hour we slow our trucks down, we save a tenth of a mile in fuel economy.

Mr. DEFAZIO. Right. Wouldn't that come through legal enforcement and through the training of truck drivers and through giving them the option that they would be able to accelerate if they needed to, but that you would just have them drive slower when it would be safe? I mean, couldn't that be done where they are finding the so-called sweet spot?

I am just going to tell you that I do not think this Committee is going to go back and preempt the States for what the GAO and others say are dubious savings in terms of fuel. I just want to caution you that this is one of your weaker legs. It has the least amount of projected savings of those three areas.

Mr. HODGES. Yes, sir. We concur that it is a very emotional issue with most constituents, with most people, but the fact is it does save fuel.

Mr. DEFAZIO. Right. But there is that testimony from Ms. Banks that we could save 5,000 gallons per truck per year with these retrofits. I cannot remember if she gave me the number of trucks, and I did not quite get around to multiplying it out, but again I think it would probably exceed the ostensible savings of the speed limits, without the problems. Anyway, I urge you to rethink that part.

Mr. Schaffer, I am not an engineer. I have read your materials. Over time, does the capability of this new kind of concrete lose the capability of taking the NOx and others out of the atmosphere?

Mr. SCHAFFER. Mr. Chairman, no, absolutely not.

The components that are blended into the Portland Cement are catalysts, and the sheer definition of a ″catalyst″ is a substance that accelerates a process but is not consumed in that process. These products are not consumed. As long as ultraviolet light will hit that concrete and as long as the concrete remains intact, the technology will work.

Mr. DEFAZIO. Very interesting. Then one other question.

There has been some debate and discussion over the production of cement itself. The Europeans use a different standard than we do, which creates fewer global warming gases in the production, be-

cause they allow more fly ash and other materials in there. They claim it is as good and that whoever sets our standards here does not seem to agree with that. Are you aware of that discussion or controversy?

Mr. SCHAFFER. Yes, absolutely.

Supplemental cementitious materials are very popular to use within concrete, things such as a fly ash; ground granulated blast furnace slag is another. That is becoming very popular within the concrete industry.

From a cement manufacturing standpoint, the ingredient in concrete certainly is energy prone, and it does require a great deal of energy. However, our plants are continuously upgrading to newer technologies to reduce our energy footprint.

Mr. DEFAZIO. Right. If we adopted a different standard and allowed more of that additive and if it were as durable, would it be incompatible with your new technology?

Mr. SCHAFFER. No, not whatsoever.

Mr. DEFAZIO. Okay. Thank you.

We will go in the order we went before. So I guess it will be Mr. Hare.

Mr. HARE. Thank you, Mr. Chairman.

Mr. Schaffer, in your testimony, you said that the product has been proven to reduce nitrogen oxide, sulfur oxide and other chemical compounds. Can it also reduce carbon dioxide emissions?

Mr. SCHAFFER. No, it cannot. Carbon monoxide, yes, but carbon dioxide, no. The components, the pollutants, that it can reduce—the NOx and the SOx—these are very extreme toxic compounds that have a direct impact on human health.

Mr. HARE. Does your product's effectiveness decrease over time? For example, if the cement were used for a road project, would the pollution-reducing results decrease over time? What would you need to do to reapply that?

Mr. SCHAFFER. No, none whatsoever. Once you have this special cement within the concrete matrix, the catalyst that we blend into that cement will remain intact and will continue to work indefinitely.

Mr. HARE. You used this on the I-35 bridge in Minneapolis, I believe.

Mr. SCHAFFER. Not on the bridge itself.

Mr. HARE. You used this on the entrances to the bridge?

Mr. SCHAFFER. Yes. They were two 30-foot-high monuments that they used, the TX Active cements, within that concrete. Linda Figg, who is the president of Figg Engineering and who designed the bridge, wanted to do a pilot test project first in those types of applications. Because of the success that we have shown with the technology thus far, she is trying to implement the technology throughout a bridge span.

Mr. HARE. Do you know what kind of pollutant reduction the city of Minneapolis experienced as a result of the TX Active?

Mr. SCHAFFER. No. Now, keep in mind, these monuments are very small in structure to the entire span. They are more gearing towards the self-cleaning aspect where you are reducing those atmosphere compounds from adhering to that concrete surface, keep-

ing these beautiful structures clean, these beautiful, symbolic structures clean over the service life.

Mr. HARE. Mr. Tilley, your technology seems like it is simple and is a low-cost solution for reducing energy consumption, it would appear to me.

How many towns or cities have implemented your technology?

Mr. TILLEY. Actually, this is a brand-new technology. It is perfect timing for us to introduce this at this hearing. We currently have tests going on in one town called Topton, Pennsylvania. They are running a test right now, just to prove that when you turn off a light, you do, in fact, save energy. We are putting some actual data to it. Then we will be working with the utility as well for a reduction in costs.

Mr. HARE. That is a study you are doing?

Mr. TILLEY. It is just going to be about a 2-week study because, again, we are studying what happens when you turn off a light.

Mr. HARE. Yes. If you could maybe get the results of that back to us, I would be very interested.

Mr. TILLEY. Sure.

Mr. HARE. In turning the lights off, has there been any increase in crashes, fatalities, or crimes where the technology has been implemented? Are you seeing any downside to turning off the lights, if you will?

Mr. TILLEY. No. Again, this is early. One of the things that we did put in the testimony is that it is incumbent upon the locale, or if it is a borough that is doing this or the Department of Transportation, to study the area where these may be used for safety, whether it is for traffic safety or whether it is for security. In a populated area like Washington, D.C., I would submit that it is probably not a good technology to use in downtown Washington, D.C. ever. In Topton, Pennsylvania, it is very rural and very open. It is a fine technology.

Mr. HARE. Just lastly here—and I am not picking on you, believe me—as to any communities that have considered implementing this, have they heard any negative feedback from the community? In other words, is there concern that turning these lights off is going to cause a problem?

Mr. TILLEY. Not at this point. As a matter of fact, we are working right now with a town called Bow, New Hampshire. It is in the very early stages. As a matter of fact, just yesterday afternoon, we started. Bow, New Hampshire turned some 220 lights off permanently to save money. That caused an uproar in the town. We are working with them right now to see if we can turn some or all of them back on during the busy hours and then turn them off later at night. So we may actually have the reverse in a couple of towns where they can actually provide lighting where they would not be able to without a savings.

Mr. HARE. Ms. Banks, I am sorry your flight got canceled. I asked this question before. Maybe I phrased it incorrectly.

Other than funding, what can we do in terms of this Subcommittee and this Full Committee of the House to help? I mean, I know money is a big thing. Other than that, is there anything absent the money end of it, or in addition to the money end of it, that we could do that would help you out?

Ms. BANKS. Well, rules tend to help facilitate getting equipment on trucks. But I would like to see that as a last resort just because there are so many truckers, especially the mom-and-pop businesses that are barely surviving right now. When government mandates rules, it makes it very, very difficult to stay in business.

Mr. HARE. Thank you very much.

Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you.

Since you were directing questions to Mr. Tilley, Mr. Tilley, I want to apologize. The Republicans had to go to a meeting, and you were here at the request of Congressman Gerlach. I am sure he would be here if he were not otherwise occupied.

Mr. TILLEY. President Obama is more important than I?

Mr. DEFAZIO. To the Republicans, I am not sure that he is more important.

Mr. TILLEY. Thank you.

Mr. DEFAZIO. So, with that, I will go to Mr. Boccieri.

Mr. BOCCIERI. Thank you, Chairman.

Help me out in understanding why we use diesel for trucks. The carbon footprint is larger. Would it be much easier just to transition it to unleaded gasoline?

Mr. HODGES. I assume that is directed to me.

Mr. BOCCIERI. Yes, sir, Mr. Hodges.

Mr. HODGES. There are a lot of factors.

First of all, diesel is a derivative of the refining process. Basically, it used to be a byproduct. It is a lubricant as opposed to an accelerant that gasoline is through the refining process. It also generates the most power for BTU power that it can do. When you consider the high horsepower required to move a load of 80,000 pounds from one segment to the other, considering topography, it is the most efficient fuel that we have seen.

There is a strong move right now, or a lot of conversation to go to LNG or to some alternative fuel. This is fraught with problems. First of all, there is not an available engine right now, that I am aware of, that would deliver more than 330 horsepower when we are typically needing 450 to 475 to move with traffic and to move with speed. So it is the availability of the engine manufacturers to come up with an engine that would be a viable substitute. Then you get into delivery problems. You are putting now an accelerant on a truck that normally has a lubricant.

So I do not know if that answers your question, sir, but it has quite a few problems. Right now, regardless of what some very high-profile people say, it is not a viable option to the average trucker.

Mr. BOCCIERI. Ms. Banks, did you have a comment?

Ms. BANKS. I just wanted to say that Cascade Sierra has 11 liquid natural gas trucks that are heavy duty that we are going to be putting into the Port of Los Angeles. They are very, very expensive, and there is not a really good fuel infrastructure available yet, but we are going to learn a lot in getting these 11 trucks and in testing them out. These are higher horsepower liquid natural gas, not CNG but LNG trucks.

Mr. BOCCIERI. Mr. Hodges, would you get the same BTU output from a natural gas retrofitted vehicle?

Mr. HODGES. I am not technically sure. The information that has come my way says we could get more BTU actually out of diesel than we would get out of the LNG.

Mr. BOCCIERI. Okay. My last two questions, really quickly.

Mr. DEFAZIO. Ms. Banks was shaking her head. I think she can answer that.

Ms. BANKS. Eighty percent less, so the BTU is definitely there in the diesel.

Mr. BOCCIERI. Okay. Real quick, Mr. Tilley and Mr. Schaffer. Obviously Ohio has significantly more cloud coverage than California. How would that affect, in terms of wattage, your equipment if we use them on street lamps and in terms of the cement—and I am intrigued by your testimony with respect to asphalt and, you know, reengineering some of our roads. What do you think that would have an effect on in terms of the weather?

Mr. SCHAFFER. If I understand the question correctly, how does cloud cover affect the process by which this works?

Mr. BOCCIERI. At least in changes in the weather. I mean it is a much different climate in Ohio.

Mr. SCHAFFER. Keep in mind you need ultraviolet light to trigger this process, this photocatalytic process. UV light is very diffuse in nature. It is scattered and bouncing all around us. If you go on vacation to the beach on a cloudy day and don't put sunscreen on, you usually still get burnt. That is the same concept here. There is enough UV light present within the atmosphere to trigger the process by which this works.

Mr. TILLEY. You really won't see a difference in cloud cover as far as usage goes, because the street lights come on at sunset. It uses a standard photocell. So when it gets dark, just like it has done now, this photocell will turn on the lights. It is 5 o'clock at night in December, 9 o'clock at night in June. What this will do is turn the light off late at night, turn it back on early in the morning, so as traffic requires it. Cloud cover during the day will really have no effect.

Mr. BOCCIERI. If there was a solar panel on the light structure itself, would there be—a day where you had significantly less sunshine, would that significantly impact the wattage or the output of your product?

Mr. TILLEY. No. This does not use a solar panel at all. There is a different technology which is much more expensive, which uses solar panels to charge batteries to power lights. This is a completely different technology than that.

What this will do is simply turn the lights off late at night when they are not needed, but this does nothing to power the lights. The power for the light will still come from the normal grid.

Mr. BOCCIERI. Is it your understanding, though, that the wattage would be significantly reduced from the solar panel?

Mr. TILLEY. From the solar panel, that is not necessarily the case. It may be the case, but again, our technology isn't using the solar panels. Louisville, Kentucky, I guess is a town that has experimented quite heavily with solar panels. I am not sure how much they reduce their wattage, to be honest with you, you know, to run off of the solar panel and battery. As I understand, those systems using solar panels cost about $4,000 per street light. This

costs about $100 per street light. Normally a street light will use up between $4- and $500 at the most, sometimes a lot less, in energy costs. So if you think a street light uses $300 per year, you know, if this can save—you know, if it only costs $100, it can save energy, it is a lot more cost efficient, a lot quicker than, say, a solar panel.

Mr. DEFAZIO. Okay. Thank you. Ms. Napolitano.

Ms. NAPOLITANO. Thank you, Mr. Chair. Ms. Banks, I listened with great interest in your talking about the 11 trucks going to port that are the new ones. We sat through a meeting, very, very expensive. But is there—my question would be for the loans to the truckers themselves. The banks are not loaning, am I correct? So how do we get around it, whether it is because they don't have the money or because they don't want to use it, I am not quite sure. Do you have any idea what can be done to be able to help the truckers get the loans to be able to carry on?

Ms. BANKS. Well, perhaps a loan guaranty program that could work. And I know in California we have got some things going on with Assembly Bill 118 that may help. Although we still go back to the basic issue that most banks really do not make loans to independent owner-operators, and even the large fleets right now are having a very difficult time because they look at their cash flow and their income and they have certain, you know, debt-to-income ratios and things that they base their credit on that they are not able to access. They have already maxed out their credit.

Ms. NAPOLITANO. But where within these individual truck drivers, independent or fleet, would go to get their loans?

Ms. BANKS. Well, we have put a couple of programs together in California. One particular program is with a big fleet in west Sacramento, and we were able to get the owner of the company—and the company is a non-asset-based company which means they don't really own the trucks, but they contract out to a number of different independents—and we put a program together where the owner of the company agreed to co-sign for the drivers, and we were able with our credit and with a little bit of match that we put in from our EPA grant that we got, we were able to get financing through a very special bank on the west coast to get brand-new vehicles for 65 of their owner-operators. But it is that kind of you have to go the extra mile to try to figure out a way to put a program together, and that is exactly what we did.

Ms. NAPOLITANO. Mr. Hodges, based on that, what about your independent truck drivers? They are the ones that are going to be left out. They can't get the insurance. They can't get the loan.

Mr. HODGES. It is a diminishing population. It is a sad fact in our industry and the state of our economy that these truly entrepreneurial, very smallest element of business people in our society, in my opinion, are being squeezed out by a lot of issues, economics, regulations.

Ms. NAPOLITANO. How do we help them?

Mr. HODGES. A difficult, a difficult process to help them, and we have got so many conflicting interests at stake here. The port of L.A. And Long Beach has basically taken a stance it is trying to freeze those people out of jobs up to and even including I think in

L.A., saying you have to be a company driver in order to pull freight off of them.

The simple answer is I am not sure. I do think the American spirit is alive and well in those individuals. As they might be displaced in one application, there will be opportunities in other applications.

Ms. NAPOLITANO. Do you have any suggestions?

Mr. HODGES. I would say to those folks that are doing those things to look at other modes or other longer-haul application. They may have to—since the realization sets in that they may have to sell their existing truck, they buy another truck and lease it on to another company, a non-asset-based company or an asset-based company that also has owner-operators.

So I think that spirit will be alive and well with them. They will go through a transition period where they are now transitioned into not mode, but another facet of our industry.

Ms. NAPOLITANO. Thank you, sir. Mr. Schaffer, I am very intrigued by the technology. In L.A. County, there is so much pollution. Will that affect its ability to be able to absorb the rays?

Mr. SCHAFFER. That is a very good question. In fact, the technology strives on pollution. The higher the pollution levels, the greater the sunlight's intensity, the better the technology works. We have seen the best reduction in pollution under the worst-case scenarios. When is pollution at its worst? When it is the summertime months, when the sun is shining strong, because urban smog is produced. That is one of the components of sunlight. Our technology works under those worst-case scenarios the best.

Ms. NAPOLITANO. And back to Mr. Hodges. Back in Los Angeles during the Olympics, the former Mayor Bradley went to all businesses and asked them to find a way to keep trucks off the road during the time that tourists were going to be there; in particular, nighttime drivers. And right along with what you are saying is they reduced a lot of the pollution because the sun triggers it. Anything being thought of being able to get with businesses and promote nighttime delivery, nighttime driving, nighttime delivery?

Mr. HODGES. Our industry and my company in particular would not have any problem with that scheduling. Where we reach a major pullback is most—a lot of the businesses we deliver to and pick up from are small businesses, and in order for them to reallocate their resources and have their businesses open 24/7 to receive their goods, it is going to drive their costs up significantly because they basically have to doubleman their businesses. You know, we have no problem when we deliver as a rule, but you are talking about basically transitioning our whole supply chain from what hasbeen what is fundamental for years and years to a different type of operation. We are just a service provider. We have no problem doing that, and in fact, we move strongly towards appointment deliveries for a lot of people, but those appointments are generally always in the daytime hours when most Americans want to work.

Ms. NAPOLITANO. Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you. Ms. Edwards.

Ms. EDWARDS. Thank you, Mr. Chairman. I have a question, and Ms. Banks, I am sorry that you missed your plane, but I am glad

that you are still here. You said there were how many trucks eligible for the kind of upgrade that you described?

Ms. BANKS. Well, nationwide there is about 600,000 long-haul tractor-trailer trucks that run, you know, pretty much across State lines, east-west, north-south, all locations, all Lower 48.

Ms. EDWARDS. And that is 5,000—with an upgrade 5,000 gallons of fuel that is saved over a period of a year, right?

Ms. BANKS. Some of them would—you know, they may already have a partial solution. So it might be a little bit less. But other ones that we—one fleet that we upgraded, we actually saved over 7,000 gallons of fuel per truck per year. We took their fuel economy from 5.8 miles a gallon up to the high sevens, and some of their trucks in that 300-truck sample actually got over 9 miles a gallon. And the very highest one we have on record—and these are off of GPS technology that goes on our trucks, so it is very valid data—the very highest one we have on record got 9.75 miles a gallon.

The fleet also implemented an incentive program where they give away a free Harley Davidson every quarter to the driver with the best fuel economy.

Ms. EDWARDS. So that is an incentive.

Ms. BANKS. So that cut another half a mile a gallon off that.

Ms. EDWARDS. I am interested because the program that you described, if you were operating a sort of fully evolved loan program, it is very similar with what happens with homeowners, for example, if you are buying a fuel-efficient home—some big upgrade to your heating or cooling system and you tack that on—you tack on the cost to your utility bill every month. It is a very similar kind of system. It is not rocket science. It is pretty simple.

Ms. BANKS. It is even better for the Federal Government, though, because when you raise the bottom line for the business, they pay more taxes and you get all of your money back, plus. It absolutely costs the Federal Government nothing.

Ms. EDWARDS. So you don't have to answer this here, but I am interested to know if we were to just look at the high-density corridors that are producing the most congestion and identify those as priority areas for centers to do this kind of upgrade, what that would look like, because that might be some kind of a model in a program where you are not fully implementing it across the country but you are looking at the areas that are producing the most congestion.

Ms. BANKS. Right. In my write-up, there is a highway map that shows the main freight corridors is about 10 or so of those. I would suggest that we would locate centers at intersections of those, and then you would probably only need 7 to 10 additional centers to cover the whole Nation.

Ms. EDWARDS. Thank you. And then just for the record, to note again your default rate, and so this is something that really does pay us all back over some period of time.

Mr. Hodges, I was curious, in your testimony you indicate you de-stress the application of freight rail as an alternative, even over a period of time, for our sort of transportation—sort of freight transportation system. And I am really curious about that because I think some of us are thinking we need to do more serious upgrad-

ing of our freight system to allow for increased use of and more efficient uses of a freight rail system.

Mr. HODGES. That is a question that plagues all of us. I come from an industry that is another industry, the rail industry, largest customer, so we are already the biggest users of that particular process. However, none of us wants to cross multiple railroad tracks when we go to the Kroger store or we go to get fuel or we go down to the local Wal-Mart. A highly functioning Wal-Mart requires six tractor-trailer loads of freight a day to keep it supplied. So there is going to be always multiple modes.

We think that we lull ourselves into a sense of false security if we think that natural diversion to rail is going to happen. Longer trains inhibit our roadways and those kind of things. We think there are other alternatives to doing this, more productive trucks. Unfortunately for us, in our industry I have one load, one truck and one man. That is as productive as I can get, and now I am structured by I can only put so much on that load.

What we would ask the Committee to do is look at things to help us be more productive, to add those things. If we really want to see a decrease in the number of trucks on the road, harmonize the LCV usage in the Western States, where it is less populous, in less urban areas. These are a huge help. There are some commonsense approaches that we can do.

Intermodal, we just cannot see that that is the answer. We are not opposed to it. We are their biggest customer. Then you factor in time constraints—a real life story: My company, I was called on by CSX, a major north-south railroad, to try to use intermodal. Because we are trying to save money, we will do that. But the intermodal route was going to take the load from Nashville, Tennessee, to Chicago and then to New Jersey. You are adding a lot of utility, plus I lose 2 days of service.

Ms. EDWARDS. Thank you.

Mr. DEFAZIO. I thank the gentlelady for her questions. Just to follow up, you talked about the retrofit that would achieve the 5,000 gallons per year savings. What is the cost? I mean, you are getting some fairly expensive stuff, the high-efficiency tires and rims and skirting and the APUs. I mean, what is the total package generally?

Ms. BANKS. Total package could be anywhere from $10,000 to $25,000 depending on what all you wanted. You can go for idle reduction. You could use a bunk heater which might be about $1,200, clear up to the fanciest APU. That might be about $12,000. For trailer skirts, you might be anywhere from $1,300 up to about $4,500, depending on the brand, make, and model that you wanted to select. Diesel particulate filters are very expensive, no fuel economy; although they are being regulated in certain States, specifically in California.

Mr. DEFAZIO. Do they inhibit mileage?

Ms. BANKS. Yes, they get about a 1 to 3 percent fuel penalty for——

Mr. DEFAZIO. And what about the tires and rims?

Ms. BANKS. Tires, light weighting—not only just light weighting on the aluminum wheels, but light weighting all of the truck components and the trailer components can actually mean that you can

deliver about 11 truckloads of freight in 10 truckloads of, you know, depending on if the freight weighs out or cubes out, but as long as you are hauling heavy freight, you can save about 10 percent on your trips by light weighting a trailer.

Also one thing that could be considered—and I know in Canada they do double—48 double trailers, 48-foot double trailers which have had incredible safety studies that showed that they are just as safe, if not even safer, than a normal truck and trailer. That would double—almost double the capacity of carrying freight, but unfortunately they are not legal here in the States.

Mr. DEFAZIO. Mr. Hodges, is your association—I mean, hearing what she is saying about this retrofitting and that, is the association either contemplating or involved in any programs that, you know, get that information out and maybe find some ways to help finance those improvements for some of your members?

Mr. HODGES. We are currently not working on, that I am aware of, any finance programs. We do constantly, through our technology and maintenance council, have regular sessions with all OEMs and encourage these kind of retrofits; but more importantly, we encourage those kind of things on new purchases. Most of these items are OEM supplies, and you can do them if they are cost-justified.

One of the industry's biggest problems right now is on APUs and trying to justify the cost of an APU unit when you are talking anywhere from $7,500 to $12,000. And if we use, like in our company, a truck 3-1/2 years and then we sell it, you start to get cost prohibitive. Now, granted, when fuel goes to $4.50 a gallon, you shorten up that term, but at its current levels and historic levels, it just becomes a cost-prohibitive thing. That is why we need or would like to have help from Congress to give us tax breaks.

And recently, we just got the 12 percent FET waived on APUs. That was helpful. About the same time, the economy hit the absolute doldrums. So nobody is buying new trucks. I know for our company when we begin to respecify new trucks, we are probably going to take a hard look at putting those APUs on it now because of that 12 percent savings, which is $700 to $1,000 depending on which model we go to. So it is kind of the way it works. Mr. Chairman, I trust that answered your question.

Mr. DEFAZIO. Mr. Schaffer, in reading your testimony, I saw one thing that isn't just relevant to much of what you are testifying to, but you also talked about sound, and my, you know, very unscientific observation just driving around here and in Oregon is that it seems like asphalt generally reflects a lot less sound than the concrete they are using now. But you said something about sound mitigation or reduction with your materials.

Mr. SCHAFFER. No. I think I referred to sound as one of the application techniques for the technologies being utilized in sound walls and sound barriers.

Mr. DEFAZIO. So it is now sound reduction in terms of reflection off of—okay, all right. Anybody else have an urgent last question to follow up? No? Grace, okay.

Ms. NAPOLITANO. I always have questions, Mr. Chair.

Mr. DEFAZIO. I know that, but we are going to limit you.

Ms. NAPOLITANO. Sure. In solar paneling, in photovoltaic, I want to talk to you, Mr. Tilley. Is there any problem with theft from people going in and stripping some of the existing stuff?

Mr. TILLEY. First, I would have to say I am not an expert in that because our product does not use any type of that. So I really couldn't answer that. Unfortunately, anything that can be stolen right now probably is being taken, but our product does not use that.

Ms. NAPOLITANO. Well, there is really a lot of new technology evolving, just like yours in the cement. Are we all hopefully keeping in mind that the technology may be evolving to help the truckers be able to drive more—and California doesn't want tandems. The freeways, the off-ramps, they are going to have a tremendous problem. We have gone through that. But how do we utilize new technology to be able to help the trucking industry and be able to have on-time delivery that the customers request and pay for? Anybody?

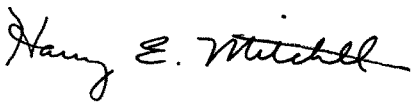
Mr. HODGES. Well, I am not sure technology, and I understand that everybody has a bias against larger and bigger trucks. I have been fighting that for 45 years, so I understand that, but there are—if we could run interstate and interstate commerce and reduce the amount of fuel consumed in this interstate commerce, even if we broke those down in our terminals, which tend not to be inside the most congested area, then we would have that freedom and that—more importantly, that opportunity to save some serious fuel usage.

See, in our business, if we can save a dollar of fuel, then we can save some CO2 output, but we also can take some money to the bottom line. It is win-win-win for us, but we are many times constricted by our interstate travel.

Ms. NAPOLITANO. Thank you, Mr. Chair.

Mr. DEFAZIO. Thank you. I want to thank the panel for your excellent testimony, and again, as I said to the first panel, if you have any further thoughts or ideas, suggestions you want to make to the Committee, we are available and staff is always available. So thanks again, and hopefully your multimodal trip will work out there, Ms. Banks. We will get you back to the west coast somehow. Thank you.

[Whereupon, at 1:23 p.m., the Subcommittee was adjourned.]



Statement of Rep. Harry Mitchell
House Transportation and Infrastructure Committee
Subcommittee on Highways and Transit
"Energy Reduction and Environmental Sustainability in Surface Transportation
1/27/2009

Thank you, Mr. Chairman.

Today we will discuss different methods to address energy usage and environmental sustainability in surface transportation.

As you know, the U.S. is currently the greatest energy consumer and greenhouse gas emitter in the world. According to the Environmental Protection Agency and the U.S. Department of Energy, approximately 30 percent of the greenhouse gas emissions in the U.S. are produced by mobile sources.

This is further compounded by both population growth and congestion.

Take Arizona, for example, which is one of the fastest growing states in the nation. Since 1970, our population has more than tripled.

The Phoenix metropolitan area, long the largest in our state, is now one of the largest in the nation.

Not surprisingly, all this growth has created an urgent need for new transportation infrastructure- not just highways, but public transportation as well.

Light rail began operating in December of 2008. This project can carry an estimated 26,000 people daily and 47,000 people by 2020, which will help alleviate future traffic congestion.

This new light rail system further seeks to reduce greenhouse gas emissions by lowering the amount of electricity used in powering light rail cars. This rail system utilizes regenerative braking to lower electricity consumption.

I look forward to hearing more from our witnesses on the importance of ensuring our nation's surface transportation policy includes energy reduction and environmental sustainability principles.

STATEMENT OF
THE HONORABLE JAMES L. OBERSTAR
HEARING ON ENERGY REDUCTION AND ENVIRONMENTAL SUSTAINABILITY
IN SURFACE TRANSPORTATION
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT
JANUARY 27, 2009

- I want to thank Chairman DeFazio and Ranking Member Duncan for holding this important hearing on surface transportation solutions to reducing energy usage and improving environmental sustainability. I also want to welcome and thank all of our witnesses for being here today.

- This is one in a series of ongoing hearings the Subcommittee has held exploring emerging themes in transportation policy and practice, the needs of our national surface transportation system, and the next authorization of our surface transportation laws.

- Energy security, environmental sustainability and global climate change are some of the greatest threats facing us today, and they present challenges that we cannot solve without making serious changes to our transportation system.

- America's intermodal transportation network serves as the backbone of our economic security and competitiveness, as well as our quality of life. It facilitates

the safe movement of people and goods, linking our communities to each other and to the world.

- While the U.S. transportation system has served as a model for developing an interconnected network. However, recently we have been losing ground.

- In 2005, wasted fuel and time translated into a total congestion cost to the U.S. of $78.2 billion— $5.1 billion higher than a year earlier. This congestion has resulted in millions of vehicles stuck idling on American roadways. This undermines our nation's economic competitiveness, productivity and quality of life. It has also lead to a significant increase in transportation's share of U.S. green-house gas emissions.

- Greenhouse gas emissions worldwide topped 27 billion metric tons in 2003, an increase of 19 percent over 1990 levels. The U.S. is responsible for 22 percent of the world's emissions. Europe is responsible for 10 percent of total emissions. Per capita, the U.S. emits 19.9 metric tons of carbon, an increase of 16.8 percent since 1990. Europe emits only 6.9 metric tons per capita, a reduction of almost 48 percent since 1990.

- According to the U.S. Department of Energy, mobile sources account for approximately 30 percent of the United State's greenhouse gas emissions. 85 percent of transportation sector emissions are related to the surface transportation system.

- Private vehicles are the largest contributor to household "carbon foot prints"-- accounting for 55 percent of carbon emissions from U.S. households.

- The potential impacts from global warming include rising sea levels and flooding, stronger hurricanes, increased temperature, drought and wildfire, and a number of negative health impacts.

- These problems will play out across political boundaries and will impact people across the globe. It's time now to find solutions to reverse the trend of climate change and to end our addition to foreign oil. Sustainable transportation must play a role in this process.

- Today, 78 percent of commuters drive to work alone. For every American who bikes to work, 9 take public transit, 154 drive to work alone, and 21 ride in car pools.

- Since 1980, U.S. oil consumption has increased by 21 percent. Today, the U.S. is responsible for one-quarter of the 85 million barrels of petroleum consumed worldwide every day. Nearly one of every nine barrels of the world's oil goes into American gasoline tanks.

- If Americans used transit at the same rate as Europeans – for roughly 10 percent of their daily travel needs – the United States could reduce its dependence on imported oil by more than 40 percent, nearly equal to the 550 million barrels of crude oil that we import from Saudi Arabia each year.

- There are many possible policy choices for addressing climate change, mobile source emissions, and energy usage. President Obama took some initial steps yesterday by directing federal regulators to speed an increase in auto fuel efficiency and allowing states to set strict automobile emission standards.

- However, increasing U.S. fuel efficiency standards alone cannot adequately deal with the needed reduction in emissions from transportation to succeed in reducing carbon emissions and energy usage, as well as improving environmental sustainability and livability within our communities. We must also significantly change our transportation policies.

- Developing a more sustainable network will require us to provide more and better transportation options, and to encourage use of more environmentally friendly modes.

- It will also require combining transportation policy with effective land use policies, which can play a significant role in reducing energy use and environmental sustainability.

- As this Subcommittee begins to put together the next surface transportation authorization legislation, we must remember that there are no silver bullets to addressing the congestion crisis facing the surface transportation network.

- It will require us to develop balanced surface transportation policies. Policies that expand investments in public transportation and alternative options, as well as more effectively link transportation policy with land use and environmental policies. It must also make targeted investment in new capacity to address congestion bottlenecks.

Congresswoman Laura Richardson
Statement at Highways Subcommittee
Hearing on "Energy Reduction and Environmental Sustainability in Surface Transportation"
January 26, 2009
10:00AM – 12:00PM
2167 Rayburn House Office Building

Thank you Chairman Defazio for convening this hearing today, and our witnesses for their appearance.

As this committee assists with the economic recovery package, and the SAFETEA-LU Reauthorization bill which includes not only projects but implementing policies that promote energy efficiency, pollution reduction, and the efficient movement of all forms of transportation. Certainly the Obama Administration has acknowledged and taken appropriate steps in the right direction towards these goals by allowing states such as California to implement tougher emissions standards for passenger

vehicles, and I applaud the Administration for that bold move.

As a former Member of the Science & Technology Committee, we have been at the center of this effort to reduce pollution and increase energy efficiency through new and emerging technologies. Last summer at a hearing in the Technology & Innovation subcommittee, we discussed this exact issue.

Fact of the matter is highway construction and maintenance consumes a lot of energy. From the amount of fuel that is consumed by cement trucks and other construction related vehicles, to the cars that waste fuel sitting idly in traffic due to lane

closures as a result of highway construction, plenty of energy is consumed on a daily basis.

In my home state of California, where there are more registered vehicles than there are registered drivers; and where we have been dealing with traffic congestion and the environmental impacts for years, the directors of the California DOT (Department of Transportation) are critically aware that this issue must be tackled.

The state of California has pursued a number of projects to address energy efficiency through our transportation infrastructure. This includes the use of old tires in rubberized asphalt, the installation of LED red lights saving the state taxpayers more than $2

million a year in power costs, and conversion of the Caltrans equipment fleet to clean burning fuels.

Further, under Executive Order S-3-05, which established climate change emission reduction targets for the state, Caltrans has embarked on an effort to lower fuel consumption, and reduce greenhouse gas emissions (GHG) by implementing several programs. The Intelligent Transportation Systems manages traffic flow; the Cold Foam Recycle Project (which won an award from Green Technology) recycles in-place materials on high speed, high traffic volume roadways, and Waste Tires which as mentioned earlier, establishes a variety of uses for waste tire

products including shredded waste tires which are used as lightweight fill for embankments.

Likewise the State of California uses environmentally friendly cement, in addition to establishing the Long-life Pavement Rehabilitation Strategies program. The purpose of this program is to reduce the need for future repairs on our highways, by building highways that last as long as thirty years with minimal maintenance. I encourage the committee in addition to today's testimony to look at my home state as an example of the types of technologies that can be utilized as we prepare to move forward.

This is a timely discussion that should provide guidance to this committee, the new Administration, and our colleagues on the Energy & Commerce committee as they prepare to tackle climate change.

Mr. Chairman I yield back my time.

U.S. House of Representatives
Committee on Transportation and Infrastructure
Subcommittee on Highways and Transit

Energy Reduction and Environmental Sustainability in Surface Transportation
January 27, 2009

Testimony by Rohit Aggarwala
Director of Long-Term Planning and Sustainability
City of New York

Good morning. My name is Rohit Aggarwala, and I am the Director of New York City's Office of Long-Term Planning and Sustainability. On behalf of Mayor Bloomberg, thank you for the opportunity to testify today.

Because of New York's unique history, geography and population density, the City has been able to create a model of sustainable transportation, which is efficient, low-carbon and has the capacity for further growth. Overwhelmingly, New Yorkers rely on transit and their own two feet to get around. Only one-third of all trips in New York are made by auto. It's one reason we have the lowest per-capita carbon footprint in the U.S.

But, like many other cities across the country, we need to do more to improve the energy-efficiency and sustainability of our transportation systems. Over a two-year process, New York developed PlaNYC, which included recommendations that we have begun to implement, but which we cannot complete without Federal support. These include:

- Guiding growth to areas near transit;
- Investing the billions of dollars needed to achieve a full state of good repair on our roads, subways, and railroads;

- Completing major transit expansions – such as the Second Avenue Subway – as well as lower-cost projects such as Bus Rapid Transit;
- Promoting walking and cycling by rebalancing the way our streets are designed;
- Promoting efficient vehicles – especially high-usage cars like taxicabs – and I'd like to thank Congressman Nadler for his leadership on this issue;
- And managing the use of our infrastructure better, which is why Mayor Bloomberg proposed piloting congestion pricing in Manhattan.

Whatever you think about it, congestion pricing highlights New York's – and the nation's -- biggest transportation challenge: finding new sources of funding in a time of economic turmoil. Americans have shown that they understand this need, telling pollsters time and again that they are willing to pay more for transportation, if they trust the system to be non-partisan, performance-based, and accountable.

New York also faces other transportation challenges that require national solutions. As a nation, we need to move freight more efficiently – and get it off the road when possible. We need to invest in aviation systems to reduce delays and increase capacity. We need a revitalized Amtrak, and new high-speed rail. We need streamlined Federal programs which empower localities to make intelligent transportation choices. And we need to ensure that Federal funding formulas reward cost-effective, efficient and environmentally-sound policies.

Thank you again for your time, and I look forward to your questions.

CASCADE SIERRA SOLUTIONS

Sharon Banks
CEO
Cascade Sierra Solutions
P.O. Box 8517
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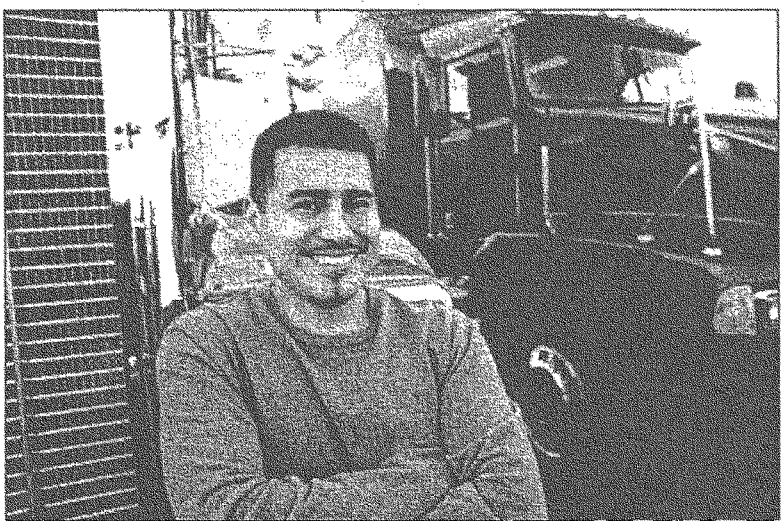
(541) 302-0900 x204

Testimony to Highways and Transit Subcommittee
US House of Representatives, Jan. 27, 2009



EXECUTIVE SUMMARY

Heavy-duty diesel trucks are the workhorses of the American economy. The clothes you're wearing, the food you ate for breakfast and the products you use were brought to you on a truck.

Diesel trucks are also responsible for 10% of America's petroleum consumption and 6% of US greenhouse gas emissions[1]. Each year in the United States, diesel particulate matter is responsible for 21,000 premature deaths, making it a greater threat to our health than drunk driving, HIV/AIDS, or firearm violence[2].

My name is Sharon Banks, I am the founder and CEO of Cascade Sierra Solutions (CSS), a non-profit organization of public and private partners dedicated to saving fuel and reducing emissions from heavy-duty diesel trucks.

CSS operates outreach centers co-located with truck stops to bring education, clean diesel technology, monetary incentives and affordable financing to the trucker in a convenient, unbiased, non-regulatory forum on the West Coast I-5 corridor.

To date CSS has upgraded over 2,000 trucks and has over 1,200 more in process for upgrade or replacement. CSS has saved over 3.5 million gallons of fuel, created hundreds of jobs, and raised the bottom line for trucking companies who are struggling to survive in this economic crisis. Even though this project is operating on the West Coast, CSS has upgraded trucks in 46 states.

A proper upgrade of a truck can save up to 5,000 gallons of fuel per year or 50,000 gallons of fuel over a ten-year lifecycle which equates to 500 metric tons of greenhouse gases per truck. This is truly one of the greatest opportunities we have to reduce greenhouse gas emissions in the transportation sector.

CSS would like to replicate this program nationally, but this program needs to be part of a national strategy. Most state and local programs are focused on local and regional trucks that have direct and exclusive air impacts on their communities, where long-haul trucks impact the entire nation. However, the greatest opportunity for saving fuel (and GHGs) is from the long-haul truck which travels 100,000-250,000 miles annually.

To achieve our goal of upgrading or replacing over 30,000 trucks and saving over 1.5 billion gallons of fuel, CSS proposes to establish a network of outreach centers at strategic intersections of freight corridors across the country. To accomplish this CSS needs to secure additional funding to operate the centers and needs to build a much larger revolving loan fund to offer truckers financing terms they can qualify for and afford.

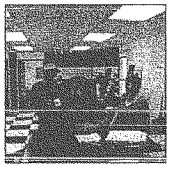
An investment in clean diesel technology is an investment in energy independence, public health, small businesses, clean air, green-collar jobs and financial and environmental sustainability. CSS is ready to move today on clean trucking.

[1] Union of Concerned Scientists: http://www.ucsusa.org/clean_vehicles/vehicle_impacts/diesel/rolling-smokestacks-cleaning.html
[2] Clean Air Task Force: http://www.catf.us/projects/diesel/dieselhealth/national.php?site=0

About Cascade Sierra Solutions

Cascade Sierra Solutions (CSS) is a non-profit created in 2006 to implement clean diesel trucking technologies on the West Coast and throughout the United States. Upgrading the legacy fleet is a win for the environment, business and all communities, but there are a number of significant barriers between this technology and its end users. CSS outreach centers are located at popular truck stops to bring education, technology and financing to the trucker's doorstep and break these barriers:

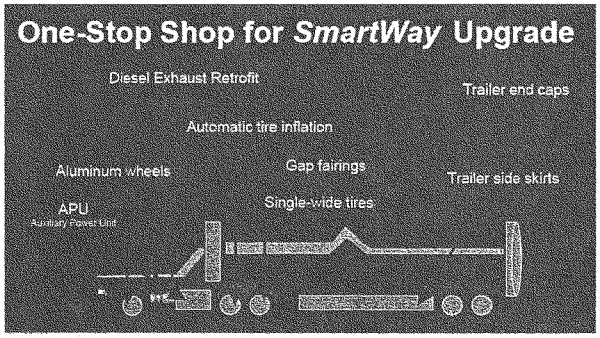
Awareness
While the clean diesel technology sector has grown significantly in recent years, most truck owners and operators are unaware of the equipment available to reduce their emissions and fuel consumption. CSS outreach centers provide the largest permanent display of SmartWay technologies available under one roof.



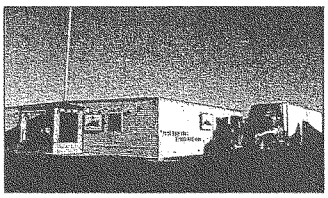
At our outreach centers, truckers and fleet managers can compare options without bias towards any brand or product. The clean technologies CSS promotes include:

- Auxiliary Power Units (APUs) are small generators to provide cab comfort without idling. Most long-haul drivers sleep in the cabs while they're on the road. Without auxiliary power, they typically idle their 500 horsepower engines all night to provide livable temperatures. An average long-haul truck idles between 1830 and 2400 hours/year consuming around a gallon of fuel an hour in doing so. APUs and other anti-idling equipment can increase fuel efficiency by 8% or more.
- Fuel-efficient tires and wheels reduce weight and rolling resistance improving efficiency by up to 4% or more.
- Aerodynamic farings on tractors and trailers can improve fuel efficiency 6% or more and are highly cost effective.
- Exhaust filtration can remove 85% of the most toxic diesel pollutants that threaten the health of all Americans.

Our centers are staffed with talented experts in the field who know their technology and understand the needs of their clients. The manager of each of our centers is a former service manager in the trucking industry.



Finance



Most of the equipment CSS represents improves the bottom line for trucking through savings in monthly fuel bills. But this equipment is expensive (typical APUs cost between $8-15k) and only with the low-interest financing that CSS provides can most truck owners access this equipment. Through the CSS revolving loan fund, our clients can access financing at 8-11% and put money in their pocket every month from their fuel savings. On the open market the same clients face 16-25% interest rates on loans that most cannot qualify for.

CSS has many dedicated partners in public agencies like the EPA, California Air Resources Board, Washington Department of Ecology, Oregon Department of Environmental Quality and many other state and local agencies. These partners share our goals of clean air and provide tax-funded incentives to make clean diesel affordable and help fleets they regulate comply with their laws.

But the paperwork and procedures required to access these incentives are a prohibitive barrier to most trucking companies who are unaware of incentives and have difficulty with government forms. CSS staff are expert in grant and incentive processing, working closely with granting agencies and achieving overwhelming rates of success. Cascade Sierra Solutions is a bridge that gets clean diesel funding from public agencies and onto the road quickly and efficiently.

Regulatory Awareness

As government agencies like the California Air Resources Board (CARB) and others recognize the terrible cost our people are paying for diesel pollution, they are creating regulations commensurate with the problem.

Most truckers do not have time to research the complex government regulations being imposed on the industry. Because of the time they spend on the road, most truckers get their information by word of mouth and rumors on regulations are often better circulated than facts.

Many trucking businesses live in denial of regulations until the last minute before enforcement begins, in part because they do not have ready access to accurate regulatory information.

CSS outreach centers provide neutral ground in convenient locations where the trucking industry can access accurate, up to date regulatory information without the threat of enforcement. By providing this service, CSS changes the industry compliance paradigm from late and forcible to early and voluntary.

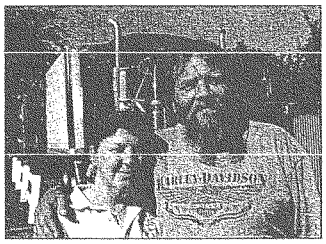
Outreach services

In addition to work carried out through centers, CSS brings consulting services to fleets anywhere, meeting with key decision makers to upgrade hundreds and thousands of trucks at a time.

CSS fleet member locations

CASE STUDIES

Kedward Haines and Sonja Gesty

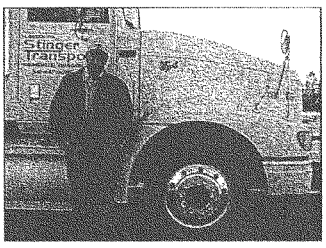


Kedward and Sonja are independent owner-operators from Keizer, OR. Their small trucking business has four trucks. Keddy and Sonja drive a 2005 Western Star between Oregon, Florida and California carrying flowers and frozen vegetables. They never would have bee able to buy their first APU, single-wide tires, and tire pressure monitor without CSS, but now have been able to buy three more trucks. They are installing APUs and single-wide tires on all of them.

"Without CSS, the average working guy could never afford this stuff." says Keddy.

Alex Crider

Alex drives for Stinger Transport, Prineville, OR. In his 1998 International he's logged 1.5 million miles. Alex supports his wife and young children with his truck, so profitability is vital. CSS helped Alex finance low roll resistance tires, light weight rims and an APU. "I save over $700/month." With the APU, Alex doesn't have to idle his main engine at night to run his appliances. He is able to eat healthier because his wife prepares and freezes food which he keeps in a freezer and microwaves while he's on the road.



Devine Intermodal

Devine Intermodal serves all ports and rail ramps in northern California and western Nevada. Leveraging their combined strength Devine Intermodal partnered with CSS to help sixty four minority truck owners in the Oakland, California area obtain truck replacement grants and affordable financing with 10-year repayment terms. Devine Intermodal brought drivers to the CSS Sacramento Outreach Center to present the funding program, view available equipment options, and start the financing applications. This diverse group of minority business owners would not have been able to navigate the application process without assistance from CSS and its multi-lingual staff.

Mesilla Valley Transport (MVT)

Mesilla Valley came to CSS for answers on how to improve the fuel economy of their El Paso, TX fleet of long-haul trucks. CSS coordinated financial incentives to help them get the cleanest trucks possible with aerodynamics, APUs, low rolling-resistance tires and efficient engine calibration. Mesilla Valley also awards a Harley Davidson motorcycle to their driver who gets the best fuel economy each quarter. With these new trucks, MVT is getting over 7mpg, 17% better than the national average of 5.8mpg.

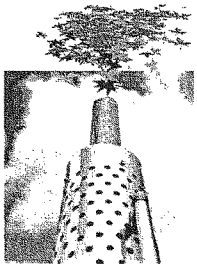
BENEFITS

An investment in Cascade Sierra Solutions and clean diesel will yield many times its value through benefits to the environment, the economy, national health, and communities across the country.

Environment

Diesel exhaust pollutants include:

- Particulate Matter, the deadliest outdoor air pollutant in the US generating over $100,000 in health care costs per ton. 70% of California air toxic pollutants.
- Oxides of Nitrogen which react with sunlight to form ground level ozone
- Volatile Organic compounds which contribute to smog
- Carbon Monoxide which affect heart and lung function
- Carbon Dioxide which causes global warming



Each year in the US, diesel soot is responsible for:

- 21,000 Premature Deaths
- 27,000 Non-Fatal Heart Attacks
- 410,000 Asthma Attacks
- 12,000 Chronic Bronchitis
- 2,400,000 Work Loss Days (WLD)

Achieving our goal of upgrading or replacing 30,000 trucks, CSS would save twelve times the cargo capacity of the Exxon Valdez in fuel and associated emissions. Every year, those trucks would save the same amount of fuel as 165,000 Toyota Priuses.

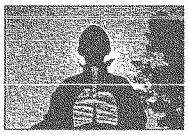
That is fuel that will never have to be fought for, drilled, spilled or burned. That fuel will never cloud the air or clog our lungs. It will never cause acid rain and never contribute to climate change.

Economy

An investment in Cascade Sierra Solutions reduces petroleum dependence and particularly our need for foreign oil. It creates green collar jobs for the workers who manufacture, install, and sell clean equipment. It provides a path for trucking companies to improve their bottom line and the health of their communities. Our goal of saving 1.5 billion gallons will mean the small businesses we serve will save $4 billion in fuel that they can spend in their local communities rather spending it on foreign oil.

Diesel pollution disproportionately affects those who can least afford to pay its consequences: children, the elderly, ethnic minorities and the poor who are more likely to live in areas of lower property values near sources of diesel pollution. Much of the burden of the medical costs associated with diesel are ultimately borne by the already overwhelmed public health system.

The Oregon Department of Environmental Quality estimates that diesel pollution costs the state $2 billion a year in health and environmental costs. Doing nothing is costing us far more than investing in clean diesel solutions will.

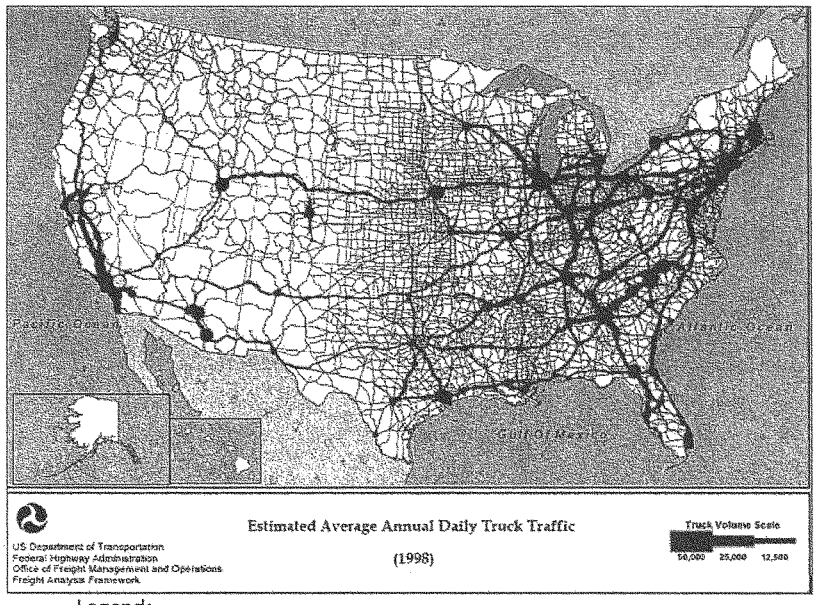


What Cascade Sierra Solutions needs to achieve its mission

CSS has already established a successful, replicable model of operations to bring clean diesel to the communities who need it most. Funding, however, continues to be a major barrier to our expansion as many state and local agencies are mandated to improve the air only in their districts. Keeping pollution outside of state lines is a bit like containing all the smoke in a restaurant smoking section.

Diesel pollution is a national issue and needs to be tackled with a national strategy. Clean trucks benefit all the communities as they travel through across the United States.

To do this, CSS needs to establish a network of outreach centers at strategic locations on the busiest national transportation routes.



Legend:

- ○ CSS Outreach Centers Operating Now
- ◎ CSS Centers Planned in 2009
- ● CSS Vision for Centers for nationwide expansion

An investment of $10m to pay for the establishment and operating costs of these centers will generate many times that amount in reduced health costs, and increased tax revenues from the businesses and employees that will survive as a result of their fuel-efficient operations.

An investment of $100m will capitalize a loan fund to allow CSS to provide the crucial low-interest financing for us to give trucking businesses a hand up not a hand out.

Partners

TESTIMONY OF

FRED HANSEN

GENERAL MANAGER
TRI-COUNTY METROPOLITAN TRANSPORTATION DISTRICT OF OREGON

BEFORE THE

HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

SUBCOMMITEE ON HIGHWAYS AND TRANSIT

ON

PUBLIC TRANSPORTATION, ENERGY REDUCTION AND
ENVIRONMENTAL SUSTAINABILITY IN SURFACE TRANSPORTATION

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JANUARY 27, 2009

SUBMITTED BY

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APTA

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Chairman DeFazio, Ranking Member Duncan and distinguished members of the Subcommittee, I thank you on behalf of TriMet and the American Public Transportation Association (APTA) for the invitation to address you today on the important issue of energy reduction and environmental sustainability in surface transportation.

Public transportation is an essential part of the solution to making America more energy-efficient and environmentally friendly

At a time when America must stimulate its economy, create more jobs, reduce its dependence on foreign oil, and become more carbon efficient, public transportation can make a significant contribution quickly and cost-effectively. An essential course of action is to transfer a significant amount of automobile travel to public transportation.

Public transportation investment, energy efficient land-use policies and other strategies that promote transportation choices are proven ways to reduce emissions from the transportation sector. By reducing travel and congestion on roadways and supporting more efficient land use patterns, public transit already saves **4.2 billion gallons of fuel** and **37 million metric tons** of carbon emissions a year, while supporting **2 million jobs**.[1]

While public transportation is already a significant part of the solution, the potential for greater green dividends from public transportation in America is vast if appropriate public transportation is made available in every community. Those who choose to ride public transportation reduce their carbon footprint and conserve energy by eliminating travel that would have otherwise been made in a private vehicle, and even the length of vehicle trips is considerably shorter for households that live near transit. In fact, households within close proximity of public transportation drive an average of 4,400 fewer miles annually than those with no access to public transportation. Unfortunately, only 54 percent of American households have access to any public transportation services according to U.S. Census data, and American's can't use what they don't have.

If we are serious about achieving energy security and addressing climate change, America should set a minimum goal of doubling the market share for public transportation by 2020 and achieving, by 2045, a public transportation market share equal to that in the European Union.

We can accomplish this by achieving a 5.5-percent annual growth rate for public transportation. But we can accelerate this with a much more ambitious growth rate of 10 percent, which, if sustained, could save the country 15.2 billion gallons of fuel annually by 2020—almost as much as we currently import from the Persian Gulf. This investment would also cut 141.9 million metric tons of carbon emissions per year—about 8 percent of the total carbon emissions from the U.S. transportation sector.

This would require an investment of 1.6 percent of U.S. GDP per year, far less than the more than 10.5 percent that transportation-related goods and services contribute to GDP overall. (See attached Executive Summary of *Changing the Way America Moves*).

[1] ICF International, "The Broader Connection between Public Transportation, Energy Conservation and Greenhouse Gas Reductions," February 2008.

Combining high quality transit with energy-efficient land use planning has been central to the success of the Portland region

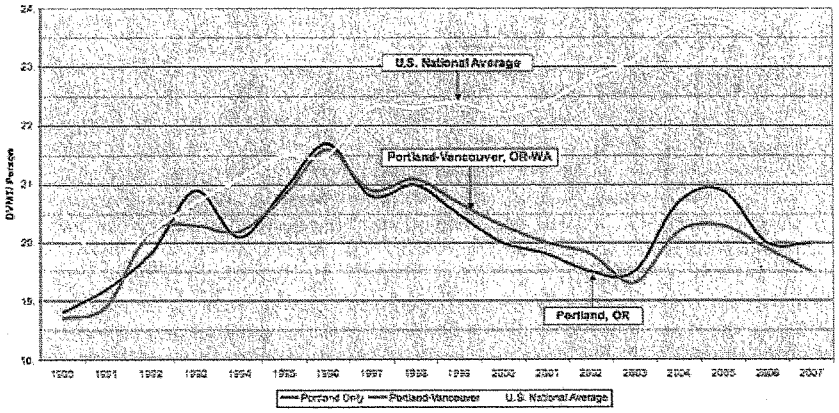
How do we unleash the power of public transportation to reduce GHG emissions and protect our environment? To begin, the federal government must do its part to expand transit availability and promote energy efficient land-use patterns and transit-oriented development. Efficient land use, combined with good transit service, particularly fixed guideway service—subway, light rail, commuter rail, streetcar and bus rapid transit—produces results far beyond the immediate benefit of increased use of public transportation.

Efficient land use has the potential to significantly change the way we live and travel, reducing our individual carbon footprints while preserving and enhancing our mobility. Higher densities allow for closer proximity of housing, employment and retail, reducing driving distances and enabling communities to plan for and support alternative travel options. In many central business districts, trips taken for shopping, dining or other non-commuting purposes are often made on foot—even by those who drive to work.

In the Portland region, we have seen the benefits of this approach. For over 30 years, the region has been pursuing a radically different path than most urban areas of the United States. In the 1970's, the region chose to cancel a long-standing freeway expansion program and instead direct resources into a multi-modal transportation system. This was coupled with the establishment of an urban growth boundary and the alignment of regional and local land use and transportation plans.

The result of this marriage of smart transportation investments—particularly transit—and land use planning is more compact, efficient cities that are easier to serve with non-automobile transportation modes. Reliable bus service, streetcar and light rail lines, combined with attention to bicycle and pedestrian planning, ensure that residents who choose not to drive can take advantage of a variety of other travel options.

- Between 1996 and 2006, transit ridership in the region grew by 46 percent, while population only grew 16 percent.
- At the same time, daily vehicle miles traveled (DVMT) per capita in the Portland region declined by 8 percent, while the average length of a work trip decreased 33 percent.
- In contrast, national DVMT per capita rose by 8 percent over the same period.



Source: Metro Regional Government: http://www.oregonmetro.gov/index.cfm/go/by.web/id=26796

In addition to helping the region meet federal air quality standards, these trends are reducing GHG emissions and helping address climate change. Between 1990 and 2007, community-wide GHG emissions for the City of Portland and Multnomah County, the area's most urbanized county, dropped 17 percent on per capita basis.[2]

And it is clear that residents have discovered these alternative ways of getting around in our mixed use neighborhoods, such as Northwest Portland. When comparing the travel patterns that we see in this dense section of the Portland region with just the rest of the Portland region (which many people recognize is less automobile dependent than many of the nation's suburban areas), we see dramatic differences. Specifically:

- Residents are about 11 times more likely to take public transportation than they are in the region as a whole.
- They are four and half times more likely to walk, and about two times more likely to go by bicycle on those trips.
- On average, individuals in these denser, mixed-use communities drive about half as many miles and have one-half the car-ownership as compared to the typical average person in the rest of our community.[3]

As these results demonstrate, the aggressive development of high capacity transit coupled with regional land use management has made the Portland region a successful model that could provide a framework for other regions to emulate as we turn our attention to reauthorization of the surface transportation bill.

[2] City of Portland Office of Sustainable Development:
http://www.portlandonline.com/osd/index.cfm?c=41896
[3] Source: Metro Regional Government Household Travel Survey

At the same time that the transportation bill is up for authorization for the next six-year period, the Congress is also considering or will have recently enacted legislation related to energy security and reducing greenhouse gases to support national climate change initiatives. From the perspective of Portland's regional transportation policymaking body (of which I am a member), it is important that these legislative initiatives be linked and that the transportation program reinforces and helps implement energy and GHG goals.

In particular, if a carbon tax and/or a carbon cap and trade program is established, it should be structured to allow use of these funds on transportation projects that reduce greenhouse gases based upon the merits of those projects. Furthermore, if the carbon tax extends to motor vehicle fuel, these funds should be integrated with the broader transportation funding programs to ensure funding for transportation projects that reduce greenhouse gases in proportion to the share of greenhouse gases produced by motor vehicles. Finally, much like the transportation/Clean Air Act link, investments from the transportation bill should be consistent with energy and climate change mandates and include a conformity requirement. I also personally see the need to set regional GHG emission reduction targets in line with adopted national goals. Much like California's SB375, Oregon is considering the establishment of regional targets for the state's metropolitan areas and how to provide them with new planning tools for transportation and land use decisionmaking they need to meet the state's GHG reduction goals.

While it is yet to be implemented, I would also like to draw your attention to an emerging policy concept to let you know how we are thinking about the next step in integrating land use and transportation in Oregon. Our Governor has proposed for consideration in the current legislative session the concept of looking at transportation investments through the lens of least-cost planning.
For those of us who are familiar with least-cost planning in the public power utility world, we recognize that it was the most effective tool to help people understand that every time you had an additional power need, you did not have to build a new power plant. If, in fact, the least-cost way to meet this additional demand was by conserving power elsewhere (e.g., by installing weatherization treatments or by cutting down on other power demand needs), you did not have to build the new power plant by investing in those alternatives and produced a better, cheaper result.

If we think about applying the least-cost planning concept to transportation, it sets up a new framework for transportation planning in which planners do not just compare one highway project to another or one highway project to a transit project. Rather, it forces transportation decisions to be made more comprehensively from a standpoint of land use as well. For example, the least-cost framework would empower planners to evaluate whether, in the long run we can provide in our regional and town centers a greater level of development to allow people to walk, bicycle or take public transit when necessary, rather than having to expand automobile capacity on our roadways. In this way, it could provide a new and powerful framework through which planners and the public can accomplish community goals by better integrating our land use with our transportation policies and investments.

Public transportation is on a path to becoming as energy-efficient and environmentally-friendly as it possibly can be

Another area in which the Portland region aims to lead by example is greening our transit operations. While high quality transit service itself is inherently part of a green community, by advancing their own sustainability practices transit providers can expand the benefits enjoyed by communities in return for their investment in transit.

The green dividends of aggressively investing in public transportation growth are even more compelling when we look at the time lag for achieving greater fuel efficiency from the automobile fleet versus the commercial bus fleet. Today, with over 25 percent of the bus fleet using alternative fuels, the bus fleet is relatively much cleaner than the automobile and light truck fleet. Due to stricter mandates and public policy pressure, bus fleets will continue to become more efficient more quickly—so much so that, by 2020, the fleet could be entirely hybrid and thus emit 25-30 percent less pollutants than today. By 2050, efficiency could be 50 percent greater, due to lighter vehicle weight, increased use of alternate propulsion with energy storage, as well as smaller engines and superior vehicle-assist technology.

At TriMet, we have worked hard to improve the efficiency of our vehicles, benefiting the environment and our budget. Through a concerted focus by our operators and mechanics on reducing idling at layovers, adjusting transmission and shift points, front-end alignments and steering control arms, and maintaining a set tire pressure, TriMet has reduced fuel consumption in our bus fleet by over 7.5 percent since 2000. We use regenerative braking on our light rail trains, akin to hybrid-electric cars, to reduce energy consumption by over 20 percent. We are testing new equipment developed by the U.S. military and used in NASCAR to further improve our bus fleets' fuel economy, with early results suggesting an additional fuel savings of 5 percent. TriMet also uses a 5 percent biodiesel blend throughout our fleet.

Complementing these operational efficiencies and innovations, we at TriMet focus on making our service as attractive as possible to increase ridership and further heighten our efficiency gains on a per passenger basis. We do this through a focus on providing frequent, reliable service during all times of the day and every day of the week; clear customer information; easy access to stops; comfortable places to wait for transit; and modern vehicles.

TriMet's online Trip Planner gives users step-by-step instructions showing how much to pay, how long the trip will take, and how to get to a destination using buses, MAX and the Portland Streetcar—including where to board, make transfers and walking directions. In addition to helping customers plan their trip, we also think it is important, especially in this era of extreme time management, to recognize that merely having published schedules for our public transit system is not enough. We need to provide our customers with real time information about their transit trip.

To do this for our customers, TriMet has developed Transit Tracker. This is a system that can be accessed either through an office or home computer or by your cell phone. By entering the location of the bus stop or train station, you are able to get the actual arrival time of the next bus or train. For those of us who are regular transit users, as I am, it takes the guesswork out. It means that you can relax or read, get a cup of coffee, or know that you need to stay there because your ride is expected in a couple of minutes. We now have over one and a quarter million calls per month to the Transit Tracker service because people want to have greater control of their lives and be able to better manage their time while still making use of the public transit option.

Also, I am quite proud to say, that while Google is in the forefront of providing mapping for all sorts of travel and locational needs, as they began developing their system to include transit options and looked across the country at transit systems, they chose Portland, Oregon. They did this in part because we have the data that are necessary to provide the mapping, but also because TriMet has personnel that are committed to providing tools to assist our riders in making it easy and convenient to use our system. This reflects our commitment to ensure transit becomes an integral part of their lives and an element of how they operate on a day in and day out basis. Google has now expanded that system to over 75 cities and two states within the United States and to another twenty plus international cities and three countries based on the model developed with TriMet.

Transit agencies across the country are greening their infrastructure, operations and maintenance

And TriMet is certainly not alone in this endeavor. APTA, which represents over 1500 transit agencies and transit-related businesses—90 percent of transit riders travel on APTA member systems—has launched a transit industry-wide sustainability commitment with a goal of signing on 85 percent of its membership by the end of the year. I chair this effort on behalf of APTA. This commitment is performance-based and sets clear reduction targets for water usage, criteria air pollutants and water pollutant discharge, carbon emissions, energy use and waste. The structure of the commitment is such that transit systems with the highest level of environmental performance are being asked to continuously improve their performance. *(See attached APTA Sustainability Commitment document.)*

The future of our nation, in many ways, will rely on a dramatically expanded public transit system—a system that provides high quality transportation for most of our citizens. It must be a system that helps reverse the threat of global climate change. And, finally, it must facilitate the integration of our transportation and land use systems.

Thank you for the opportunity to appear before you today.

Changing the Way America Moves: Creating a More Robust Economy, a Smaller Carbon Footprint, And Energy Independence

At a time when America must create more jobs, reduce its dependence on foreign oil, and become more carbon efficient, public transportation can make a significant contribution quickly and cost-effectively. Public transportation already saves 4.2 billion gallons of fuel and 37 million metric tons of carbon emissions per year, while supporting 2 million jobs. This paper shows that with an investment of 1.6 percent of the U.S. GDP per year, public transportation could support 8.9 million jobs and, by 2020, could save the country 15.2 billion gallons of fuel annually—almost as much as we currently import from the Persian Gulf. This investment would also cut 141.9 million metric tons of carbon emissions per year—about 8 percent of the total carbon emissions from the U.S. transportation sector.

A Discussion Paper by the American Public Transportation Association
January 2009

EXECUTIVE SUMMARY

Changing the Way America Moves: Creating a More Robust Economy, a Smaller Carbon Footprint, And Energy Independence

The Problem

Transportation is one of the largest and fastest-growing factors in America's dependence on foreign oil and its large carbon footprint. Since 1973, Americans have been traveling 250 percent more miles per capita each year and using more than 36 percent more oil for transportation purposes. As a percentage of U.S. oil consumption, net oil imports have risen from 35.8 percent in 1975 to 58.2 percent in 2007. The growth in annual Vehicle Miles Traveled (VMT) in the United States has outpaced U.S. population growth. From 1970 to 2007, VMT grew by 168 percent while population only grew by 48 percent. In addition, the transportation sector emits about one-third of U.S. greenhouse gas emissions—a share that is rising rapidly, despite the availability of cleaner technologies.

In addition, America's car-based transportation system costs the consumer and the U.S. economy more than personal transportation does in most other developed countries. American households spend 17.6 percent of their budgets on transportation; the average European Union household spends just 11.9 percent. Only 53 percent of Americans have access to any public transportation. This portion is significantly higher in European countries.

The Plan

At a time when America must stimulate its economy, create more jobs, reduce its dependence on foreign oil, and become more carbon efficient, public transportation can make a significant contribution quickly and cost-effectively. An essential course of action is to transfer a significant amount of automobile travel to public transportation. To achieve this, America must make appropriate public transportation available in every community.

America should set a minimum goal of doubling the market share for public transportation by 2020 and achieving, by 2045, a public transportation market share equal to that in the European Union. We can accomplish this by achieving a 5.5-percent annual growth rate for public transportation. But we can accelerate this with a much more ambitious growth rate of 10 percent, attaining a public transportation market share on par with the European Union before 2030.

To create a long-term and significant mobility paradigm shift, this paper offers a plan in which every community would improve its transit based on the size and needs of the community:

- Public transportation in the largest metropolitan areas, with populations over 3 million, would carry a majority of all travel for work and a third of travel overall. Light, heavy and commuter rail systems would be extensive and act as a high-capacity backbone of the entire urban transportation system, supplemented by high-frequency streetcar and bus systems covering a large area of the city and surrounding region. This would ensure not only connections to the city center but between urban sub-centers within metro regions.

- Metropolitan areas with populations between one million and three million would all have a solid commuter rail, light rail, streetcar and bus rapid transit systems with an extensive and integrated bus and paratransit network able to provide connections across the region, carrying over a third of all work journeys and almost a fifth of travel overall.

- In metropolitan areas with populations between 500,000 and one million people, public transportation systems would primarily consist of a dense network of high-quality street car, bus rapid transit and bus and paratransit systems with service provided on a frequent basis.

- In smaller metropolitan areas, between 100,000 and 500,000, a high-quality streetcar, bus and paratransit systems would provide reliable service.

- In smaller communities, public transportation would be based on fixed route bus and paratransit service while rural services would be provided primarily by flexible services tailored to meet the needs of the area. New high-speed rail and expanded intercity bus and passenger rail service would link all areas together.

APTA estimates that an investment of $134.2 billion in capital costs and $102.3 billion in operating costs per year (in 2008 dollars) would deliver this plan for all Americans by 2030. This is 1.6 percent of U.S. GDP per year and far less than the more than 10.5 percent that transportation-related goods and services contribute to GDP overall. It would come from a combination of federal, state, and local public resources, as well as private investment.

The Benefits

Adoption of this public transportation investment strategy would:

- Support 8.9 million green American jobs.

- Inject billions of dollars back into the U.S. economy. An investment of $236.5 billion in combined capital and operating in public transportation yields $730 billion in increased business sales. Such an investment would generate public and private revenue streams and make the country more economically efficient and productive, paying far-reaching dividends at a time when our economy needs a large stimulus.

- Save all American households $2,830 per year on average in transportation costs by 2030, significantly reducing the nation's transportation budget.

- Reduce VMT by 11 percent by 2020, saving the U.S. $37.6 billion per year by reducing congestion and far more if one takes into account the reduction in road fatalities and injuries which would occur.

- Save the United States 15.2 billion gallons of fuel per year by 2020—nearly equal the amount we import from the Persian Gulf today. This would greatly reduce America's dependence on foreign oil.

- Reduce carbon emissions by 141.9 million metric tons per year by 2020, almost 8 percent of total carbon emissions from the transportation sector.

What we do in the next 10 years to reshape our transportation infrastructure will benefit our economy immediately by providing more jobs—and ensure economic prosperity, as well as a healthy and safe environment, for decades to come.

Attachment B - Summary of the APTA Sustainability Commitment

The APTA Sustainability Commitment

On 1 January 2009, APTA launched a pilot phase of its sustainability commitment program. This commitment will calls on all APTA members, on a voluntary basis, to commit to putting processes and actions into place which allow for continuous improvement on environmental, social and economic sustainability. It asks APTA members to commit to a set of actions on sustainability to take in a given period and offers a checklist of processes to conform to and reduction targets to meet the criteria of sustainability.

APTA Commitment signatories are asked to measure and communicate on the results of the sustainability actions they have taken on an annual basis. Commitment signatories will also be able to choose the level of commitment they take based on their achievements on sustainability to date. They may choose to move up levels (Entry, Bronze, Silver, Gold or Platinum) as they achieve their goals.

Elements of the commitment

The base principles set the minimum actions which APTA members must take to demonstrate that they are serious about sustainability and are set up for success. It is the base principles that make up the entry level of the commitment and are the elements applicable to the 2009 pilot phase.

The base principles include:

1. Making sustainability a part of your organization's strategic objectives

2. Identifying a sustainability champion within the organization coupled with the proper human and/or financial resources and mandates

3. Establishing an outreach program (awareness-raising and education) on sustainability for all staff of your organization

4. Undertaking a sustainability inventory of your organization, including but not limited to a carbon footprint. A list of indicators has been established outlining what needs to be measured as a minimum and for which a baseline year needs to be determined based on data availability. These include water usage, criteria air

pollutants and water pollutant discharge, carbon emissions, energy use (electricity, fuel), recycling levels and waste.

On 1 January 2010, APTA members will be called to sign onto the higher levels of the commitment, adhering to:

- a set of concrete action items which set quantifiable goals for the short- to medium-term (1-3 years) in operation, maintenance and capital, products and services and in education and outreach with a view to achieving economic, environmental and social sustainability objectives.

- reduction targets for key environmental, social and economic indicators based on baseline measurements made as part of the base principles for adhering to the APTA sustainability commitment.

Organizations committed to silver, gold or platinum status will be asked to set **stretch goals**, longer-term programmatic and process goals (4-6 years) that challenge them to make a very significant difference in the way they function in view of meeting sustainability criteria.

Examples of short to medium-term action items

a) **Operations, maintenance and capital (internal process and policy driven)**

- Put in place ISO 14001 and similar efforts
- Establish in-house "Green Teams"
- Put in place procurement methods that require (or favor) sustainable practices
- Use sustainable practices in the operations and maintenance of organizations and transit systems:
  - Reduce water usage in at least one facility/office
  - Reduce hazardous waste and chemical usage in all agency facilities
  - Have a mobility plan for your organization and offer transit passes as part of employee benefits
  - Set a minimum recycling policy
  - Reduce carbon footprint of meetings e.g. establishing collaborative sites and email distribution of documents as part of a paper-reduction policy
  - Establish a no idling policy to minimize fuel consumption
- Integrate sustainability into system and facilities design and construction:
  - Use green building principles for one new construction project or the adaptation of old infrastructure
  - Build in photovoltaics and/or green roofs at at least one agency building
  - Make contracting with DBE firms part of design and construction policy
  - Adopt an energy efficient appliance purchasing policy

b) **Products and services (services or products that are externally based)**

- Establish new energy efficiency targets for key products
- Improve sustainability performance of key products
- Work systematically with customers to establish more sustainable processes and products
- Put in place a service(s) to help customers become more sustainable themselves
- Expand programs for populations with few transportation options, such as free passes for low-income school kids
- Use sustainable practices in project planning, development and implementation:
  - Integrate transport & land-use decision-making in all project development
  - Launch comprehensive stakeholder engagement process for a new project
  - Put in place targets for costs savings from use of recycled materials/energy efficiency measures in all new projects
  - Establish a "sustainable proposals" policy (e.g. proposals for bids sent in on 100 percent recyclable paper, double-sided, only one hard copy, maximum set for amount of pages etc.)
  - Ensure all new system offices/stations/facilities are in areas zoned for compact, mixed-use development
  - Put in place sustainability criteria in specifications for all new projects

c) **Education and outreach**

- Invest in training on EMS (Environmental Management Systems), SMS (Sustainable Management Systems) and/or ISO 14001 practices
- Ensure in-house expertise and coordination of the sustainability program
- Put sustainability on the agenda of regular staff meetings
- Establish resources and tools for use by employees, clients and the community on what sustainability means and how it can be achieved
- Establish an in-house knowledge management system on sustainability
- Put in place partnerships which can allow for resource exchange to achieve sustainability

Examples of reduction targets:

- Reduce your organization's carbon footprint in terms of emissions per passenger mile by __ percent over baseline by 20__
- Reduce criteria air pollutant emissions per vehicle mile by __ percent over baseline by 20__
- Reduce water pollutant discharge and water use per vehicle mile by __ percent over baseline by 20___

- Reduce overall carbon emissions of administrative function of organization by ___ percent over baseline
- Reduce waste by ____ percent over baseline
- Reduce electricity use by ____ percent over baseline
- Reduce fuel use per unlinked passenger trip by ____ percent over baseline by 20__
- Reduce VMT per capita in your community by __ percent over baseline by 20__
- Reduce operating expense per unlinked passenger trip and passenger mile by __ percent over baseline by 20__

Examples of stretch goals

- Establish a comprehensive measuring and reporting process on targets set, progress made, results achieved which is disseminated both internally within the organization as well as externally, available to all interested stakeholders, including the publication of an annual sustainability report
- Establish an organization-wide policy and action plan which covers economic, social and environmental sustainability
- Ensure all new construction meets LEED-like principles and bring existing construction into line
- Implement EMS, SMS and/or ISO 14001 standards
- Put in place an sustainable-procurement policy which is based on comprehensive sustainability principles
- Develop in conjunction with your MPO an integrated transit/land use plan to reduce the acres of developed land/capita in your community
- Redefine life-cycle costing to sustainability criteria
- Obtain 3rd party verification of measurements and reductions
- Become viewed as a sustainability leader in one's community or areas where can play an active role in the community

TRIMET **Memo**

Date: February 6, 2009

To: Office of Congressman Charles Dent

From: Fred Hansen, General Manager, Tri-County Metropolitan Transportation District of Oregon (TriMet)

Subject: Follow-up information from House Transportation and Infrastructure Subcommittee on Highways and Transit hearing on January 27, 2009.

Putting Public Transportation's Carbon Reductions in Context

The public transportation sector currently saves the United States 37 million metric tons (MMT) of carbon dioxide (CO_2) emissions per year by reducing vehicular travel on more CO_2 intensive modes, from congestion avoidance due to a reduction in vehicle miles traveled, and from transit's leverage effects on land-use.[i] To put these CO_2 reductions into context, one would have to plant a forest larger than the state of Indiana each year to achieve parallel savings.

In the broader context of all CO_2 emissions from the transportation sector in the United States, which currently accounts for 33 percent of national CO_2 emissions,[ii] public transportation CO_2 emission savings today are equal to 1.99 percent of total U.S. CO_2 emissions of 1861 teragrams (Tg) from the transportation sector in 2006.[iii]

This is reflective of the relatively small percentage of overall trips made by public transportation. Nationally, over 96 percent of passenger miles traveled were in cars or light trucks in 2005,[iv] due in large part to the underinvestment in public transportation options available to the travelling public. Today, only 54 percent of American households have access to public transportation of any kind.[v] Fewer still have truly attractive public transportation options.

The potential for growth in public transportation use, and hence far greater CO_2 emissions savings from public transportation, is substantial. On a per passenger basis, national level data show significant greenhouse gas emission savings by use of public transportation, which offers a low emissions alternative to driving.[vi] From the perspective of a typical American household, a single person, commuting alone by car who switches a 20-mile commute to existing public transportation, can reduce his or her annual CO_2 emissions by 4,800 pounds per year, equal to a 10 percent reduction in all greenhouse gases produced by a typical two-adult, two-car household. By eliminating one car and taking public transportation instead of driving, a savings of up to 30 percent of CO_2 emissions can be realized.[vii]

If we set ourselves a goal of doubling transit ridership by 2020, maintaining the sort of ridership growth rates we saw at the height of fuel prices this year, we could be saving 83 MMT of CO_2 emissions a year by 2020. If we grow transit ridership by 10 percent a year, which is what is

really needed in anticipation of a growing population, we could reduce transportation's carbon footprint by almost 8 percent by 2020.[viii]

Climate change scientists tell us we have 5-10 years to take aggressive action to reduce Greenhouse Gas emissions and acting on the transportation equation of that has got to be a priority. And because of that short time window to act, modal shift, not technology is going to make the biggest difference the quickest. Today, alternative fuel vehicles are only 4.3 percent of the entire automobile fleet in the United States and, according to MIT transportation experts, it will take at least another 20 years before vehicles with even moderately improved technology will be on the roads in sufficient numbers.[ix]

Public transportation is already a proven strategy for reducing carbon emissions, and one that is poised to heighten its impact substantially if we invest in expanded transit availability and quality.

References:

[i] "The Broader Connection between Public Transportation, Energy Conservation and Greenhouse Gas Reduction", ICF International (February 2008).
[ii] "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006", U.S. EPA #430-R-08-005 (April 2008).
[iii] Ibid., Table ES-3 (*Note*: 1 Tg = 1 MMT)
[iv] "Transportation for Tomorrow", National Surface Transportation Policy and Revenue Study Commission (December 2007), Exhibit 2-1.
[v] "American Housing Survey for the United States: 2005", U.S. Department of Commerce, Economic and Statistics Administration, U.S. Census Bureau (August 2006).
[vi] "Public Transportation's Role in Responding to Climate Change", Federal Transit Administration (January 2009).
[vii] "Public Transportation's Contribution to U.S. Greenhouse Gas Reduction", SAIC (September 2007).
[viii] "Changing the Way America Moves", APTA (January 2009)
[ix] "On the Road to 2035: Reducing Transportation's Petroleum Consumption and GHG Emissions", MIT Laboratory for Energy and the Environment (July 2008).

Before the
U.S. House of Representatives
House Transportation and Infrastructure Committee
Subcommittee on Highways and Transit

Statement of G. Tommy Hodges
Chairman
Titan Transfer, Inc.
PO Box 590
Shelbyville, TN 37162
on behalf of the
American Trucking Associations, Inc. (ATA)

Energy Reduction and Environmental Sustainability in Surface Transportation
January 27, 2009

Mr. Chairman and Members of the Subcommittee:

My name is Tommy Hodges. I serve as the Chairman of Titan Transfer, Inc., based out of Shelbyville, Tennessee, a full-service truckload carrier operating throughout the Midwest, southeast, northeast, and southern California. In addition, I also serve as Chairman of Goggin Warehousing, LLC; Chairman of HEC Leasing, Inc.; and Chairman of IWLAIC Insurance Company, a group captive insurance company. Titan Transfer is proud of its energy reduction record as well as its participation in the U.S. Environmental Protection Agency (EPA) SmartWay[sm] program in which we received the agency's highest rating for outstanding environmental performance for greenhouse gas reduction and environmental stewardship efforts.

Today, I appear before you representing not just my company, but also the American Trucking Associations (ATA) headquartered in Arlington, Virginia. I am proud to serve as the First Vice Chairman of ATA and the Chairman of ATA's Sustainability Task Force. ATA is the national trade association of the trucking industry. Through its affiliated state trucking associations, affiliated conferences and other organizations, ATA represents more than 37,000 trucking companies throughout the United States.

My testimony today will focus on the unique nature of the trucking industry and our efforts to reduce energy consumption and advance environmental sustainability as we continue to deliver the nation's freight.

Overview of the Trucking Industry

With more than 600,000 interstate motor carriers in the United States, the trucking industry is the driving force behind the nation's economy. Trucks haul nearly every consumer good at some point in the supply chain. Few Americans realize that trucks deliver nearly 70 percent of all freight tonnage or that 80 percent of the nation's communities receive their goods exclusively by truck. Even fewer are aware of the significant employment, personal income, and tax revenue generated by the motor carrier industry.

Nearly nine million people employed in the trucking industry move approximately 11 billion tons of freight annually across the nation. Trucking generates approximately $646 billion in revenue and represents roughly five percent of our nation's Gross Domestic Product. One out of every 13 people working in the private sector in our country is employed in a trucking-related jobs ranging across the manufacturing, retail, public utility, construction, service, transportation, mining, and agricultural sectors. Of those employed in private-sector trucking-related jobs, 3.5 million are truck drivers.

The trucking industry is composed of both large national enterprises as well as a host of small businesses, all of whom operate in extremely competitive business environments with narrow profit margins. According to the U.S. Department of Transportation, 96 percent of motor carriers have 20 or fewer trucks.

The Trucking Industry and Energy Consumption

The fuel of choice for the nation's long-haul trucks is diesel fuel. Diesel fuel provides greater fuel economy and has the higher energy content necessary to transport widely-diversified loads under extreme operating conditions. We use a tremendous amount of diesel fuel every year to keep our economy moving. Therefore, it is in our best business interest to reduce our energy consumption, improve our profitability, and reduce our levels of emissions and greenhouse gases.

Our industry is proud of its environmental record in reducing emissions and transitioning to clean fuels. Trucking was the first freight industry to widely use advanced diesel engine emission control systems. In 2002, the industry began buying new trucks which incorporated exhaust gas recirculation (EGR) combined with other emission control technologies to reduce tailpipe emissions of nitrogen oxide (NOx) by half. The additional annual cost of purchasing this new engine technology was estimated to be as much as $0.5 billion.

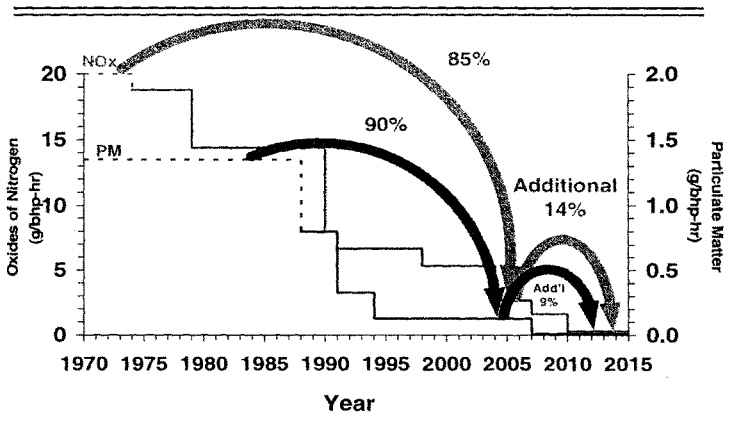
In 2007, the new diesel trucks purchased by our industry began incorporating diesel particulate filters (DPFs) to reduce tailpipe emissions of particulate matter by 90 percent. To illustrate the significance of these reductions, every 60 new trucks purchased this year will equal the particulate emissions of six trucks purchased just three years ago and of a single new truck purchased 20 years ago. These new trucks also began the first half of what; ultimately, will be an additional 90 percent reduction in NOx emissions.

To advance the use of these new emission reduction technologies, the trucking industry began transitioning to a new ultra-low sulfur diesel fuel (ULSD) in 2006. ULSD, which now represents the vast majority of all on-road diesel fuel being purchased in the United States, is refined to lower the sulfur content to near-zero levels (15 parts per million). In 2010, 100 percent of all diesel fuel sold across the nation for on-road use will be required to be ULSD.

These latest efforts to improve air quality continue a quarter-century trend of reducing truck emissions. In 2002 (the most current year data is available), on-road diesel engines contributed approximately 1 percent of the nation's total emissions of volatile organic compounds, carbon monoxide and sulfur dioxide, less than 1.5 percent of the nation's total emissions of fine particulate matter, and approximately 16 percent of the nation's total emissions of NOx. (EPA, 2005) On-road heavy-duty trucks account for less than 6 percent of the nation's greenhouse gas emissions. (EPA, 2008)

Nationally, on-road heavy-duty diesel trucks produce half as much fine particulates as off-road sources, including construction and farm equipment, locomotives, and marine vessels. When compared to 2002, PM and NOx emissions from heavy-duty trucks will be reduced by more than 40 percent by 2010 and by more than 70 percent by 2020 due to the stricter engine and diesel fuel standards. (FHWA, 2005)

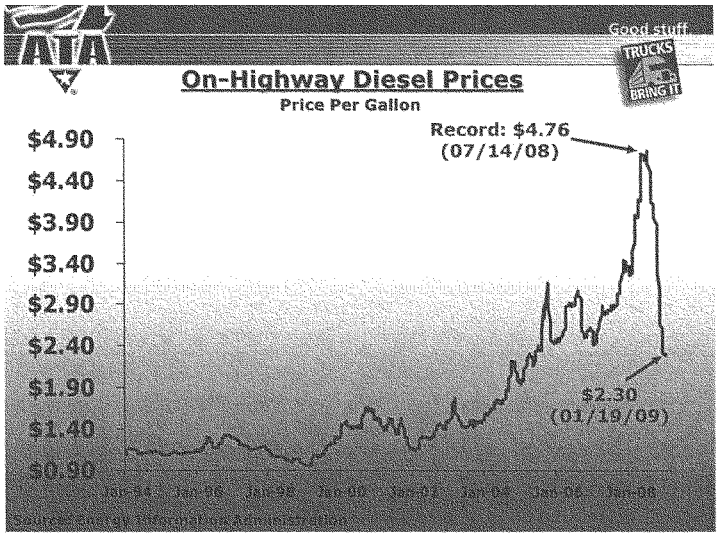
On-Highway Diesel Engine Emission Reductions



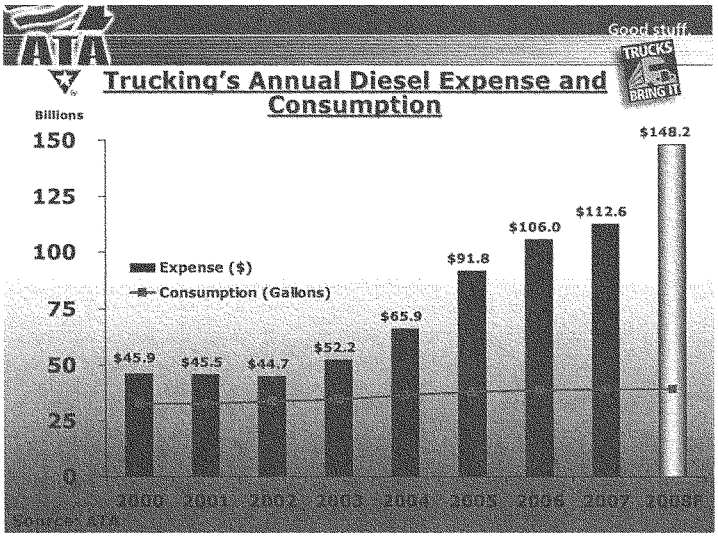
These improvements have not come without significant cost to our industry which is extremely sensitive to rapidly shifting operating costs given our thin profit margins of between 2-5 percent, in the best of years. These margins continue to be chipped away given the numerous and unprecedented costs being imposed upon our industry. For instance, 2002 diesel engine emission standards imposed by the EPA in drove up engine costs between $3,000 to $5,000 while decreasing fuel economy between 6-8 percent. EPA's diesel engine emission standards in 2007 drove up the cost of engines again

between $8,000 to $10,000 and, by many accounts, decreased fuel economy between 2-4 percent. Diesel engine emission standards set to take effect in 2010 will substantially increase engine costs yet again while fuel economy impacts still remain unknown at this time. Overall, the additional annual cost tom our industry in purchasing these newest engine technologies and ULSD has been estimated to be as much as $4 billion.

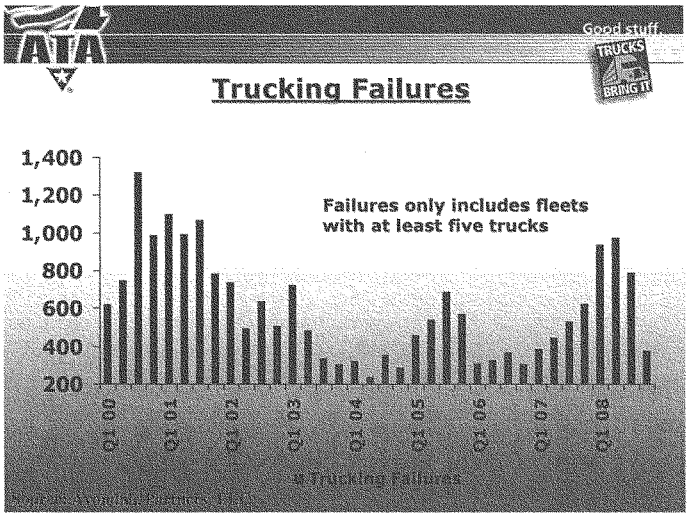
In 2008 alone trucking consumed over 39 billion gallons of diesel fuel. This means that a one-cent increase in the average price of diesel costs the trucking industry an additional $391 million in fuel expenses. The average national price of diesel fuel last week was $2.30 per gallon, a far cry from the record national average price of $4.76 per gallon we experienced in July of last year. But we are aware that the current low prices are merely temporary. Once the economy rebounds, so will diesel prices.



The trucking industry spent an incredible $148.2 billion on fuel last year. This is $35.6 billion more than we spent in 2007, and more than double the amount we spent just four years ago.



Today it costs nearly $700 to refuel a truck. As a result of roller coaster fuel costs coinciding with a downturn in the economy and a softening of demand for freight transportation services, many trucking companies are struggling to survive. In 2008, more than 3,000 trucking companies with at least five trucks failed and thousands of independent operators, drivers and employees have lost their jobs. This was the largest annual number of trucking related failures since 2001. It is very likely that a large number of companies that operate fewer than 5 trucks also have turned in their keys.



As noted, trucking is a highly competitive industry with very low profit margins. This explains why many trucking companies are reporting that higher fuel prices have greatly suppressed profits, if they are making a profit at all.

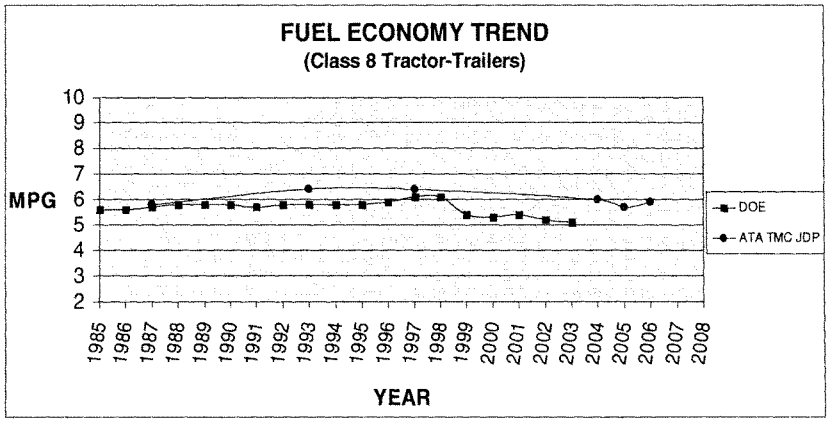
Keep in mind that as the nation's population continues to grow, so does the corresponding demand for more consumer goods. The demand for more products will in turn require more trucks to deliver such goods which will result in more vehicle miles traveled and greater diesel fuel consumption. The table below clearly shows these relationships.

TRUCK POPULATION, FUEL USE, VMT &POPULATION

Year	Class 8 Trucks (Millions)	Diesel Fuel Consumed (Billions of Gallons)	VMT (Billions)	U.S. Population (Millions)
2000	2.60	32.5	119.7	282.3
2001	2.61	32.5	115.7	285.0
2002	2.63	33.9	114.5	287.7
2003	2.64	34.6	113.9	290.3
2004	2.72	36.4	117.8	293.0
2005	2.86	38.1	130.5	295.7
2006	3.01	39.1	139.3	298.4
% Increase Over 2000	+16%	+20%	+16%	+6%
2018	3.64	---	178.8	330.7
% Increase Over 2000	+40%	---	+49%	+17%

Source: American Trucking Associations

Keep in mind that fuel economy of line-haul trucks has not recognized any appreciable change over the last quarter century averaging between 6.0 and 6.5 miles per gallon. Heavy-duty trucks are far different from passenger cars. There are no hybrid line-haul trucks, truck fuel economy continues to remain stagnant, and truck movement is undertaken to conduct business operations – not pleasure. The table below depicts fuel economy trends in our industry.



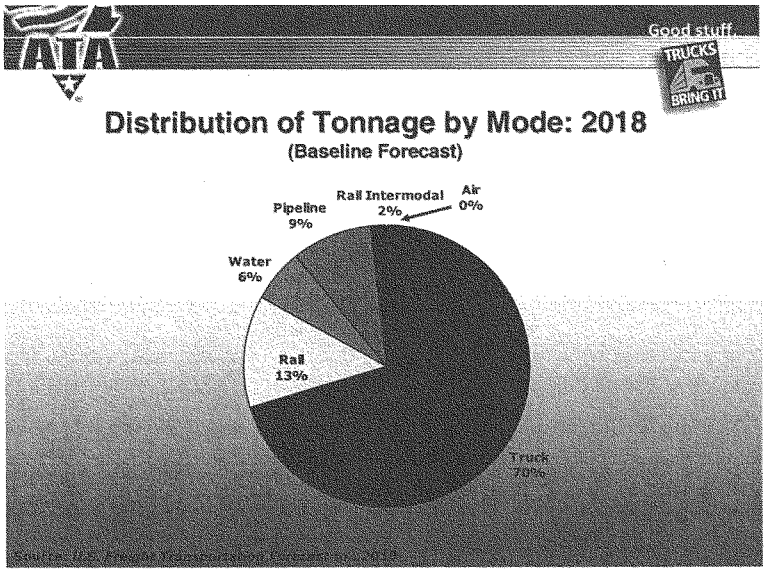
Sources: American Trucking Associations (ATA); ATA Technology & Maintenance Council (TMC); JD Powers & Associates (JDP); U.S. Department of Energy (DOE).

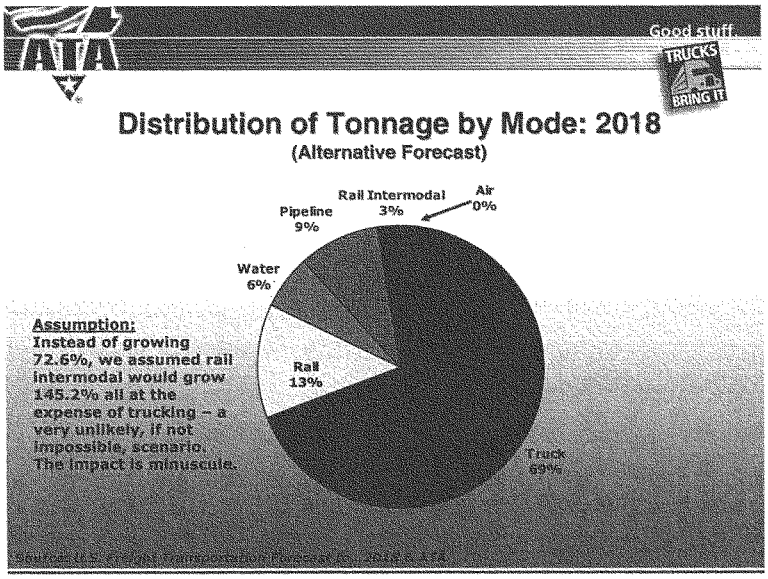
Intermodalism

ATA believes that intermodal transportation – be it by rail, air or water – can play an important role in addressing both energy usage and environmental sustainability. In fact, the trucking industry is one of the largest customers of the railroads, putting over 2 million loads on the rails last year. However, the reality is that rail intermodal is not a significant alternative to truck transportation. Today, rail intermodal tonnage is less than 1.5 percent of all freight transportation tonnage in the U.S. versus 69 percent for trucking. By 2018, IHS Global Insight projects that rail intermodal freight will be 1.7 percent of all freight tonnage while trucking will account for 70 percent of the total.

To be sure, rail intermodal will see some tremendous growth by 2018. IHS Global Insight forecasts that rail intermodal tonnage will surge a total of 72.6 percent from 2006 to 2018. ATA analyzed how much freight could be taken off the roads if rail intermodal saw even higher growth rates from the already lofty numbers. Specifically, instead of growing 72.6 percent, ATA doubled that growth rate to 145.2 percent, assuming all that increase moved away from highway freight. What ATA found may surprise many. That doubling of rail intermodal freight only reduced trucking's market share to 69 percent from the expected 70 percent by 2018, while the rail intermodal share only rose to 2.5 percent from the expected 1.7 percent. In essence, rail intermodal cannot significantly reduce highway freight volumes.

Highway freight is a dynamic mix of international, transcontinental, regional and local freight. Generally speaking, railroads are competitive with trucks for shipments of over 750 miles. However, just 8.3% of all freight shipments fall into this category in 2007 according to the Commodity Flow Survey. The reality then is that the vast majority of freight moved by truck is unlikely to shift to rail.


Good stuff
TRUCKS BRING IT
Distribution of Tonnage by Mode: 2018
(Baseline Forecast)
Pipeline 9%
Rail Intermodal 2%
Air 0%
Water 6%
Rail 13%
Truck 70%


Good stuff
TRUCKS BRING IT
Distribution of Tonnage by Mode: 2018
(Alternative Forecast)
Pipeline 9%
Rail Intermodal 3%
Air 0%
Water 6%
Rail 13%
Truck 69%
Assumption:
Instead of growing 72.6%, we assumed rail intermodal would grow 145.2% all at the expense of trucking – a very unlikely, if not impossible, scenario. The impact is minuscule.

The Trucking Industry's Sustainability Plan

Trucking is not an industry that chooses to remain on the sideline. That is why ATA undertook a full analysis of our industry and its operations and began its efforts to develop its sustainability plan in 2006 to reduce our energy use and emissions. The ATA effort took into account the unique nature of the trucking industry and identifies opportunities to advance environmental sustainability without restricting the delivery of the nation's goods.

The fruits of our industry's efforts culminated in May of 2008 when ATA formally unveiled its sustainability plan entitled *Strategies for Reducing the Trucking Industry's Carbon Footprint* at a press event held here in Washington, DC. At that event, we committed to a bold sustainability program that will have an immediate impact on the environment, reducing fuel consumption by 86 billion gallons and thus reducing the carbon footprint of all vehicles by nearly a billion tons over the next ten years. Our plan can achieve real results. In addition, our plan will extend the significant progress industry has already made over the past 24 years in reducing its carbon footprint and overall impact on the environment. To view ATA's plan, go to: http://www.trucksdeliver.org/pdfs/Campaign_Executive_Summary.pdf.

The recommendations set out real solutions for our industry that are achievable today to reduce greenhouse gases. The six key recommendations set out in the report are as follows:

1. **Enact a National 65 mph Speed Limit and Govern Truck Speeds to 65 mph for Trucks Manufactured After 1992**

The typical heavy-duty diesel truck travels between 5 and 7 miles on a gallon of diesel, depending upon load, route, equipment and drivers' skill. Speed has a direct correlation to fuel consumption. In fact, for each mile per hour that a truck travels in excess of 65 mph, its fuel economy decreases by 1/10 of a mile per gallon. Thus, a truck traveling at 65 mph that is capable of achieving 6 miles per gallon, will achieve only 5 miles per gallon when traveling at 75 mph. For this reason, ATA's sustainability plan recommends supporting a national speed limit of 65 mph for all vehicles and governing truck speeds at 65 mph for trucks manufactured after 1992. Of course, to achieve the maximum benefit of this policy, the federal government will need to partner with states to ensure strict enforcement of the 65 mph speed limit. In addition to the fuel conservation benefits from reducing truck speeds, we are confident that this measure will further reduce the number of truck-related fatalities that occur on our nation's roadways.

2. **Increase Fuel Efficiency Through EPA's SmartWay^{sm} Program**

In February 2004, the freight industry and EPA jointly unveiled the SmartWay^{sm} Transport Partnership, a collaborative voluntary greenhouse gas reduction program designed to increase the energy efficiency and energy security of our country while significantly reducing air pollution in the process. The program's mantra is "fuel not

burned equates to emissions not had." The program, patterned after the highly-successful Energy Star program developed by EPA and DOE, creates strong market-based incentives that challenge companies shipping products and freight operations to improve their environmental performance and improve their fuel efficiencies. To become a partner a fleet must commit to reduce fuel consumption through the use of EPA-verified equipment, additives, or programs. By 2012, the SmartWay[sm] program aims to save between 3.3 and 6.6 billion gallons of diesel fuel per year and reduce trucking's annual carbon emissions by 48 million tons. SmartWay[sm] is one voluntary greenhouse gas program that not only works, but exceeds expectations.

Like my company, the rest of the trucking industry has fully embraced SmartWay[sm] and relies upon the innovativeness of this cutting edge program. However, while the program is growing by leaps and bounds, future funding remains uncertain. While ATA and other freight and shipping sectors continue to work towards ensuring a separate line item in future EPA appropriations for SmartWay[sm], we are troubled with the FY08 funding cuts to the program. More specifically, total monies allocated to the program last year dropped from roughly $3 million in FY07 to $2 million in FY08. Funding cuts to grants, contracting, marketing, technology development, and other program expenses have severely undermined the mission of the program. It is our hope that EPA will redirect additional dollars from its Climate Protection Program to ensure the continued growth and success of this remarkable program. Given that the Energy Star program's annual operating budget is $50 million, we also ask that Congress provide a line item appropriation to ensure that SmartWay[sm] is adequately funded in the future.

3. Support National Fuel Economy Standards for Medium- and Heavy-Duty Trucks

ATA's sustainability plan recommends increasing fuel economy standards for commercial medium- and heavy-duty trucks that are technologically and economically feasible, do not compromise truck performance, and provide manufacturers sufficient stability and lead time for production. Given that fuel economy in the industry has remained flat over the last quarter century and fuel now is the largest operating expense for many fleets, it is more critical than ever to ensure small and large fleets alike are able to continue to deliver the nation's goods. ATA will be working closely with the U.S. Department of Transportation and the National Academy of Sciences as they work to evaluate fuel economy, fuel efficiency, and establish associated standards for medium- and heavy-duty trucks as directed under the Energy Information and Security Act of 2007.

4. Decrease Idling

Truck drivers idle their trucks out of necessity. The Department of Transportation's Federal Motor Carrier Safety Administration *Hours-of-Service* regulations require mandatory rest periods. As the driver rests in the truck's sleeper compartment, he/she will often need to cool or heat the cab to rest comfortably. In extremely cold weather, truck drivers also idle their engines to prevent the engine block

from freezing. Argonne National Laboratory estimates that the average long-haul truck idles for 1,830 hours per year. With hundreds of thousands of these trucks on the road, idling has a significant impact on fuel consumption and the environment. The EPA estimates that idling trucks consume approximately 1.1 billion gallons of diesel fuel annually, roughly 3 percent of trucking's annual diesel fuel consumption. ATA's sustainability plan therefore recommends pursuing efforts to reduce such idling practices to save fuel and reduce emissions and greenhouse gases.

Many options are currently available to reduce engine idling. Auxiliary power units (APUs) are among the most popular choices in anti-idling equipment providing climate control (heating and cooling), engine preheating, battery charging, and power for household accessories without use of the truck's main engine. APUs have been proven by the Federal Highway Administration to save up to one gallon of fuel per hour of idling and to substantially reduce emissions and greenhouse gases.

Nearly 40 states have adopted regulations limiting the amount of time a commercial vehicle can idle. While reducing main engine idling is a laudable goal, two major barriers stand in the way of trucking companies purchasing such equipment for their daily use: (1) the failure to grant exceptions for the additional weight associated with anti-idling equipment; and (2) the cost of the devices themselves.

Since idling reduction equipment can add weight to a truck, many fleets do not want to reduce their cargo capacity to compensate for the installation of idle reduction equipment on a truck. To address this concern, Congress authorized a 400-pound weight exemption for trucks equipped with idle reduction equipment under Section 756 of the *Energy Policy Act of 2005*. While Congress' intent was to mandate this exemption, the Federal Highway Administration (FHWA) has determined that states "may" adopt the exemption on a voluntary basis. FHWA's interpretation of the weight exemption gives states the option of whether to allow the exemption or not. To date, several states have passed legislation recognizing the 400-pound weight tolerance and a handful of states are exercising enforcement discretion. Congress needs to clarify the 400-pound weight exemption as being applicable to idling reduction equipment nationwide.

While a variety of proven technologies exist to reduce main engine idling, most trucking companies just cannot afford purchasing devices that can cost up to $10,000 per unit. It is imperative that the Congress consider financial incentives in the way of tax credits or grants to expedite the introduction of idling reduction equipment across the nation.

5. Reduce Highway Congestion through Highway Infrastructure Improvements

Americans waste a tremendous amount of fuel sitting in traffic. According to the most recent report on congestion from the Texas Transportation Institute, in 2005, drivers in metropolitan areas wasted 4.2 billion hours sitting in traffic. These congestion delays consumed 2.9 billion gallons of fuel. ATA estimates that if congestion in these areas was

ended, 32.2 million tons of carbon would be eliminated and, over a 10-year period, nearly 32 billion gallons of fuel would be saved, reducing carbon emissions by 314 million tons.

ATA's sustainability plan recommends that Congress invest in a new congestion reduction program to eliminate major traffic bottlenecks identified in all 437 urban areas across the country, with a specific focus on those that have the greatest impact on truck traffic. Congestion relief offers one of the most viable strategies for reducing carbon emissions. ATA recommends a 20-year plan for addressing congestion. During the first five years, the focus would be on fixing critical highway bottlenecks. During the next five to 15 years, traffic flow in critical freight corridors would be improved through highway capacity expansion. Beyond that, the focus would be on creating truck-only corridors which would enable carriers to run more productive vehicles. These improvements are possible only with dedicated revenue generated by an increased federal fuel tax.

6. Promote the Use of More Productive Truck Combinations

By reducing the number of trucks needed to move the nation's freight, the trucking industry can significantly lower our fuel consumption which would produce substantial environmental benefits. ATA's sustainability plan calls for the use of more productive equipment - where it is consistent with highway and bridge design and maintenance of safety standards - as an additional tool that should be available to states. ATA estimates that allowing nationwide operation of higher productivity vehicles by increasing single tractor trailer maximum gross vehicle weights to 97,000 pounds and use of heavier double 33-foot trailers would save more than 20.5 billion gallons of diesel fuel and reduce carbon emissions by over 227 million tons over a 10-year period.

A recent study by the American Transportation Research Institute found that use of these vehicles could reduce fuel usage by up to 39%, with similar reductions in criteria and greenhouse gas emissions. The reduction in truck vehicle miles traveled on highways such as the New York Thruway, Massachusetts Turnpike, Florida Turnpike, and on roads throughout the Western United States, has lowered the amount of fuel burned in these states. These examples of responsible governance could be replicated by other states if given the necessary flexibility under federal law.

Beyond the six aforementioned recommendations and in closing, ATA requests Congress to consider funding research and development in the areas of new engine technologies, aerodynamics, fuel additives, lubricity, tires, batteries, hybrids, anti-idling equipment, insulation, and rolling resistance specific to operations of line-haul trucks. Technology advancements have been stalled for many years and an infusion of funding and will is critical to realize the next generation of more fuel efficient trucks.

ATA and Titan Transfer appreciate this opportunity to offer our insight into the trucking industry's efforts to reduce energy use and advance environmental sustainability in surface transportation. Thank you.

Testimony of Deron Lovaas
Federal Transportation Policy Director
Natural Resources Defense Council

Energy Reduction and Environmental Sustainability

Highways and Transit Subcommittee
Transportation and Infrastructure Committee

January 27, 2009

Mr. Chairman, Members of the Subcommittee, thank you for the opportunity to discuss with you the important and timely topic of energy reduction and sustainability in the transportation sector. My testimony will cover various issues:

1. A Snapshot: What is Transportation's Energy and Environmental Footprint?
    a. Energy and Climate
    b. Conventional Air Pollution
    c. Water Quality
    d. Wildlife Habitat
2. A Context That Would Welcome New Policy: Some Evidence of Shifts in Transportation and Development Demand
3. Useful Policy Solutions
    a. Evidence That Policy Can Make a Difference
    b. Policy Solution #1: Regional Blueprints
    c. Policy Solution #2: Road Pricing
    d. Policy Solution #3: Increased Investment in Transportation Alternatives
4. Setting National Objectives and Assessing the Technical Potential for Energy Savings and Carbon Pollution Reduction

Energy and Climate

One of the most pressing issues on the national agenda – including President Obama's agenda as evidenced by its prevalence on the whitehouse.gov web site – is energy

security. Small wonder. We import ten million barrels of oil day, sending $240 billion out of the country in 2007 alone.[1]Since at least three-quarters of the world's oil is in the hands of national oil companies, several of which are unfriendly to the U.S. and its interests (as in the cases of Russia and Venezuela), this historically unprecedented transfer of wealth is a threat to national security.[2]This is what the President was referring to in his Inaugural address when he state that "...each day brings further evidence that the ways we use energy strengthen our adversaries and threaten our planet."[3]

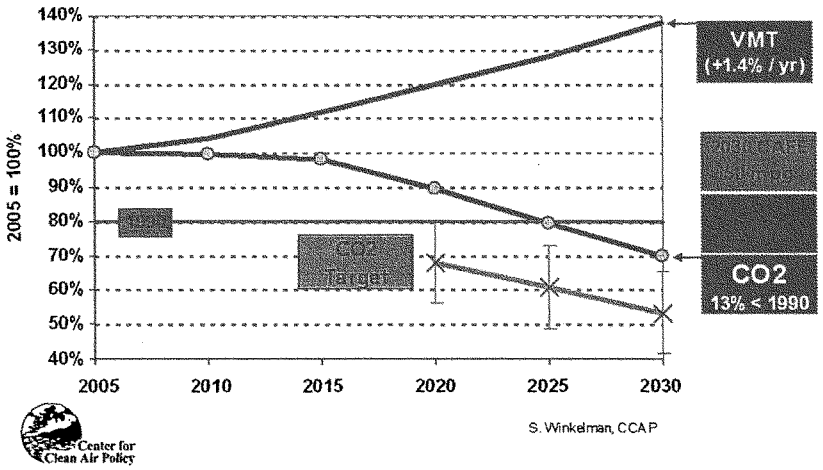
Transportation drives this dangerous dependence on oil, and surface transportation accounts for the lion's share. Surface transportation is 95 percent dependent on petroleum-derived products (primarily motor gasoline) and is responsible for more than 11 million barrels of oil consumption daily. This consumption, and the pollution that comes from combustion, is basically the product of three factors:

Vehicle fuel-efficiency (miles per gallon) * Gallons of gasoline or diesel (as opposed to alternatives) * vehicle miles traveled, or VMT

The first has received a great deal of attention from the press and policymakers. Improvements in efficiency as a means to reduce U.S. vulnerability to oil import dependence in the 1970s led to the enactment of the Corporate Average Fuel Economy program (CAFÉ).[4]This program doubled car fuel economy in a decade, and increased light-truck fuel economy 50 percent in the same time span. Then when oil prices collapsed in 1986 the standard was relaxed and fell into disuse as a policy tool. The remarkable oil price runups of the past several years spurred Congress to raise the bar further in the 2007 energy bill, raising the standard 40 percent to at least 35 miles per gallon by 2020.[5]

The second factor has received substantial focus outside of the U.S., most notably in Brazil, until the enactment of the last two energy bills. Commercial viability of energy substitutes is a challenge for transportation. Alcohol fuels, specifically ethanol and methanol, are possibilities. But scaling them to dent our oil consumption, avoiding unintended social and environmental consequences, will be difficult. The 2007 energy bill included laudable requirements and safeguards such as an increasing mandate for cellulosic ethanol and sustainability standards to address this problem.

The third of these factors has received less attention, yet as the graph below from my colleague Steve Winkelman at the Center for Clean Air Policy makes clear, it is a sine qua non component of a strategy of reducing carbon dioxide emissions as much as the science tells us we must achieve (80 percent reduction from 1990 level by 2050). I will focus on it in my testimony since its trendlines are most directly affected by policies under this Committee's jurisdiction.

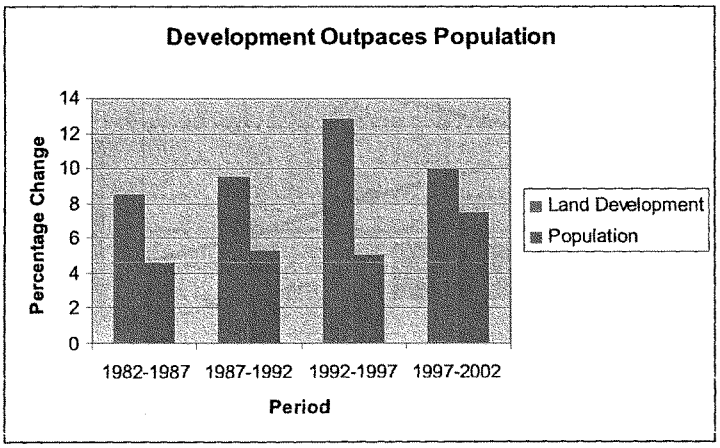


Growth in VMT has tracked growth in the economy and personal incomes, and exceeded that of population, for decades. Highway capacity expansion has enabled this linkage, a policy choice lamented by visionary Transportation Secretary John Volpe 40 years ago:

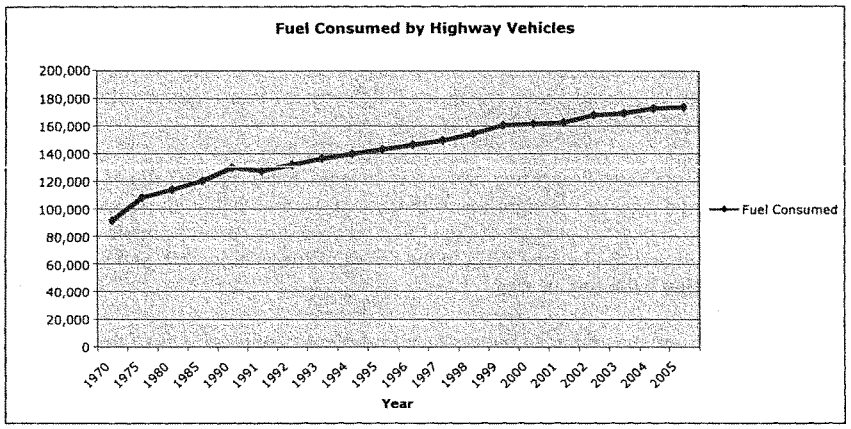
> The federal government spends as much money on highway construction in six weeks as it has put into urban transit in the last six years…Unless we intend to pave the entire surface of the country—and no one wants that—we have to stop this trend. We already have one mile of highway for every square mile of land area in the U.S.A.[6]

Forty years later we have almost two-and-a-half lane miles per square mile of territory.[7] The environmental impacts are significant. In spite of the fact that roads, roadsides and corridors take up about two percent of the U.S. land base, one recent estimate finds that effects of roads stretch far beyond them in the forms of fringe noise, air, and water pollution, affecting ten times an area.[8]

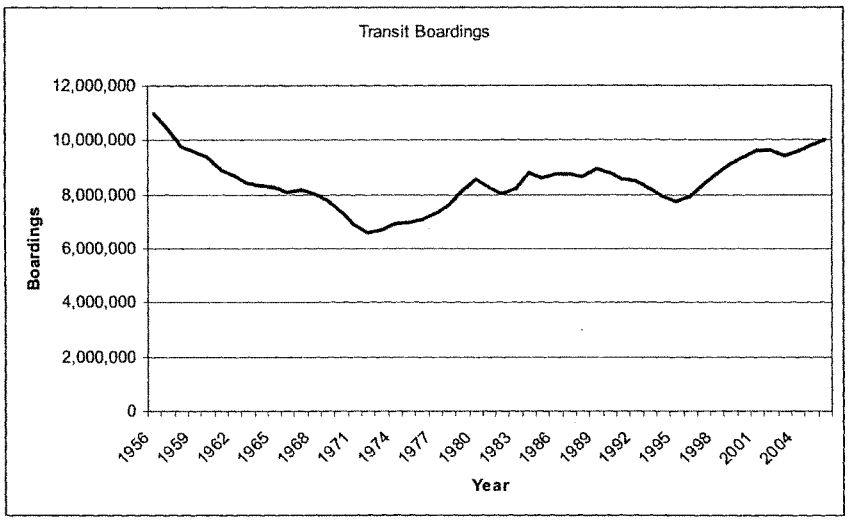
These effects of our growing road network are complemented by effects of the sprawling development they support. As my colleague and friend Chris Leinberger of the Brookings Institute puts it, "Transportation drives development." Transportation investments have opened up new places for development at and beyond the fringes of metropolitan areas, spurring land-development to exceed population growth as shown in the graph below.[9]



Americans have made good use of increases in pavement. U.S. vehicle miles traveled (VMT) climbed steadily throughout the second half of the twentieth century, with billions of gallons of fuel consumed annually to fuel this growth, as seen in the graph below.[10]



Driving more and more miles has meant turning away from other modes of transportation, such as public transportation which has only just returned to the level of boardings enjoyed fifty years ago.[11]

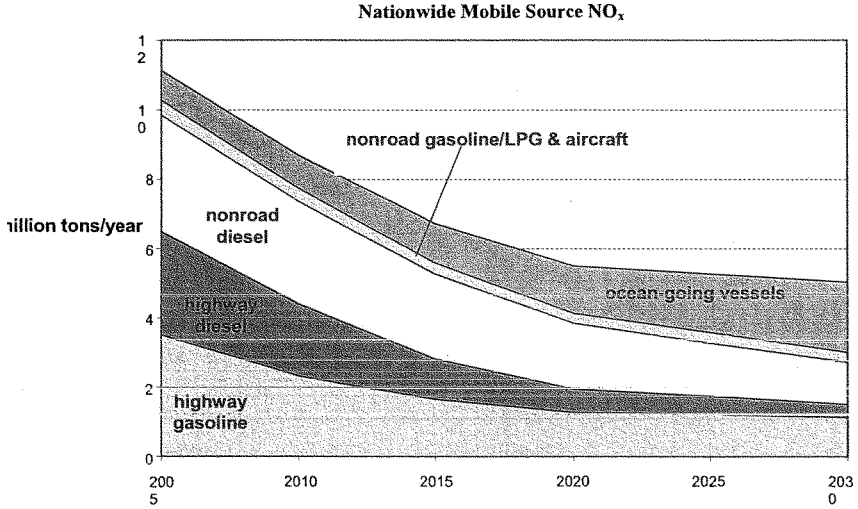


These trends lead us to the situation today, with per capita driving at nearly 10,000 miles a year.[12]It has also led to a wild imbalance in mode share for public transportation, especially compared to other OECD countries. According to a 2001 study, for every transit trip there are 44.5 auto trips.[13] By contrast in Canada, Great Britain, and Germany the ratio is a much less lopsided 7.6, 4.6 and 3.1 respectively.[14]

This overdependence on a vehicle fleet capable of running only on petroleum-derived fuels exacerbates the twin challenges of energy insecurity and transportation's contribution to global warming.

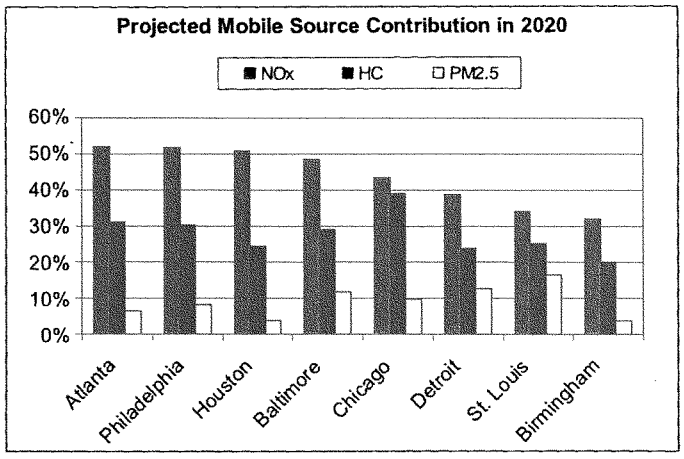
Conventional Air Pollution

Some trends have been more positive in terms of reductions of emissions of traditionally regulated emissions such as carbon monoxide, ozone precursors (oxides of nitrogen, or NO_x, and volatile organic compounds, or VOCs) as well as coarse and fine particulate matter. Improving emissions control technology is responsible for the impressive gains, and these improvements are driven by policy, specifically by a host of emission standards that apply to different vehicle classes and technologies and to gasoline and diesel fuels.[15]The graph below from the Office of Transportation and Air Quality shows the progress, for example, in lowering NO_x pollution from mobile sources.[16]



Continued progress is needed, however, since mobile sources still account for substantial portions of conventional pollution levels, most notably the ozone precursors (58 percent of NO_x and 35 percent of VOCs).[17] Ground-level ozone, a contributor to smog, is generated by a combination of NO_x, VOCs and sunlight. Recent studies have found that that short-term exposure to concentrations of ozone increases morbidity and mortality, especially among vulnerable populations such as asthmatics, children and the elderly. As a reviewer of the studies concluded, "Ozone is capable of causing inflammation in the lung at lower concentrations than any other gas. Such an effect would be a hazard to anyone with heart failure and pulmonary congestion, and would worsen the function of anyone with advanced lung disease."[18]

According to EPA 144.8 million Americans remain live in regions that fail to meet the federal health-based standard for ozone.[19] Given this fact, and that mobile sources are projected to account for a substantial proportion of ozone precursors and other pollutants in many metropolitan areas, as shown in the graph from EPA below,[20] it seems clear that regulatory standards and other policy tools must continue improving our vehicle fleet. Reductions in VMT achieved as part of a climate strategy can and must also contribute to conventional pollution reductions.



Water Quality

Stormwater runoff is one of the largest sources of water pollution in the country. Polluted runoff from impervious surfaces (parking lots, roads, rooftops, etc.) grows along with sprawling development, and science has identified a "tipping point" beyond which water bodies become seriously degraded. When ten percent of a watershed is covered with such surfaces, the rivers and streams in that watershed become seriously degraded. Due to the tremendous variety in aquatic ecosystems, this is not an ironclad rule and may be higher or lower depending on location.[21]Nonetheless, it is a useful rule-of-thumb which shows that transportation infrastructure and other development have real consequences for water quality.

Runoff from highways washes a variety of pollutants, including oil, sediments, asbestos brake dust, salt and other road treatment chemicals directly into adjacent water bodies and the receiving waters of storm sewers. This is carried by runoff into water bodies, and the volume of runoff is increasing. One study found that an acre of parking lot yields 16 times as much runoff as an acre of open meadow.[22] Another found that a storm producing one inch of rain will lead to 55,000 gallons of polluted stormwater runoff for every mile of highway that rain falls on. Due to its speed and higher temperature gradient, runoff also affects the very shape and temperature of streams, harming vegetation and wildlife habitat.[23]

Studies show that increasing traffic yields increasing pollution. One example of the striking findings of one of these reports is described by my colleague Dana Beach in a recent report on coastal sprawl:

> A study of the lower San Francisco Bay found that half of the cadmium and zinc in the bay came from tire wear. Lead came primarily from diesel-fueled vehicles. Half of the copper in the bay arrived via stormwater from brake pad wear. An

> additional 25 percent of the copper arrived in the form of atmospheric deposition, ultimately from motor vehicles. Copper contamination contamination is a major concern because copper is toxic to marine organisms at extremely low concentrations (Santa Clara Valley Nonpoint Source Control Program, 1992).

A group of analysts at the U.S. Geological Survey found that growing concentrations of a group of suspected carcinogens, polycylic aromatic hydrocarbons (PAH), can also be traced to growing traffic. They examined ten lakes across the country and found that six of them had concentrations high enough to harm aquatic life. These "concentrations in U.S. watersheds had reached a low point in the 1970s and 1980s due to improvements in technology, by the 1990s this trend had turned around...[due] to the increase in the miles traveled by automobiles and trucks, due to 'tire wear, crankcase oil, roadway wear, and car soot and exhaust.'"[24]

Wildlife Habitat

As noted above, the extensive U.S. road network impacts about one-fifth of the country, directly and indirectly. This infrastructure can be especially damaging for wildlife and habitat. Direct effects include mortality due to road construction and vehicle collisions and modification of animal behavior.[25] Indirect effects include alteration of the physical environment (for example, the "heat island" effect of dark pavement and the spread of dust stirred up by traffic), alteration of the chemical environment (deposition and runoff of pollutants including those described in the section on water above) and the spread of invasive species.[26]

The cumulative effect of road construction and land-development are devastating for wildlife. Thirty percent of U.S. species are a risk of disappearing, and for 85 percent of them loss or degradation of habitat is the biggest threat.[27] If current trends continue, suburban sprawl threatens many more species in its path, since three-fifths of our rarest and most imperiled species are located in metropolitan areas.[28]

Thankfully, if a project must be built there are ways to minimize damage to wildlife by designing projects such that they are sensitive to their context (aptly called "context-sensitive design"). For example, a stretch of Interstate Highway running through a portion of the Everglades in Florida so heavily populated by alligators that it is dubbed "Alligator Alley" was designed – thanks to environmental review requirements under the National Environmental Policy Act – to accommodate wildlife. The project includes 24 underpasses for wildlife, 12 bridge extensions, extensive fencing along a 40-mile stretch as well as habitat restoration after construction.[29]

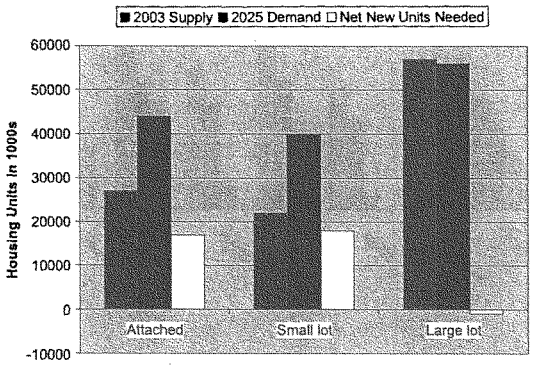
Evidence of Discontinuity in the Development Marketplace

In terms of overall land-development, trends are not destiny. There is evidence of that as the United States grows in the next few decades, the development industry will have to offer a fundamentally different product mix given two demographic factors: The aging of the boomers and the decrease in the size of the average household. For example, as

Professor Chris Nelson of Virginia Tech has documented, the number of people turning 65 will increase yearly and then jump so that from 2012-2025 the ranks of senior citizens will grow by about 1.5 million people annually.[30]And from 2000 to 2025, only one-eight of households added to the nation will have children.[31]

There will be implications for the housing market. Chris Nelson of Virginia Tech claims that (assuming current consumer preferences, which as some have pointed out may or may not hold true for aging Baby Boomers) there are already more than enough large-lot detached units to meet demand and the development industry would do well to focus instead on providing different products, ones suitable for smart-growth neighborhoods. His findings are shown in the graph below.

2003 Housing Supply vs. 2025 Housing Demand[32]

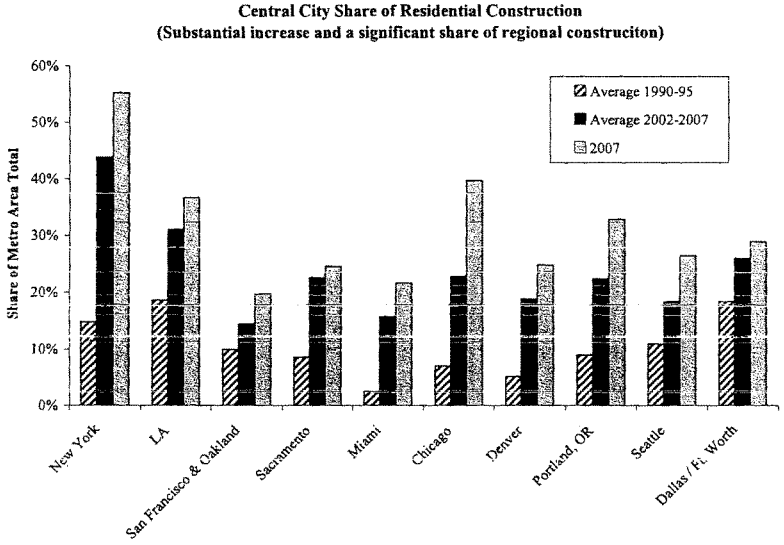


Some recent analyses find that there is already a mismatch between what the marketplace provides and consumer preferences. One analysis looked at Atlanta households and found that "the segment of the housing market that is interested in these alternatives is underserved—that is, there is unmet demand for alternative development in the Atlanta region."[33] Another analysis compared Boston and Atlanta, finding that 70% of Bostonians who wanted to live in a walkable suburb actually did while only 35% of the same in Atlanta did.[34]

Another compelling piece of evidence of unmet demand for alternatives to sprawl-type development is a recent national survey of developers, which found that more than 60% agreed with the statement "In my region there is currently enough market interest to support significant expansion of these alternative developments," with a high of 70% in the Midwest and a low of 40% in the South Central region. In terms of location within metropolitan regions (central city, inner suburb, outer suburb, or rural) the highest percentage (80%) reported an intent to develop more densely in inner suburbs.[35]

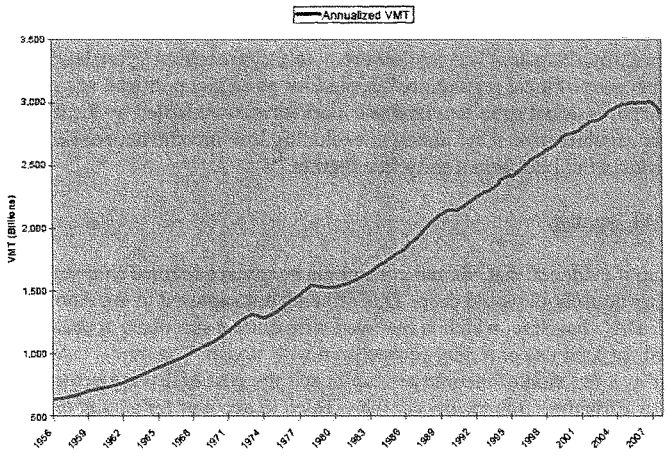
Of course, one of the best ways to gauge development trend is to review building permits: Where, and how many, are being granted? Thankfully, Dr. John Thomas at EPA has been

doing just that, and EPA just published his analysis of residential construction trends based on this data. His report covered the nation's 50 largest metropolitan regions, finding that there is a measurable trend in increased building in central cities. He highlights three groups: Those with minimal changes, those with a substantial increase in central city growth but with still a relatively small share of total regional growth, and those with a real boom happening. The latter category is shown in the graph below.[36]



Evidence of Discontinuity in Travel Demand

Many in the news media as well as outgoing Transportation Secretary Mary Peters have noted publicly that VMT trends appear to be undergoing a historic change. Rob Puentes of the Brookings Institution has actually crunched the numbers, and created the following graph showing the slowdown and reversal of VMT growth in recent years.[37]There is a body of literature that attempts to grapple with reasons why the nation may be reaching a saturation point for VMT growth, at least on a per capita basis.



Source: 1956–1982: Highway Statistics, Table VM-201; 1983–September, 2008: Traffic Volume Trends

As the report sums it up:

> Driving, as measured by national VMT, began to plateau as far back as 2004 and dropped in 2007 for the first time since 1980. Per capita driving followed a similar pattern, with flat-lining growth after 2000 and falling rates since 2005. These recent declines in driving predated the steady hikes in gas prices during 2007 and 2008. Moreover, the recent drops in VMT (90 billion miles) and VMT per capita (388 miles) are the largest annualized drops since World War II.[38]

Policy Reform Can Meet Growing Demand for Development and Transportation Choices

If there is a gap between consumer preferences in housing and transportation, why is this the case? And what is to be done about it?

Rules that govern development must be reformed to allow for the development of more compact, transit-friendly, walkable neighborhoods. In spite of the intense media coverage of the smart growth issue in recent years, surprisingly few jurisdictions have adopted smart-growth rules. For example, a recent study found that local jurisdictions in Illinois have adopted some policies yet a low-level of implementation prevails.[39]

There is even evidence of government intervention in the marketplace that not only exacerbates sprawl but deprives consumers of housing choices, effectively excluding them from many communities. Regulatory tools, most notably low-density zoning which mandates separation of land uses (so that the corner store is illegal across the country, as former Maryland Governor Glendening is fond of quipping) are actually associated with more sprawl can be racially and economically exclusionary, in part because they are invariably implemented only in certain jurisdictions within a metropolitan region.[40]

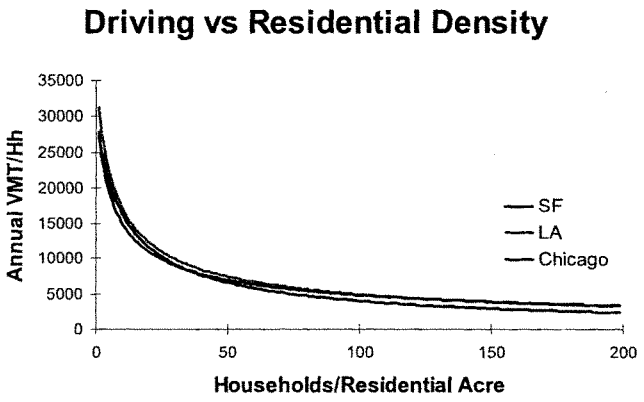
As Anthony Downs of the Brookings Institution has noted

> ...[N]o metropolitan area has anything remotely approaching a free land use market because of local regulations adopted for parochial political, social and fiscal purposes. Most suburban land use markets are dominated by local zoning and other regulations that are aimed at excluding low-income households and that distort what would occur in a truly free market.[41]

Evidence of VMT Savings

There is substantial evidence that, should consumers be given adequate choices, vehicle miles traveled per household would drop. This effect is not captured in the Annual Energy Outlook BAU baseline, which is modeled with quite a simplistic approach. It does not account for land use or modal competition with transit. The model calculates VMT per driver as a function of income per capita and the cost of driving per mile as the only independent variables – the results are then scaled to account for gender and aging.

Yet more than 100 studies have been performed on this topic, the vast majority showing a significant relationship between development patterns and travel demand.[42] There is also evidence of reduced vehicle ownership in denser communities, and one recent study found a strong relationship between vehicle choice (light-duty truck vs. passenger sedan) and neighborhood choice.[43] The graph below based on habits in neighborhoods in three major cities shows the relationship between density and VMT.[44]

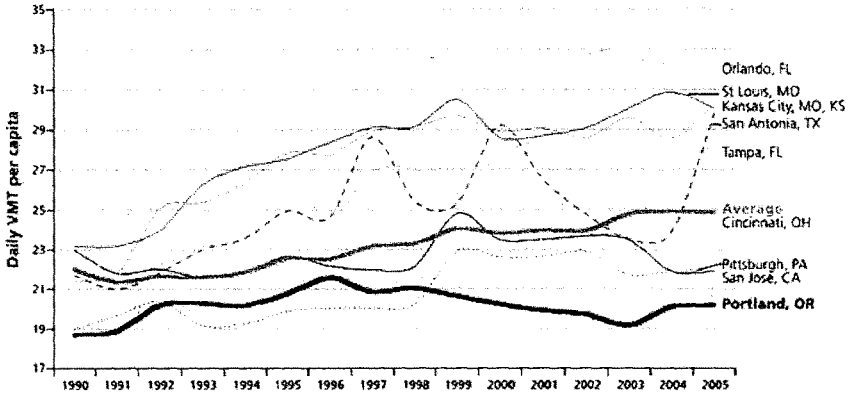


There is also a growing body of literature regarding the other two "Ds" of development patterns (in addition to density): Diversity of land uses and design of actual structures. A recent synthesis shows that each has an effect on VMT and vehicle trips, with especially strong cumulative effects.[45]

Blueprints as a Condition of Receipt of Federal Transportation Assistance

One way to encourage coordination between transportation policy and land use planning to in order to moderate travel demand and save oil is to require metropolitan areas – particularly those with 200,000 or more people and therefore greater planning capacity – to engage in participatory scenario-planning. This will better meet consumer preferences and match the projected increase in demand for smart-growth-style development.

Pioneered by Portland, Oregon with its LUTRAQ (Land Use, Transportation and Air Quality) study, scenario planning is increasingly "state-of-the-practice" among metropolitan planning organizations.[46]Thanks in part to LUTRAQ, Portland has opted to invest in transportation alternatives, encourage transit-oriented development and manage travel demand.[47]One outcome of this and other innovative policies has been lower VMT per capita despite continued economic growth, as seen in the graph below.[48]



All cities shown are within +/- 600,000 of Portland's 2005 population
The average shown is for the 75 U.S. urban areas with the exception of Portland, that have 2005 populations of over one million and less than three million
Source: U.S. Federal Highway Administration, Highway Statistics, Table HM-72, "Urban Areas - Selected Characteristics," 1990 - 2005

A mandate for more widespread use is reasonable, given growing use of this key planning tool as well as interest in smart growth among planners concerned about energy use. In fact, a recent national survey of local and state planners found that more than any other issue, "reducing sprawl" was the top issue connected to energy in their practice.[49]

Scenario-planning is already proving to be a useful tool for addressing this concern. One recent analysis of 40 growth scenarios found that VMT savings over the next 20 years would range from 10% to 20%, compared to projected trends.[50]Another analysis reviewed 23 plans and found a more modest median 5.7% reduction in VMT, however the authors noted that the scenario plans did not adequately account for changes in density, diversity of uses and development design and estimated that doing so would boost the VMT reduction to 20% or more.[51]

Putting a Price on Road Use

When combined with policies linking development and transportation planning and policy, changing price signals received by drivers could achieve dramatic VMT savings. Generally, road pricing measures are an established and growing means to address both congestion and financing issues in transportation. These measures can be sub-divided into the following categories:[52]

- Congestion pricing – Generally comprised of dynamic pricing on metropolitan radials and orbitals. High Occupancy/Toll (HOT) lanes are included in this category. Many examples are now operating in the US.[53]
- Area/Cordon Pricing – Pricing in a downtown or central business district, so far with simplified (static) congestion pricing. It has been implemented in London, Stockholm, Singapore, Oslo, Bergen and Trondheim. San Francisco studying the concept (see www.sfmobility.com) and New York City is still interested in implementation in spite of rejection by the state legislature. The topic has been broached many times, is being examined by the NY Metropolitan Transportation Council and receives regular coverage in NY newspapers.
- Toll roads – intercity highways are increasingly being tolled in the US, recent federal legislation now permits tolling of some previously untolled Interstate highways. Increasing public-private partnerships to build privately financed and operated toll roads (such as the Dulles Greenway near Washington DC) are expected to spread considerably, significantly increasing the number of tolled intercity highways.

One key issue to be aware of is that there are very substantial energy savings and greenhouse gas reductions from improved traffic flow, roughly equal to those from reduced VMT:

- In London, total CO_2 reductions have been estimated as 19.5% within the zone, split evenly between personal vehicle trip reduction and congestion reduction improving fuel economy. Total CO2 reductions are in the neighborhood of 37,000 tonnes/year.
- In Singapore, total CO2 reductions are calculated at 67,000 tonnes/year, with approximately two-thirds coming from trip reductions/mode shifts, and the remainder from speed improvements inside and outside the zone.
- San Diego's I-15 HOT Lanes provide total CO2 reductions calculated at 2,100 tonnes/year, with approximately 40% attributable to improved fuel economy of SOV vehicles in the HOV lanes, and the remainder to improved fuel economy of vehicles in the general purpose lanes. In this implementation, there is NO reduction in VMT (and in fact, a very small increase) as traffic is merely shifting which lanes are used.

A private sector program (that could become commonplace with the help of federal policy, whether by mandate, incentives, or both) that could VMT substantially and therefore save energy and cut pollution is "pay-as-you-drive" auto insurance. Progressive

Insurance piloted this measure in Texas in a program called "Autograph" between 1998 and 2001. While there was a range of consumer savings, invariably the figure was about 30% or higher.[54]And a recent report from the Brookings Institution found that it could cut driving by 8 percent if adopted nationwide, with two-thirds of households saving an average $270 per vehicle.[55]

Increasing Investment in Public and Nonmotorized Transportation

Robust linkages between land use and transportation and road pricing will cause some discretionary trips and VMT to simply evaporate. But consumers will also need options for travel beyond driving. Here there is a major role for federal policy.

The evidence is clear: Transportation alternatives save oil. A recent study found that it causes direct savings of 1.4 billion gallons of gasoline annually, and a followup analysis found that when coupled with indirect benefits (fewer and shorter trips due to more efficient land use and more walking and biking) the total savings jumps to 4.2 billion gallons of gasoline per year.[56]Another analysis found that biking and walking avoids 70-200 billion miles of driving annually, saving billions of gallons of fuel and cutting tens of millions of tons of carbon dioxide pollution.[57]

The federal transportation investment portfolio must be modernized, dividing up funding between highways and transit more equitably and intelligently. Targeting federal investments to build out oil-efficient, low-carbon modes of transportation makes good sense in a carbon- and oil-constrained world. Specifically, the ratio of investment of new revenue must be revisited. The 80-20 split was an improvement on the status quo ante when transit share was pathetically meager. It was also created nearly thirty years ago, and as such is an outdated arrangement. Much more investment must flow to transportation alternatives, so that we build out the second half of the transportation system since the Interstate Highway System was completed many years ago.

Set a National Objective for Moderating VMT

VMT is projected to grow 1.5 percent per annum over the next two decades.[58]One possible policy approach for bending this curve downward would be to enact an explicit objective to reduce VMT growth, or VMT growth per capita. Several proposals are already being put forward, for example from the association of state transportation departments:

> In June 2007, the Board of Directors of the American Association of State Highway and Transportation Officials (AASHTO)...adopted a new strategic vision document, called *New Vision for the 21st Century*. The AASHTO report sets out an ambitious goal at no more than five trillion miles by 2055, reflecting a 50 percent cut below the growth in current trends towards seven trillion miles. The adoption of this goal by AASHTO places VMT growth management alongside vehicle efficiency and low-carbon fuels as a co-equal strategy to meet

the transportation industry's obligation to reduce transportation-related carbon emissions.[59]

Kathy Leotta and Cindy Burbank (formerly with Federal Highway Administration) propose a three-pronged strategy for reducing saving energy and cutting carbon pollution from light-duty vehicles: Maintain VMT growth at one percent or less per annum, quickly improve fleet efficiency by as much as 79 percent per vehicle mile (about 100 mpg equivalent) by 2050 and improve the operational efficiency of the transportation system.[60]

These are somewhat ambitious proposals, but less so than at least two others. HB 2815 was enacted in Washington in 2008, and it sets a goal of "...capping and managing light-duty VMT between 2010 and 2020, with effective reductions in total VMT between 2035 and 2050."[61]Michael Replogle and Freda Fung of Environmental Defense Fund propose to shave an additional trillion miles of travel compared to AASHTO's goal, so VMT would be 3.97 trillion by 2050, in their "Climate Sensitive Transportation Policy."[62]

Assessing the Technical Potential

These assessments of what is necessary for the sake of saving energy and reducing carbon emissions beg the question of what is actually possible. This is a challenge for transportation practitioners, because while there are copious analyses of technical potential for improvements in efficient vehicle technology and for alternative energy sources (biofuels, renewable electricity) for vehicles, there's a relative dearth of studies regarding VMT reduction potential.

Reid Ewing, Steve Winkelman and their co-authors helped to remedy this gap by writing *Growing Cooler: The Evidence on Urban Development and Climate Change*, which found that adoption of more efficient land use practices could slow VMT growth 12-18 percent in metropolitan areas, or 10-14 percent nationally, by 2050.[63]The authors concluded that if measures such as transit expansion, slower highway capacity growth and pricing measures were added the reduction potential jumps to a 38 percent reduction.[64]

I commissioned a similar sketch assessment from transportation analyst Bill Cowart, now with Cambridge Systematics. He estimate a potential 21 percent cut in national VMT by 2030 assuming rapid adoption of a basket of more than twenty policies in the land use, pricing and alternative transportation investment categories.[65]

The most ambitious and comprehensive assessment of technical potential for reductions is nearing completion. Produced by a top-notch team of analysts (including Cowart) at Cambridge Systematics, it will be published as a book by the Urban Land Institute in the spring under the title *Moving Cooler*, and will contain:

- Effectiveness and cost-effectiveness assessments of more than forty measures in land use, pricing, transportation alternatives and other categories;

- An assessment of distributive equity effects of the measures;
- Three scenarios, differing in aggressiveness, speed and scale of implementation; and
- Illustrative bundles to clarify potential synergies and tradeoffs entailed by implementing the measures.

The study is being sponsored by a diverse and authoritative set of groups:

- AASHTO;
- APTA;
- Environmental Defense Fund;
- Federal Highway Administration;
- Federal Transit Administration;
- ITSAmerica;
- NRDC;
- Shell Oil; and
- Urban Land Institute.

It is also made possible by the generous support of the Rockefeller and Surdna Foundations. I hope it helps to inform this Subcommittee and other policymakers about the technical potential to save energy and reduce carbon emissions in the surface transportation sector, and make a valuable contribution to the public debate in general.

Thank you for your time.

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Testimony of

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Secretary, Maryland Department of Transportation
Chair, Climate Change Steering Committee
American Association of State Highway and Transportation Officials

Regarding

Energy Reduction and Environmental Sustainability in Surface Transportation

HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, SUBCOMMITTEE ON HIGHWAYS AND TRANSIT

January 27, 2009

Founded in 1914, AASHTO represents the departments concerned with highway and transportation in the fifty 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.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO

THE VOICE OF TRANSPORTATION

Good morning, I am John D. Porcari, Secretary of the Maryland Department of Transportation. Thank you for the invitation to speak today on issues of critical importance to the nation — energy dependence, environmentally sustainable transportation and global climate change.

I am appearing on behalf of the American Association of State Highway and Transportation Officials (AASHTO), where I am the Chairman of the new AASHTO Climate Change Steering Committee. I will also touch on some Maryland activities and initiatives.

Current and future transportation growth patterns and the way that we develop transportation systems are important factors in sustaining the world's limited economic, environmental, and social resources. Transportation represents 10 percent of the world's gross domestic product, is responsible for 22 percent of global energy consumption and 25 percent of fossil fuel burning across the world, and produces approximately 30 percent of global greenhouse gases. As such, the transportation sector will play a key role in addressing global sustainability concerns, including depletion of resources and global climate change.

AASHTO has acknowledged these challenges and as a result, in May 2007 brought together transportation experts from across the nation, representing users, builders and providers of our transportation system for a three-day Transportation Vision and Strategies for the 21st Century Summit in Cambridge Maryland. The resulting report, *A New Vision for the 21st Century*, recognized the difficult challenge of expanding the transportation network's capacity to serve a growing population and communities and an expanding economy while simultaneously reducing the environmental footprint of the system. To address this challenge, AASHTO adopted the "Triple Bottom Line" approach, to encourage sustainable development by evaluating performance on the basis of social, economic and environmental impacts.

The following are the elements of the triple bottom line approach and the steps required to achieve them:

1. *Robust economic growth*: Deliver a sustainable, high-performance transportation system in support of a robust economy by first optimizing existing infrastructure, then reshaping demand, and lastly expanding judiciously.
2. *Improved quality of life for all citizens*: Enhance quality of life by integrating transportation with the built environment by using the full tool kit, including land use policy, and diversified mode choice.
3. *Better-than-before health of the environment*: Embrace environmental stewardship as a preeminent approach to delivering transportation services that result in a zero carbon footprint and a "better-than-before" environment.

Success in Maryland

We have incorporated this thinking in Maryland. Taking advantage of recent changes to wetland regulations that now allow a "watershed approach" to be used for mitigation, Maryland developed a geographically diverse mitigation package for the much-needed replacement of the Woodrow Wilson Bridge that met the goals of the environmental resource and permitting agencies, while having a broad focus on providing restoration in a larger watershed, the upper tidal Potomac.

The plan to replace lost aquatic habitat through a diverse scope, from building a fish ladder on Rock Creek to creating artificial fish reef in the Chesapeake Bay, was unconventional in the sense that we did not replace wetland for wetland, stream for stream. The site had been used as an unregulated dump in the 1950's and 60's. Following creation of a new sanitary landfill and extensive excavation of the old trash, a new tidal wetland was created.

Not only did this site create new aquatic habitat in the Anacostia River, it also removed a historic source of pollution. The project mitigated man-made blockages on 4 tributaries to the Potomac using innovative stream restoration design, creating over 23 acres of wetlands and opening up approximately 30 miles of historic spawning habitat to migratory river herring and shad, as well as bringing water quality improvements, flood control, and improved aesthetics to the area. We also replaced 140 acres of reforestation in the watershed.

Maryland would like to expand the use of such creative processes to allow the State to prioritize mitigation projects to those areas with the greatest restoration potential for Chesapeake Bay. To improve the restoration effort, our Governor Martin O'Malley called for the creation of Baystat, a statewide tool designed to assess, coordinate and target Maryland's Bay restoration programs, basing decisions on the best available science, with regular reporting and accountability.

Mitigation projects were developed with multiple parties, including local governments, interest groups, and regulatory agencies at state and federal levels. Areas that had been identified for restoration but previously lacked funding were incorporated into the mitigation program, providing the opportunity for projects to be built or areas preserved -- goals long been sought after by scientists and concerned partners of the Potomac watershed.

The state resource and regulatory agencies and MDOT are partnering in developing a process to use the Bay watershed as the scale for locating mitigation with the intent to provide high quality cost effective restoration projects that target State resources to the Bay restoration effort. This is the kind of flexibility we'd like to see in the implementation of federal programs and use of federal funding for states that have the data to support an ecosystem approach.

Unfortunately, the federal regulatory community has not traditionally supported states' desire to carry out compensatory mitigation for construction projects outside the immediate vicinity of the impacts, and we are still limited by federal interpretation of our authority to place mitigation within a larger ecological context. The linking of impacts and mitigation can have the unintended consequence of mitigation sites being chosen for their proximity to the impact site rather than their ecological value, while an opportunity is lost to further a state's strategic plan for restoration. We urge Congress to support data driven decisions that reflect states' needs and statewide environmental goals.

AASHTO and Climate

AASHTO further recognized that to make a positive contribution to the issue of global climate change, transportation policies need to reduce dependence on foreign oil, reduce energy consumption, and reduce travel demand, relative to current trends. To achieve these goals AASHTO called for:

- Reducing oil consumption by 20 percent in 10 years,
- Doubling the fuel efficiency of new passenger cars and light trucks by 2020, and the entire fleet by 2030, and
- Reducing the national rate of growth of vehicle miles traveled from the predicted 2 percent per year to 1 percent per year.

To achieve the proposed reduction in VMT growth, AASHTO proposed:

- Doubling transit ridership by 2030,
- Significantly expanding the market share of passengers and freight moved by rail rather than automobiles and trucks,
- Reducing the percentage of commuters who drive alone to 1980 levels, and
- Increasing the percentage of those who ride transit, carpool, walk, bike and work at home.

Environmentally Sustainable Transportation

AASHTO and its members are working diligently to promote environmentally sustainable transportation in a holistic and integrated manner to ensure that key concerns such as depletion of resources and global climate change are effectively addressed. In 2007, the Center for Environmental Excellence by AASHTO published *Above and Beyond: the Environmental and Social Contributions of Americas Highway Programs.* This report describes programs and projects that illustrate how transportation agencies are going beyond regulatory requirements to contribute to the environmental, social, and economic well-being of their communities. The report provides important facts on how transportation makes a real difference to our quality of life through investments in areas including context sensitive solutions, historic preservation, recycling, clean air, integrating transportation and land use, walking and biking trails, wetlands and water quality, wildlife preservation, sound barriers, scenic byways, and wildflowers and native vegetation.

Trends cited in the report include the following:

- 27 state transportation agencies have implemented or are in the process of developing environmental management systems.
- 41 states have made significant progress in implementing context sensitive solutions.
- 43 transportation initiatives in 30 states have been identified as exemplary ecosystem initiatives.
- State agencies have identified more than 100 actions taken to help wildlife along roadways.
- Since 1992 the transportation sector has invested more than $14 billion for more than 17,000 projects to reduce air pollution from motor vehicles.
- Transportation agencies are providing 2.6 acres of wetland mitigation for every acre of wetlands impacted by federal-aid highway projects. At the same time, improved technologies and broad-based watershed approaches are improving efforts to protect and restore water resources and address highway runoff.
- Since 1992, transportation programs have provided more than $7.8 billion to fund more than 22,000 transportation enhancement projects aimed at improving America's communities.
- Transportation represents the largest single source of federal funding for state and local historic preservation efforts. From 1992 through 2006, Transportation Enhancement activities provided $347 million for historic preservation, $804 million for rehabilitation of historic transportation facilities, $37 million for archeological planning and research, $101 million for transportation museums, $218 million for acquisition of scenic and historic easements, and $504 million for scenic and historic highway programs.
- Transportation programs provided almost $3 billion in funding for bicycle and pedestrian initiatives from 1999 to 2006.
- Highways continue to be a nationwide leader in recycling, with transportation agencies stepping up efforts to reuse road-building materials and incorporate recycled products into the nation's highway surfaces.
- Transportation agencies are increasing efforts to manage vegetation on some 12 million acres of land on America's roadsides, working to control invasive weeds and cultivate native grasses with wildflowers.
- Through the end of 2004, 45 state departments of transportation and the Commonwealth of Puerto Rico constructed over 2,205 linear miles of noise barriers at a cost of over $2.6 billion.
- Since 1992, the National Scenic Byways Program has provided over $275 million in funding for more than 2,100 state and nationally designated byway projects in 50 states, Puerto Rico, and the District of Columbia.
- States are working with communities using new technologies and strategies that integrate transportation and land use planning to promote mobility as well as environmental and economic sustainability.

- Thousands of environmental stewardship practices, policies, and programs are currently in use by state transportation agencies for highway construction and maintenance.
- Over 550 state stewardship and streamlining programs, policies, and initiatives have been documented by the Federal Highway Administration.

Global Climate Change

State DOTs want to be part of the climate change solution. States are already leading the effort to reduce the carbon footprint for future generations. This fall, incoming AASHTO President Alan Biehler adopted as one of three areas of emphasis for his term: *Sustainability: Addressing energy security and climate change.* In addition, AASHTO has undertaken a number of climate change activities, including:

- Publishing, in April 2008, a Primer on Transportation and Climate Change;
- Adopting a comprehensive climate change policy statement; and
- Developing a Climate Change Steering Committee to provide climate change policy direction to AASHTO and to supply AASHTO members with timely information, tools and technical assistance to assist them in meeting the difficult challenges that arise related to climate change.

The AASHTO Transportation and Climate Change Primer was developed to provide AASHTO members with an introduction to the issue of climate change and its implications for transportation policy in the United States. The paper is organized into five parts:

- *Part I summarizes the current state of scientific knowledge concerning the causes and impacts of climate change*
- *Part II provides an introduction to climate change policy issues*
- *Part III discusses trends in greenhouse gas emissions from road transportation*
- *Part IV reviews potential measures to reduce greenhouse gas emissions from road transportation*
- *Part V identifies issues for further study*

The Primer is based on the most recent research in the field. Its purpose is to outline for AASHTO members the current thinking of governmental agencies, researchers, and advocacy groups on the issue of climate change and transportation.

With the current surface transportation authorizing legislation expiring in September, 2009 and climate change being a top priority for the new Administration as well as Congress, we have a unique opportunity to put all of the pieces on the table and look at climate change holistically, through both climate change and new transportation legislation. The challenge in this transportation authorization will be to institute effective national policies and guidelines for reducing GHG emissions and adapting to the impacts of climate change, while also minimizing regulatory burdens and ensuring that the

transportation system continues to deliver a high level of mobility and safety for passengers and freight traffic.

AASHTO adopted a comprehensive climate change policy related to both transportation authorization and climate change legislation. In the transportation sector, we must look broadly at opportunities to reduce GHGs, including through vehicle technology, alternative fuels, reducing travel demand, transportation system operation and driver behavior, and reducing the State transportation agency's own carbon footprint. When looking at the bigger picture, you see the necessity of achieving not only national, but global goals and the great importance that vehicles and fuels will play in achieving those global goals. The greatest potential for greenhouse gas emission reductions from the transportation sector will come from CAFÉ standards to encourage better vehicle fuel efficiency, and advances in vehicle technology. Comprehensive climate change legislation should include a major national research and development initiative to transition the entire transportation vehicle fleet to zero-carbon fuels. Such technological breakthroughs can help not only the U.S., but countries around the world achieve green house gas reductions.

Improved operation of our highway system can help to improve mobility while reducing GHG emissions. Emissions are highest, on a per-mile basis, when vehicles are sitting in traffic congestion, are moving at stop-and-go speeds, or when operating at very high speeds – above 60 mph. A new Operations and Management Program should be established at $3 billion per year to direct funding toward activities that maximize the efficiency of the transportation system, through effective management of available road capacity and reducing delays. Broader deployment of ITS technology should be a major focus of the Operations Program. Additionally, a Transportation System Improvement and Congestion Reduction Program should be established at $11 billion per year. Bottleneck relief would be an eligible activity under this program.

In the near term, emissions reductions can be achieved by slowing the rate of growth in vehicle miles traveled. Through policies and investments we can encourage more ridesharing, telecommuting, trips by transit, by bike, or on foot, rather than by car. For example, AASHTO supports doubling the level of transit ridership by 2030 and increasing transit funding 80% to $93 billion over six years. AASHTO recommends doubling Transportation Enhancement funding to $1.1 billion per year to support bicycle and pedestrian programs and projects. AASHTO also supports establishing a Transportation and Land Use Program, funded at $100 million per year to support better coordination of transportation and land use policies between state DOTs and local governments to reduce travel demand. AASHTO supports encouraging more long-haul freight to be moved by rail, rather than by truck, federal support for intercity passenger rail, and encouraging an increased market-share of regional travel to be carried by intercity passenger rail rather than by car.

The challenge of addressing climate change should be addressed as part of the existing statewide and metropolitan transportation planning process, not on an individual project level. The planning process provides the appropriate venue for states and MPOs, under

uniform federal guidance, to develop strategies for reducing GHG emissions from the transportation system, adapting the transportation system to the impacts of climate change, and increasing the absorption of GHGs.

AASHTO recommends creating a new Climate Change and Air Quality Program to Replace the Congestion Mitigation and Air Quality (CMAQ) program. The new program would provide funding for existing CMAQ eligibilities and addressing climate change, including dedicating $1.7 billion per year to planning and actions to reduce greenhouse gas emissions from the transportation system, adapt the transportation system to the impacts of climate change, and increase absorption of greenhouse gases.

If carbon taxes or a cap and trade system is enacted to reduce overall emissions, including exacting fees from oil refineries, AASHTO believes that a share of revenues proportionate to the transportation sector contribution to greenhouse gas emissions should be directed to transportation-related solutions. This could provide substantial funding for: (1) reducing GHG emissions from the transportation system, (2) adapting the transportation system to the impacts of climate change, and (3) increasing the rates of GHG absorption.

Maryland's Energy and Climate Actions

Recognizing the importance of addressing climate change in a state that is so vulnerable to rising sea levels, Maryland is taking action on climate change now. As part of the State's Smart, Green, and Growing legislative package, Governor Martin O'Malley is pursing state legislation to commit Maryland to reduce its greenhouse gas emissions 25 percent by the year 2020.

Recent State initiatives include participation in the new Regional Greenhouse Gas Initiative cap-and-trade program, adoption of Clean Cars legislation, and Empower Maryland. We are strengthening our Renewable Portfolio Standards to increase our share of clean energy; enacting "living shorelines" requirements; strengthening the Critical Areas Act to protect sensitive shorelines; adopting new green building standards for public buildings and investing in green technology for schools; transitioning the state auto and bus fleets to hybrids; fully funding land conservation programs; reinstituting the Office of Smart Growth; supporting transit-friendly development; improving mass transit options; encouraging smart growth BRAC zones; and providing technical and financial assistance to Maryland's coastal counties to adapt to sea level rise. These actions, along with the Maryland Climate Change Commission Climate Action Plan, which details 42 options to reduce greenhouse gas emissions in the transportation and energy sectors, demonstrate that our reduction goals are achievable and beneficial.

Introduced by the Governor in October 2008, Maryland's Smart, Green & Growing initiative was created to strengthen the state's leadership role in fostering smarter, more sustainable growth and inspire action among all Marylanders to achieve a more sustainable future. The Initiative brings together state agencies, local governments, businesses and citizens to create more livable communities, improve transportation

options, reduce the State's carbon footprint, support resource based industry, invest in green technologies, preserve valuable resource lands and restore the health of the Chesapeake Bay.

Conclusion

Today, the mission of the nation's transportation sector goes beyond ensuring mobility to achieving the larger societal goal of integrating economic, social, and environmental sustainability though transportation design and investment. Approaches such as context sensitive solutions and integrated planning provide transportation agencies the tools to consider economic, social, and environmental factors as they develop transportation solutions.

Mr. Chairman, Members of the Subcommittee, the importance of the subject you have under discussion today is of vital national importance. It is in the interest of us all to take on the challenge as vigorously and effectively as we can. On behalf of Maryland and of the AASHTO member states, I promise that we will continue to work with you in that effort.

The U.S. House of Representatives Committee on Highway and Infrastructure, Subcommittee on Highways and Transits, "Energy Reduction and Environmental Sustainability in Surface Transportation."

"Effectiveness of Photocatalytic Cement in Concrete for Long-term Sustainability: Cleaner Pavements, Cleaner Air"

Testimony by:
Dan Schaffer
Product Manager, TX Active
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Nazareth, PA 18064
610-837-3713

Essroc Italcementi Group research teams were commissioned to develop a breakthrough cement technology as a way to abate the ever-increasing air pollution affecting urban areas, to keep structures more aesthetically pleasing with less exterior maintenance and to contribute to a better quality of life. This unique technology does not only resist the buildup of atmospheric compounds that tend to discolor concrete over time, but also, absorb and reduce primary pollutants deemed harmful to human health and our environment. Although my opening remarks deal with a proprietary product produced by Essroc Italcementi Group, I make these points to underscore the technology that is coming from the cement and concrete industries, which among their many and varied constituent companies, are both committed to investing in technology that supports sustainable development. Equally important, we are in many cases, bringing technology to bear in the form of products and services that have a direct, measurable, and meaningful benefit to the environment and the world community at large.

Testimony:

My name is Dan Schaffer, U.S. based Product Manager for Essroc's line of **photocatalytic** cements. Headquartered in Nazareth, PA, Essroc Cement Corp. is a leading North American cement manufacturer whose roots date back to 1866 as the first portland cement manufacturer in the United States. Essroc is the North American subsidiary of the Italcementi Group, the fifth largest cement producer in the world. Italcementi is a member of the World Business Council for Sustainable Development and the current co-chair of the Cement Sustainability Initiative. Italcementi is a member of the prestigious Dow Jones Global Sustainability Index, which lists the top 2500 corporations most committed to Sustainable Development.

Accomplished by the use of proprietary technology and the principle of photocatalysis, TX Active photocatalytic cement will facilitate cleaner concrete surfaces and cleaner air. Photocatalysis is a natural phenomenon in which a substance uses light to alter the rate of a chemical reaction. In this case, the active ingredient utilizes the UV light from the sun to accelerate the formation of strong oxidizing reagents which decompose most organic and inorganic substances in the atmosphere. Most significantly, NOx, SOx, and VOC's which indirectly impact human health, are reduced at a substantial rate.

Photocatalysis is an accelerator of an oxidation process that already exists in nature. It promotes faster decomposition of pollutants and prevents them from accumulating. Figure 1 illustrates the concept in general terms.

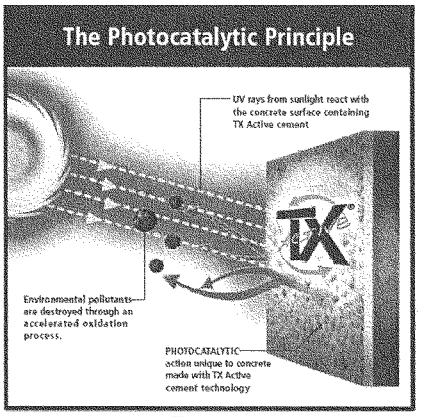


Figure 1

The initial research and development of the photocatalytic technology began over a decade ago (1996), in response to a market need to construct the precast panels for the Dives in Misericordia Church in Rome. The Church, constructed in 2001, to celebrate the new millennium and designed by renowned American architect Richard Meier, needed to maintain its brilliant white appearance long after initial installation. It was during this initial research that the results on the depolluting aspect were so overwhelming that an independent testing project formed.

In early 2001 the PICADA, **P**hotocatalytic **I**nnovative **C**overing **A**pplications for **D**e-pollution **A**ssessment, project was formed in Europe. This 4 ½ year long research study was conducted by a consortium of independent research laboratories, universities, contractors, and manufacturers to assess and validate the de-pollution effect of the photocatalytic cements(see figure 2).

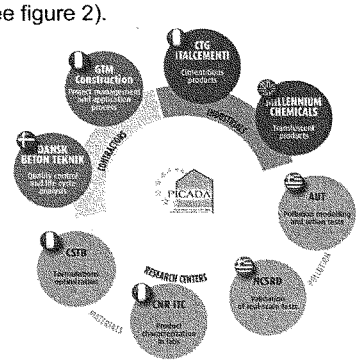


Figure 2

Through state-of-the-art laboratory tests, pollution abatement models, and on-site field assessments, PICADA showed that concrete produced with TX Active cement is efficient in destroying atmospheric pollutants.

A compilation of the studies and projects associated with the PICADA project can be found on-line at www.picada-project.com.

In addition, PICADA developed testing procedures used to measure the performance of concrete products produced with photocatalytic cements.

- Self-Cleaning Test – after the initial reference color is determined by a standard colorimeter measuring device, a rhodamine dye is painted over the surface of a concrete panel/piece that is produced with photocatalytic cement. The concrete panel is subjected to 24 hours of ultra-violet light with the correct power and wavelength. Subsequent colorimeter readings are taken periodically. Figure 3 illustrates a typical result of such a test.
  Compounds diminished or eliminated by the use of TX Active photocatalytic cement and its self cleaning effect are: organic particulates, soot, grime, mold, mildew, fungus, algae, bacteria, allergens, and tobacco smoke stains.

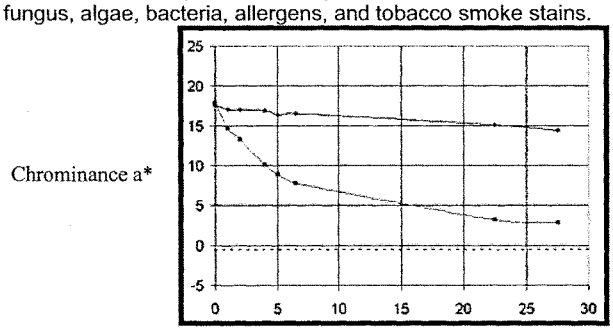


Figure 3

- De-pollution Test - Effectiveness against nitrogen oxides (NOx) is assessed in a chamber of known volume into which NOx is first introduced and then diluted with air to achieve a preset concentration of pollutant, typically 200ppb. The chamber contains a UV lamp, the light source, and a test specimen of known surface area produced with photocatalytic cement. The amount of time is determined that will eliminate all of the pollutant. Figure 4 represents typical results of the test.

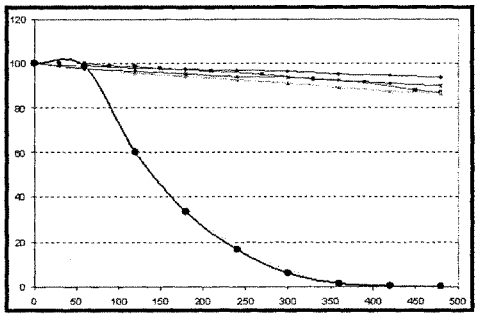


Figure 4

In the last decade, there have been many studies, experimentations and testing's carried out by CTG, the Technical Center of Italcementi Group, in collaboration with Universities and Regional Research Centers of different Countries (such as the CNR – National Research Center Air pollution institute in Italy, the Regional Laboratories of western Paris etc.). In each occasion, the effectiveness of the photocatalytic cementitious materials was evident, confirming they have a real eco - sustainable value. Laboratory tests showed how just a 3-minute exposure to UV light is sufficient to obtain a polluting agents reduction of up to 75%; large-scale experiments confirmed even greater abatement values.

TX Active has been proven to reduce Nitrogen Oxides (NOx), Sulfur Oxides (SOx), Volatile Organic Compounds (VOC's), ammonia, carbon monoxide, hydrogen sulfide, and ultimately urban smog.

A milestone of TX Active history is the Segrate Road Full Scale Test performed by the PICADA researchers. A heavy traffic road was treated with a thin coating just to allow measurement of the effectiveness of TX Active in real on-site conditions. An astonishing NOX fall of about 50% was the final proof that the era of testing was over and that the product was ready to be marketed. From then on, many significant projects have been realized; herewith you can find some of those ones where NOx measurements have been taken before and after treatment.

Borgo Palazzo street – Bergamo, Italy
The project involved the requalification of about 500 m of Borgo Palazzo street in Bergamo, accounting for an active surface area of about 7,000 m^2 with grey paving stones for the road and red ones for the sidewalks.

Two environmental monitoring campaigns, lasting two weeks each, the first one during November 2006 and the second one during January 2007, have been carried out to monitor the pollution level and compared to the asphalt reference along the same street.

Test results showed a pollution decrease between 30% and 40%. If we consider 500 meter long street, with traffic of 400 cars/hour, the benefits from the pollution decrease are comparable to a traffic reduction of 150 cars/hour. In other words, the smog produced by one car out of three gets neutralized by the depolluting action of TX Active.

Umberto I Tunnel – Rome, Italy
Located in the center of Rome, the Umberto I Tunnel is one of the most brilliant conceived projects to ease Roman road traffic. It has been built to connect Tritone street to Nazionale avenue under the Quirinale Palace (that is the official residence of the President of the Italian Republic), creating a direct route between Piazza di Spagna and Nazionale avenue. By doing so, traffic circulation between the Flaminio district and the Esquilino one has been greatly improved, resulting in a smoother traffic flow from Termini Railway Station to Rome historic center.

Before and after the Tunnel renovation(which included the incorporation of TX Active in the tunnel liner), there have been monitoring campaigns to measure the pollution level in both conditions. In particular, two monitoring campaigns were carried out before and after the renovation work of the tunnel for a significant period of time (three weeks for each period), in order to collect an adequate quantity of data collected for the numerical and statistical evaluation. The restored tunnel utilizing TX Active cement products and an artificial UV lighting system yielded a NOx reduction in excess of 25%.

Jean Bleuzen street – Vanves, France
Parallel to the Paris area highway, Jean Bleuzen street has been included in the Road Network Requalification Plan of Vanves. Jean Bleuzen street is a "Canyon Street" in a North-South position with a good exposure to the sun and perpendicular to the main winds, with more than 13,000 cars per day. The requalification project consisted of 300 meters of TX Active concrete overlay over a traditional concrete substrate, with sidewalks and curbs in paving stones made with TX Active as well, for a total of 6,000 square meters of depolluting surface.

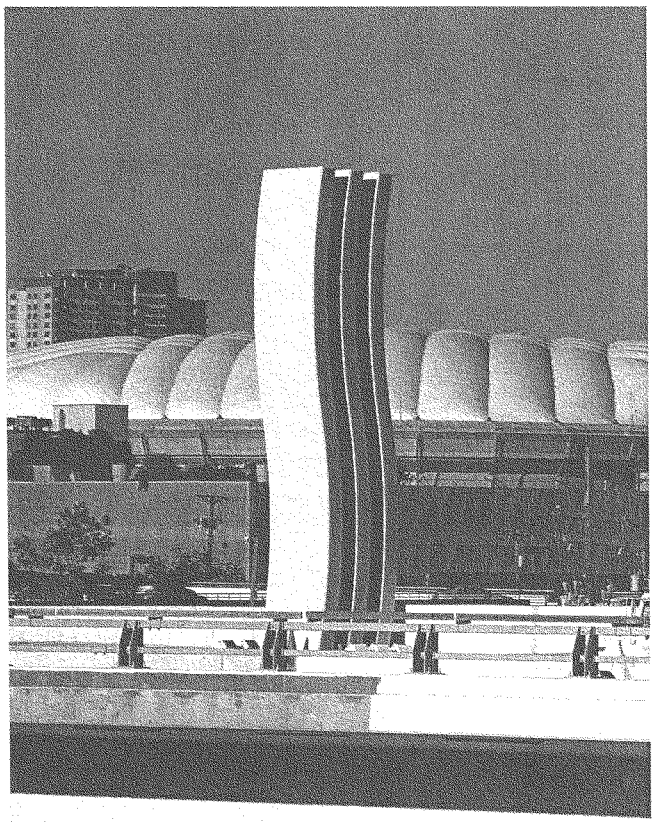
The immediate result was an improved aesthetic landscape and noise reduction, thanks to a suitable concrete formulation and surface finishing together with a pollution decrease of at least 30%, that will be monitored closer to assess the contribution of photocatalytic cement on air and rainwater quality.

In addition to roadway applications, TX Active is now at work in several architectural landmarks, most notably the Dives in Misericordia Church in Rome, Air France headquarters at Charles DeGaulle Airport in Paris, a police department in Bordeaux, France and many commercial and residential facilities. Also, TX Active has begun to be used in highway dividers, noise/sound walls, concrete roof tiles, interlocking concrete pavers, and many other products manufactured with a portland cement base.

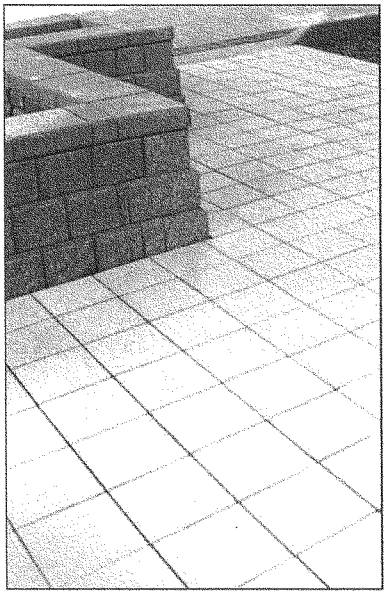
In the United States…
Currently manufactured at Essroc's Front Royal, Virginia facility, TX Active is starting to be utilized in high profile projects throughout the country. A few recent

accomplishments worth mentioning are summarized below, which include architectural precast, permeable pavers, and a prestigious work-of-art.

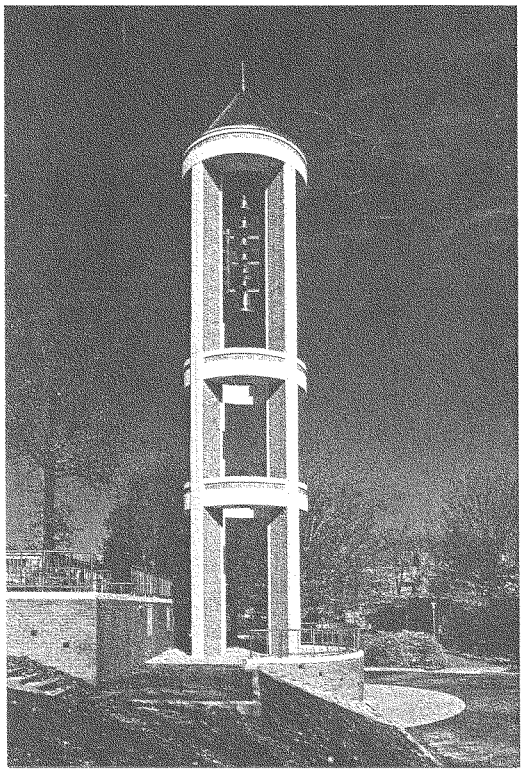
TX Active was used to produce two 30 foot high Gateway Elements at the entrances to the new I-35 bridge in Minneapolis, Minnesota. These gleaming white concrete sculptures, each comprised of three wavy columns represent the universal symbol for water and serve as markers for travelers that they are crossing the very significant Mississippi River. The elements were developed by the design team of FIGG and Oslund, working with the Visual Quality Advisory Group set up by the Minnesota Department of Transportation.



Hyacinth Place, an affordable "green" housing complex in Highland Park, Illinois has also taken advantage of the properties of TX Active. Permeable concrete pavers containing the patented cement technology were installed in the courtyard areas. While the photocatalytic properties of the pavers clean the air on a clear day, on a rainy day their permeable solution allows rainwater to flow through their surface. Meaning, polluted rainwater filtrates naturally back into the ground, rather than pond or discharge into nearby streams.



Greg Sims, a Georgia-based architect completed a design for a white precast carillon bell tower for Dalton State College. The landmark tower soars 75 feet high and is the centerpiece of a new quadrangle project currently transforming the campus environment. It is important for this tall structure to remain pristine since it is visible both night and day to thousands of drivers on adjacent Interstate 75. TX Active will certainly assist while significantly reducing maintenance costs associated with such a tall structure.



TX Active is currently included in many other creative project specifications throughout the United States. The Chicago Department of Transportation will be resurfacing 70,000 square feet of pavement in a downtown location that will utilize TX Active cement. Also, Louisiana State University's basketball practice facility, currently under construction, will incorporate precast panels produced with TX Active…all leading to a cleaner, greener environment.

Certainly the use of a photocatalytic cement is enough reason to utilize concrete throughout the infrastructure; however, concrete has many other advantages that promote its use. Concrete, second to water is the most widely used construction material in the world. Concrete can be designed in any size and shape imaginable. It can be designed with a high degree of strength and durability, low permeability, and has a lengthy service life. And once its life-cycle is complete, concrete can be crushed and recycled.

Equally important, concrete pavements are also naturally light-colored, reflect light and do not retain as much heat as darker-colored pavements. This enhances night-time visibility, which in turn, improves both pedestrian and vehicle safety. These properties also can have a profound effect on energy savings, as concrete pavements require fewer lighting fixtures or lower wattage fixtures to illuminate concrete roadways in comparison to the darker pavement surfaces. When properly accounted for during design, cities and municipalities can save up to one-third on energy costs associated with street-lights. The potential savings are huge, considering that the cost of keeping street lights illuminated is often the third costliest item a typical city might incur, right behind schools and employee salaries.

Concrete pavements have a direct effect on mitigating urban heat island effects. Urban areas can be up to nine degrees Fahrenheit warmer than surrounding areas, related to among other things heat-absorbing dark-colored horizontal surfaces like roofs, roadways and parking areas, which translates to more pollution and more energy required for cooling buildings. Concrete has been used successfully, along with other light colored building materials and strategic planting, to reduce the urban heat island effect. Couple that with the use of a photocatalytic cement and the concrete original lighter color surface will remain for a longer period of time.

The concrete pavement industry and Essroc stand ready and willing to invest the time and other resources to advance our products and processes in pursuit of even more sustainable practices. We look forward to the support of the public sector to realize the American vision of the best highways and roadways in the world. Thank you for your time, for providing this opportunity to our industry, and for your invitation to the Subcommittee.

Energy Reduction and Environmental Sustainability in Surface Transportation

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Prepared for:
House Committee on Transportation and Infrastructure
Subcommittee on Highways and Transit
2165 Rayburn House Office Building

27 January 2009

1. Overview

Chairman DeFazio, Ranking Member Duncan, members of the subcommittee, thank you for giving me this opportunity to discuss environmental sustainability and the future of transportation in the United States. This is a central issue as the federal government works toward its six-year authorization of transportation funding, and understanding the proper context for addressing environmental issues will be critical.

I would like to focus my remarks on two over-arching points:

- Transportation policy that loses sight of mobility as a central goal puts our economic competitiveness at risk; and
- Mobility is compatible with long-term goals of environmental sustainability;

2. Mobility and Economic Competitiveness

First, we must recognize the central purpose of transportation policy is to provide for and improve mobility for citizens and businesses. In other words, transportation policy is focused on finding effective ways to move people, goods, and services from point A to point B faster and cheaper. This central goal should not be minimized despite the more current concerns over the state of the national economy and the vigorous public discussion over the impending stimulus package. At the end of the day, transportation policy will continue to be about providing efficient, safe, and reliable mobility above all other policy goals or objectives, and the focus of reauthorization will inevitably move beyond the short-term politics surrounding the economic recession.

Importantly, mobility is the proper goal of transportation policy. Adrian Moore and I explain the critical role mobility plays in ensuring our continued global competitiveness in our book *Mobility First: A New Vision for Transportation in a Globally Competitive*

Economy. We summarize a growing body of research that shows empirically what urban economists have known for decades: Mobility is critical to national and urban economic success.

The reason is straightforward. Economic productivity improves when we lower the costs of production and make it easier for people to interact. Increased mobility gives workers access to an increasingly diverse number of jobs, and employers enjoy greater access to an increasingly large skilled and productive workforce. This is why congestion has such debilitating impacts on economic growth. As congestion increases, and costs of getting from point A to point B grow, production costs increase and the "opportunity circle" that includes access to markets, resources and jobs resources shrinks.

Thus, while transportation investments are critical to economic productivity and growth, job creation is an indirect impact of successful transportation policy and *not* a primary goal. This, in fact, is the lesson from the Interstate Highway program created in the 1950s. The central objective of this multibillion dollar program was to link the nation's largest urban centers and integrate them into a truly national transportation network. This goal served economic purposes as well as broader national goals of geographically unifying the nation (in much the same way railroads did in the 19th century) and providing for a more efficient national defense.

The economic impacts were enormous and tangible. The Interstate Highway System and upgrades to various state and regional roads boosted economic growth because these new roads reduced transportation costs dramatically, allowing businesses to improve productivity. Some of these effects, such as providing more efficient routes for long-haul freight movement, were intended. Reducing urban traffic congestion was another, less important goal successfully met, although few anticipated the decentralization of metropolitan areas that followed.

As we move forward thinking about transportation and sustainability, we also need to recognize the fundamental link between mobility, economic productivity, and economic growth.

3. Transportation and the Environment

The critical role transportation plays in economic growth and productivity does not obviate the need to consider the environmental consequences of our transportation investments, the environmental impact of different modes, or the way we use transportation facilities. On the contrary, as we become more aware of the environmental impacts of human activity, we have a responsibility to mitigate the negative effects. We have, for example, made tremendous strides toward improving our air quality even as our use of automobiles has increased dramatically. Air quality, by all metrics, has improved steadily in most U.S. urban areas since the early 1970s as a result of new technologies that lowered emissions while preserving the mobility implicit in automobile use. Indeed, rising economic productivity, and the increased wealth that comes with it, allows us to be

even more creative and innovative in improving mobility in an environmentally responsible manner.

Thus, mobility and environmental protection can be complimentary goals. The key is to understand the right contexts in which these goals are pursued and choose strategies that allow for both to be achieved simultaneously. Environmental policy that explicitly or implicitly reduces mobility undermines the long term viability of our cities and national economy and, as a consequence, our ability to meet our long-term environmental policy goals.

A case in point is the role technology will play in meeting greenhouse gas targets. Preliminary findings of research being conducted by The Hartgen Group for Reason Foundation indicates that newly legislated fuel mileage standards will outstrip most other commonly proposed strategies for mitigating carbon dioxide by large margins (see table 1). In an analysis of greenhouse gas trends in 48 urbanized areas, current trends suggest that without mitigating strategies, CO^2 will increase 52 percent by 2030. The new CAFÉ mandates recently enacted by Congress will reduce CO^2 by 31.2 percent by 2030. In contrast, increasing the price of fuel to $5 per gallon would only reduce emissions by about 4 percent. The *combined* effect of increasing the transit share of work trips by 50 percent, increasing the walk to work share by 50 percent, and increasing telecommuting would reduce CO^2 emissions by just 2.5 percent.

Table 1: Preliminary Estimates of the Impact of Policy Strategies on CO2 Emissions by 2030 (48 Urbanized Areas)

Policy Strategy	Impact on CO^2	Cost per ton
Trend from 2005 baseline with no mitigation	*+51.8%*	*N/ap*
New CAFÉ mandates	-31.2%	$51.77
Fleet to 50% small cars	-2.7%	Not calculated
Improve signal timing	-2.3%	$112.00
Uniform 50 mph speed limit at peak times	-1.1%	$146.00
Capacity improvements	-4.1%	$3,995.00
Max 55 mph speed limit	-3.0%	$0.13
Telecommuting	-0.5%	$3.50
Congestion pricing	-0.6%	$2,462.00
25% higher carpool share	-0.7%	$2,776.00
Increasing gas to $5 per gallon to reduce travel	-4.0%	$3,923.00
50% increase in transit share	-1.1%	$4,257.00
50% increase in walk to work share	-0.9%	Not calculated

Source: Reason Foundation based on preliminary analysis provided by The Hartgen Group, forthcoming April 2009.

Notably, the new fuel mileage mandates are also more cost effective, averaging about $52 per ton removed, and meet the McKinsey & Company benchmark reported in *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?* In contrast, most other strategies are significantly more costly. Physical capacity improvements, increasing

transit's mode share, and reducing overall travel by raising the gas tax are expected to cost close to (or more than) $4,000 per ton removed.

4. Environmental Mitigation Strategies and Mobility

Each of these greenhouse gas mitigation strategies has different impacts on mobility and, as a result, on our nation's productivity. Increased fuel mileage mandates do not impact our nation's mobility although they have somewhat smaller impacts on the costs of using specific types of cars and trucks. If the mandates are modest and provide enough of a lead time, they can allow consumers and private suppliers to make choices about what technologies and modes of transport are most efficient for achieving transportation goals. This, combined with the independent decisions of millions of Americans to purchase more fuel efficient automobiles, can increase productivity and mitigate greenhouse gases.

In contrast, policies that attempt to directly reduce travel have an adverse impact on mobility and impinge on our economic productivity by reducing the opportunity circles accessible by employers, workers, and households.

A few quick illustrations make this point. Portland Oregon's Tri-Met operates perhaps the most successful rail transit system in place among mid-size (and smaller) U.S. cities. Sixty-four light rail transit stations are part of a regional transit network that covers an urban area of 474 square miles and serves 1.2 million people according to the National Transit Database. Yet, these transit stations account for just 22 square miles, or about 5 percent of the regional service area. Even with the more compact urban form created in part by a mandated regional growth boundary, Tri-Met's ability to influence regional urban form and travel patterns is limited to the immediate area around the transit stations.

Arlington, Virginia provides another example. Arlington hosts some of the nation's most robust transit-oriented developments, using a large volume heavy rail system to support development at Metro stations around Ballston and Courthouse Square on the Orange Line and Pentagon City and Crystal City on the Blue Line. The eleven Metro stations represent about 8 percent of the county's land area. About 20 percent of the county's population lives within walking distance (1/4 mile) of one of these Metro stops. Among those within walking distance, however, the private automobile still captures more than half, and often two-thirds or more, of total trips. Thus, in Arlington, rail transit is used by just 5-10 percent of the county's population. Notably, transit's share of total travel in the Washington D.C. urban area remains around 7 percent.

The point, however, is not to criticize transit. On the contrary, transit plays a vital role along key corridors in many urban areas and enhances mobility for many. Rather, transit's role in meeting environmental policy goals needs to be kept in context.

Despite recent gains in ridership, public transit remains a relatively small part of the overall travel equation in most major urbanized areas in the U.S. Notably, higher gas prices contributed to a reduction in road travel by 100 billion vehicle miles traveled in 2008, according to the Federal Highway Administration, a fall of about 4 percent. Public

transit experienced an increase of about 5 percent. Yet, because transit carries a very small portion of travel, transit was able to capture just 3 percent of the overall decline in road travel.

In addition, the kinds of policies that will be necessary to fundamentally change land use to boost transit ridership significantly would require a dramatic and largely involuntary relocation of people and families into housing they do not want. The single-family, detached house would be an option only for the wealthier income brackets in our major urban areas, effectively inverting the existing distribution of home options and choices.

A policy that focuses largely on shifting travelers out of cars and into transit will reduce mobility. An examination of work trip travel times in 276 metropolitan areas found that the length of public transit trips exceeded those for private automobiles in 272 of those areas. On average, public transit riders spend about 36 minutes traveling to work while private automobile travelers commute about 21 minutes. This does not have to be the case. The innovative use of HOT Lanes, such as the networks being built in Northern Virginia and discussed in Atlanta, Houston, the San Francisco Bay Area, and Miami can finance critically needed road capacity while also providing viable bus rapid transit alternatives.

5. Sustainable Transportation Policy

Sustainable development policies call for a balancing of three goals: economic growth, the equitable use of resources, and environmental preservation. Transportation policy that undermines mobility compromises the productivity necessary to support better environmental stewardship.

What federal policy initiatives, then, can preserve the overarching goals of transportation policy to improve mobility while also recognizing the importance of meeting environmental goals?

First, achieving environmental goals will depend primarily on technological solutions, not broad-based changes in human behavior. The dramatic improvements in air quality in major urban areas is directly attributed to technological solutions, and the same will be true for addressing national greenhouse gas goals. Federal policymakers should resist attempts to directly use transportation policy to address broader environmental goals because it tends to be a very blunt and inefficient instrument.

Second, maintain mobility as the central goal of transportation policy. Policies that directly reduce mobility, including those designed explicitly to reduce vehicle miles traveled or direct commuters to alternatives that will lengthen commute times, should be avoided. While environmental concerns should play a role, federal objectives should include searching for and implementing win-win solutions.

Third, continue to put congestion reduction as a key priority for transportation policy and investments. Widespread traffic congestion places substantial burdens on businesses and individuals. Mitigating these effects should be a primary goal of transportation policy makers to ensure our cities and national economy remain competitive. Many congestion-mitigation strategies—HOT Lanes, tolled facilities, capacity expansion—will also have environmental benefits, but their central purpose is to reduce transportation costs and improve economic productivity.

Fourth, aggressively move toward a transportation funding approach based on distance-based financing such as comprehensive road pricing. This approach would establish a more direct, transparent and accountable user-based funding system.

Thank you for your attention. I welcome any comments or questions members of the subcommittee may have.

STATEMENT BY DAVE TILLEY
PRESIDENT, CRAWFORD GREEN SYSTEMS
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866-725-9494

SUBMITTED TO THE
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT
HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

HEARING ON: ENERGY REDUCTION AND ENVIRONMENTAL SUSTAINABILITY IN SURFACE TRANSPORTATION

JANUARY 27, 2009

Energy Savings by More Effectively Controlling Streetlights

Chairman Oberstar, Ranking Member Mica, and Members of this Subcommittee, my name is Dave Tilley, and I am the President of Crawford Green Systems. I thank you for the opportunity to testify today before the Subcommittee on Highways and Transit on "Energy Reduction and Environmental Sustainability in Surface Transportation."

I am pleased to introduce a new technology that will have a direct, immediate, and significant impact on energy savings as well as provide money savings and reductions in CO2 emissions realized when we reduce electric use. We have developed a switch to control streetlights, which can save over 50% of the energy used by those streetlights. This information is not intended to attempt to sell the switches, but to make Members aware of a new technology that is available to address the need to save energy, money, and reduce CO2 emissions.

The switch uses a standard photocell, as is used on many streetlights today to turn streetlights on at sunset and off at sunrise. What we have done is added a timer so that the streetlight can be turned off late at night when traffic volume has decreased and turn the light back on again early in the morning when traffic volume increases. The installer can easily program the time at which the streetlight can be turned off and on. An example might be to turn the lights off at 11:00 at night and on again in the morning at 5:00. It is important to note that we are not recommending that all streetlights across the country be turned off – some are needed to be on all night for either traffic safety, or in populated areas they must be kept on for security reasons.

There are over 50 million streetlights across the US. As an example of the tremendous savings this technology could produce, if only 2 million of those lights were controlled by this technology and if those lights use 1,000 watt bulbs:

- We would save 4.38 billion kWh in electric usage annually.
    - That is enough electricity to power every home in the state of Rhode Island for a year.
- At a rate of $0.14 per kWh, we would save over $613 million dollars annually.
- The design allows a switch to be sold for about $100, so it is economically attractive.
- From an environmental standpoint, a coal-fired power plant produces about 4 tons of CO2 annually to generate enough electricity for a 1,000 watt streetlight. By turning off a streetlight for six-hours per night, we can eliminate 2 tons of CO2 emissions per year. Compound that over 2 million lights and we save 4 million tons of CO2 emissions per year.

As a real world illustration of how this technology can help, consider Millersburg PA, a town of about 2,500 people. In December 2008, Millersburg announced that they were terminating the employment of their Police Chief due to budget constraints. Utilizing technology such as I present here would reduce energy costs, freeing that money up for other important uses such as their police chief. Currently, Millersburg is investigating if and where this technology could be implemented, and how much money it could save them. Keep in mind, once implemented, the technology will continue to save money for towns like Millersburg for years to come with a modest one time investment.

Of course, as good as these savings are, safety and security is paramount. Most of the streetlights in the US are owned or rented by cities, towns, and boroughs. It is up to the individual municipality to determine which streetlights can be turned off, and when they can be off. Recently, the town of Bow NH turned off over 200 streetlights permanently to save money. They have identified streetlights that they feel can be turned off without sacrificing safety and security.

This is a brief overview of what is newly available. Additional information is available at www.crawfordgreensystems.com.

Once again, thank you for this opportunity to share this important new technology with the Committee. There are many new ways in which we can address energy reduction and environmental sustainability in surface transportation legislation, and I hope this information will help you as you tackle the daunting task of crafting these new policies for this country.

February 24, 2009

The Honorable Phil Hare
United States House of Representatives
428 Cannon HOB
Washington, DC 20515

Dear Mr. Hare

As a follow-up to my testimony before the Subcommittee on Highways and Transit on January 27, 2009, I attach data which you requested.

I testified about a new technology to better control streetlights in order to save energy, money that municipalities pay for that energy, and CO2 reductions caused by the generation of the energy.

Early in February, we tested our streetlight switch in a small town in Eastern PA. We installed an electric usage recording device on the light to measure how much energy was saved using our switch. I am happy to report that we got the exact readings we expected. (Please see enclosed data). This confirms our goal of the switch being able to pay for itself in less than one year by reducing energy costs.

We will be contacting the Department of Energy in the next few weeks in an effort to have the Department purchase a large quantity of the switches and distribute them to municipalities across the country to help reduce energy use, as well as to help cash strapped municipalities save precious budget dollars so those dollars can be used for things such as retaining municipal jobs. We have found that several municipalities we talked to would love to purchase our switches, but do not have any free budget money to do so, even though the payback is so quick. That is why we are approaching the Federal Government.

Although I am not a constituent, since you did express interest in this, I will keep your office appraised of our progress with the Department of Energy.

Thank you for your courtesies during the hearing and your interest.

Sincerely,

CRAWOFRD GREEN SYSTEMS, INC.

David A Tilley
President

Crawford Green Systems
[illegible] West Street, Suite 1200
[illegible], DE 19901
Phone (888) 725-9494
www.crawfordgreensystems.com

February 23, 2009
Mr. Anthony Branco, Borough Manager
Topton Borough
205 South Callowhill St
Topton, PA 17562

Dear Mr. Branco,

At your request, we installed a Street Light Energy Saver on a streetlight located along Pine Street in Topton PA and measured the energy that was consumed using that switch compared to a standard dusk-to-dawn photocell. The Streetlight Energy Saver was programmed to turn off the streetlight at 11:00 pm, and turn it on again at 5:00 am.

Following is a report from Schatz Electric who did the actual study, detailing the results.

You will see that the light was turned off for six-hours at night, which was forty-five percent of the time the light is normally on in February and that resulted in forty-five percent less energy being used. Obviously this is what one would expect. Keep in mind that during summer months, a streetlight may normally be on from 9:00 pm until 6:00 am, or 9 hours. If the streetlight is turned off for six of those hours we would enjoy an energy savings of sixty-seven percent. It is safe to assume that during the course of a year, one could expect to save fifty-percent of the energy used by a streetlight by turning it off for six-hours per night using the Streetlight Energy Saver.

If you have any questions regarding this data, please do not hesitate to contact me.

Sincerely,

CRAWFORD GREEN SYSTEMS, INC

David Tilley
President

SCHATZ ELECTRIC, INC.
P.O. BOX 111
ROBESONIA, PA 19551-0111
DON'T GET SHOCKED, GET SCHATZ

610-678-6661 WAREHOUSE
610-678-1868 FAX
610-693-5401 OFFICE
610-693-5365 FAX

February 18, 2009

Mr. Dave Tilley
Crawford Green Systems
1000 North West Street Suite 1200
Wilmington, DE 19801

On February 2, 2009 at approximately 8:38 AM we installed a data logger which records usage of power during a 24 hour period each day. The graph on page 2 shows the start up of the data logger. At approximately 5:30 PM (dusk) the existing photocell turns the street light on drawing current of approximately 3 amps, and stays on approximately 13.5 hours until dawn approximately 7 AM.

On February 3, 2009 at approximately 8:05 AM the existing photocell was removed and the new programmable photocell was installed. The graph shows that at approximately 5:30 PM the new photocell turns on the street light. The new photocell was programmed to turn the street light off at 11 PM and back on at 5 AM. The street light was on for a total of 7.5 hours instead of 13.5 hours.

On February 4, 2009 the new photocell was removed and the old photocell was reinstalled.

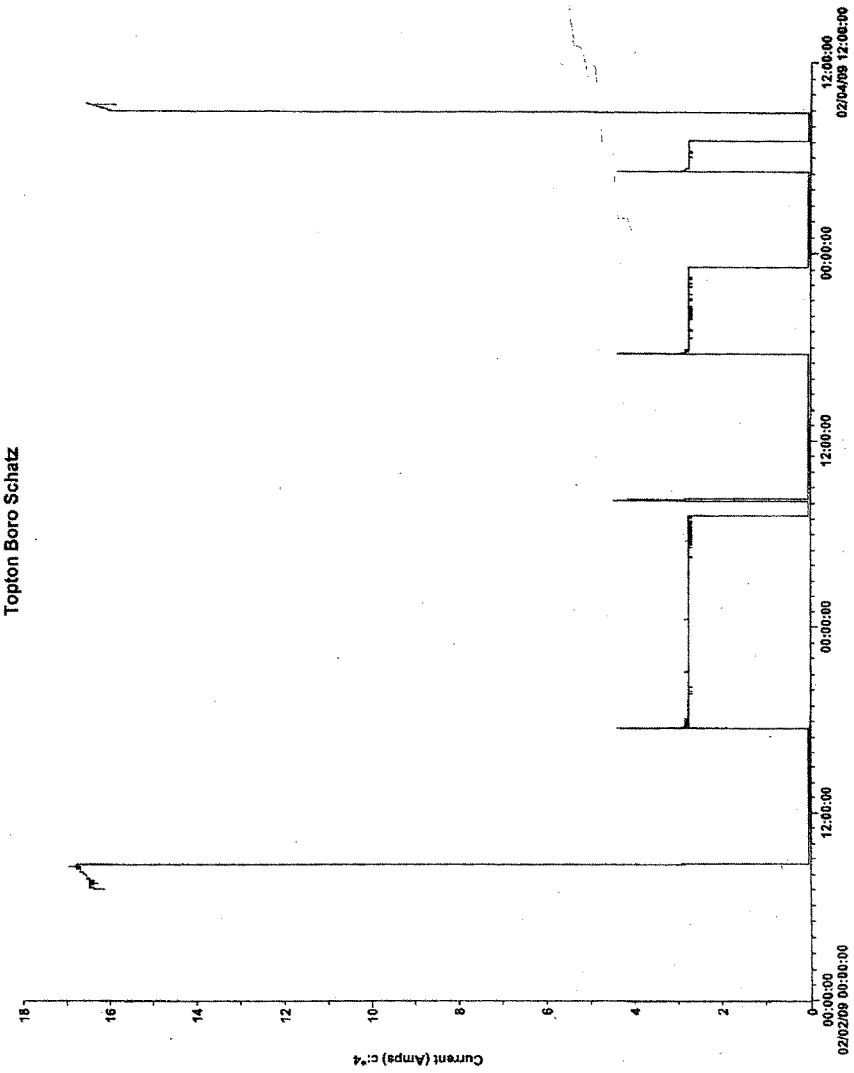
The new photocell programmed this way saved approximately 45% of the energy consumption of the street light.

I hope this validates your assumptions. If you have any questions please contact us.

Sincerely,

Schatz Electric, Inc.

Jeff C. Schatz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ARLINGTON
VIRGINIA

DEPARTMENT OF ENVIRONMENTAL SERVICES
Transportation Division

2100 Clarendon Boulevard, Suite 900 Arlington, VA 22201
TEL 703.228.3681 FAX 703.228.3594 www.arlingtonva.us

February 2, 2009

To: [redacted]
House Transportation & Infrastructure Subcommittee on Highways and Trasit

From: Dennis Leach, Director
Division of Transportation, Arlington County Government

Re: **Request for correction to the record**
(Response to written testimony by Samuel R. Staley, Ph.D. "Energy Reduction and Environmental Sustainability in Surfact Transportation, delivered to the subcommittee on 27 January 2009)

Dear Mr. Gould:

Samuel R. Staley, Director of Urban and Land Use Policy for the Reason Foundation, recently testified before the Subcommittee on Highways and Transit regarding the limited role of transit in community transportation. He used Arlington as an example and was quoted as follows: "There are a lot of urban areas without the necessary density." He pointed to Arlington, VA., a city of roughly 200,000. While the city has access to Washington, DC's Metro System, Staley said, in written testimony to the subcommittee, that only 20 percent of the population lives within walking distance (1/4) mile) of a Metrorail station.

We would like to correct the record. Mr. Staley's reference was a misrepresentation of Arlington's transit system, development patterns and demographics. As of July 2008, Arlington had an estimated 208,000 residents and a similar number of jobs. An estimated 106,300 residents -- or more than 51% of all residents in the County -- lived within a ½ mile walk to a Metrorail station or the Columbia Pike high frequency surface transit corridor (with direct connections to Metrorail and Downtown DC). Our research shows that residents do walk up to a half mile or more to access high quality transit .

On the jobs' front, Mr. Staley failed to note that more than 156,000 jobs, or more than 76% of all jobs in Arlington, are located within a ¼ mile of a Metrorail Station. Most new jobs that are being created in Arlington are located in close proximity to transit.

This pattern of development and transit supports very high transit ridership. More than 275,000 transit trips are made in Arlington on an average weekday, or over 80 million annual trips. According to the 2007 Regional State of the Commute Survey, 32% of our residents used transit to get to work, another 5% walked or biked and 8% car-pooled. We have been able to reduce our drive-alone share of resident work trips by 10% in the last six years. Arlington's goal is to continue to expand the reach of transit in our community.

Our research also shows that our residents and workers are far more likely to make ancillary walking trips to various services and restaurants. These trips generally are made by private vehicles in more suburban environments. Arlington's development pattern and transit system have allowed the County to continue to develop without an associated increases in traffic.

We respectfully submit this request for correction to the subcommittee. Please feel free to contact me if you have any questions. We look forward to hearing from you.

Sincerely,

Dennis Leach, Director
Division of Transportation
703-228-0588

TESTIMONY FOR THE RECORD

JOY WILSON
PRESIDENT AND CEO,
NATIONAL STONE, SAND & GRAVEL ASSOCIATION

HOUSE COMMITTEE ON TRANSPORTATION AND
INFRASTRUCTURE
HIGHWAYS AND TRANSIT SUBCOMMITTEE

HEARING REGARDING
ENERGY REDUCTION AND ENVIRONMENTAL SUSTAINABILITY
IN SURFACE TRANSPORTATION

JANUARY 30, 2009

Mr. Chairman and Members of the Subcommittee:

The surface transportation program has served the nation well for 50 years, however, as Congress gears up to reauthorize the landmark program, there is an understanding that a new path needs to be taken. As existing programs are reviewed and new programs describing methods for improving environmental sustainability are discussed, we believe that the basic material for all construction should be a topic.

At the National Stone, Sand and Gravel Association, we have a good story to tell America and look to be a part of the discussion on sustainability. Crushed stone, sand and gravel truly are the basic materials in practically everything that makes modern life possible and enjoyable. From the streets, homes, hospitals and schools in each community to the airports, interstate highways and railbeds that support our national mobility and commerce every day, aggregates products make a vital, positive contribution to our way of life.

However, few people actually stop to think about the importance of aggregates to our daily lives. Most do not relate a nearby quarry or sand and gravel operation to the safe roads and bridges we drive on or to the treatment plants to clean our water or to the sturdy buildings in which we work and live. Many people in communities where aggregate producers operate do not have a clear picture of the economic, environmental and societal benefits associated with those operations.

NSSGA members define sustainability as a strategic business approach that integrates the concepts of environmental stewardship, social responsibility and economic prosperity to ensure the long-term supply of aggregates materials to the communities in which we operate.

It really is a value and, in fact, NSSGA's Board of Directors made it a guiding principle for NSSGA members. Sustainability means that we care about people, we care about our environment and we care about making products that help build American's economy. And, it is that principle that we are going to be guided by through the 21st century.

In brief:

We have the responsibility to protect the health and welfare of mothers, fathers, sons and daughters of our workforce, who are the very community that gives us the right to operate our businesses in their neighborhood.

We have the responsibility to be effective stewards of the land we develop and, ultimately, return to the community properties that have a second life as recreation areas, residential housing, wildlife habitat, and more.

We have the responsibility to provide adequate supplies of aggregate materials to our communities to build sound infrastructure to maintain a high quality of life, providing such necessities as safe roads, sturdy houses and strong bridges.

Finally, we recognize that sustainable practices are necessary today to preserve the potential for an even better quality life for future generations.

Sustainability is not a catchword any longer. We believe that sustainable practices are good business and good for business!

I would like to take this opportunity to detail how stone, sand and gravel benefits the U.S. economy. Aggregates are basic and fundamental inputs to the building blocks of society and a strong economy. Stone, sand and gravel makes up 94 percent of asphalt and 80 percent of concrete. They are the essential ingredients of the nation's infrastructure – its transportation systems, sewer and water systems and public facilities – that are required to support a growing and healthy economy. The aggregates industry also is a significant source of employment and income nationally.

The industry produces major and essential inputs to many other industries across the breadth of the national economy. It makes significant contribution to the GDP as well as the economies of many states. As a basic component of the nation's goods-producing industries – agriculture, manufacturing and construction – the aggregates industry provides the foundation for the nation's economic vitality. The importance of this industry can be measured by the value of its contribution to the intermediate and final products of industries that use aggregates in the production process.

The contributions of the aggregate industry are even more significant than its numbers suggest because of its fundamental contribution to the physical capacity of the national and state economies and their production of goods and services and to the support of a high quality and productive environment for U.S. businesses and residents.

- Aggregates production accounts for more than half of the non-fuel mining volume in the U.S.
- 38,000 tons of aggregates are necessary to construct one mile of a four-lane highway.
- 400 tons are required to build an average modern home.
- 5,000 tons are required to build a 100,000 square foot office building.
- Each U.S. citizen uses 22,000 pounds of aggregates annually.
- For every dollar of output in the industry, and additional $1.58 is generated in the national economy.
- For every one million dollars in output produced by the industry, 19.5 jobs are created.

The full impact of the industry is seen in the enduring strength of the U.S. economy and the high quality of life that characterizes the nation.

As you can see, aggregates are important to the nation's built environment, its citizens' quality of life, and the economy. It is an important tenant of our industry, and this association, to fully integrate corporate social responsibility, environmental stewardship, and economic prosperity to – the hallmarks of sustainability – to maintain the public's demand for their high quality of life. To this end, we look forward to working with all elected officials, here in Washington or in your district to meet these goals. I have attached the association's guiding principles for your review. If you have specific questions or would like to talk further about sustainability, please feel free to contact me.

According to the U.S. Geological Survey, NSSGA is the largest mining association by product volume in the world and represents the crushed stone, sand and gravel-or aggregate-industry. Our member companies produce more than 90 percent of the crushed stone and 70 percent of the sand and gravel consumed annually in the United States. More than three billion tons of aggregates (or 2.95 billion metric tons) were produced in 2007 at a value of approximately $21 billion, contributing nearly $38 billion to the GDP of the United States. The aggregates industry workforce is made up of over 118,000 men and women. Every $1 million in aggregate sales creates 19.5 jobs, and every dollar of industry output returns $1.58 to the economy. With over 11,000 individual sites nationwide, most Congressional Districts are home to multiple aggregate operations.

National Stone, Sand & Gravel Association's
Guiding Principles for Sustainable Aggregates Operations

The members of the National Stone, Sand and Gravel Association (NSSGA) identifies sustainability as a business approach that integrates environmental, social and economic aspects to ensure the long-term supply of aggregate materials to society. NSSGA recognizes that sustainable practices are necessary today to preserve the potential for a quality life for future generations.

Overarching Practices

- NSSGA members sustain the communities in which we operate by providing raw materials as natural building blocks for quality of life.
- We are conscious of the need to provide economic, social and environmental value for future generations, and the communities in which we operate.
- We demonstrate a strong and unwavering commitment to safety, health and the environment at our operations.
- We work with appropriate government bodies to establish effective, responsible and balanced laws and other requirements based on sound science.
- We encourage life cycle re-use of products during manufacturing and post consumer use.
- We maintain adequate aggregate resources in locations that minimize the life cycle impacts of the resource's extraction, delivery and use.
- We encourage proper land use development and planning within communities to ensure long-term aggregate resource availability.
- We adhere to the highest ethical business practices and transparency in all aspects of our operations.
- We recognize that profitability is essential to a sustainable industry and its continued ability to contribute to communities.

During the Mining Life Cycle of an aggregate operation, our members are encouraged to:

Planning Phase

- Develop a site-specific plan for post mining land use and/or reclamation that engages stakeholders in planning for future needs and interests.
- Plan for the prevention and/or minimization of environmental impacts.
- Adopt and implement an Environmental Management System program to properly manage potential environmental risks and requirements, and improve overall environmental performance.

Operational and Closure Phase

- Pursue new technologies and practices to improve the operational, safety, health and environmental efficiency of our operations.

- Invest in the personal and professional development of employees to ensure a strong workforce into the future.
- Ensure that employees are treated in a respectful and positive manner, and provide them with competitive compensation programs consistent with performance and industry practice.
- Identify, control and/or eliminate risks associated with occupational injuries and illnesses.
- Encourage employees and contractors to interact responsibly within the community in which we operate and serve.
- Work in partnerships to promote beneficial post-mining land use, including industrial, commercial, and residential and community development, agricultural production, and wildlife conservation, habitat creation and restoration.

Business Case for Sustainability

1. Sustainability is a developing issue in the markets where NSSGA members operate. Public resource agencies are implementing frameworks based on sustainable development. NSSGA member companies will increase their abilities to compete effectively by implementing sustainability guidelines.
2. The long-term viability of the industry is dependent on obtaining and maintaining a social license to operate. These licenses are based on discretionary decisions by local government bodies that are heavily influenced by political/public opinion. NSSGA member companies will enhance their ability to obtain these licenses when applying sustain-ability guidelines.
3. Sustainability emphasizes the efficient use of resources, which reduces costs (by reducing waste) and contributes to profitability.
4. Implementation of sustainability principles can reduce the risk of adverse legal and regulatory actions.
5. Sustainability is an integrated concept. Implementing sustainability guidelines will help to coordinate and improve the effectiveness of multi-disciplinary groups such as community relations, EH&S, operations and legal in NSSGA member companies.

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January 27, 2009—via E-mail

The Honorable Peter DeFazio, Chairman
Subcommittee on Highways and Transit
Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

RE: **Opportunity to Provide Pollinator Habitat on Highway and Railroad Rights-of-Way While Enhancing Carbon Sequestration and Reducing Energy Use and Fossil Fuel Emissions**

Dear Mr. Chairman and Members of the Subcommittee:

On behalf of the Pollinator Partnership (P2), I am pleased to submit these comments for the record of the January 27, 2009 hearing on "Energy Reduction and Environmental Sustainability in Surface Transportation," as part of the Subcommittee's preparation for reauthorization of federal surface transportation programs under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which expires on September 20, 2009. I understand that witnesses are being asked to provide suggestions on how to improve the environmental sustainability of the nation's infrastructure, with a focus on energy use and emissions and climate change.

P2 believes that reauthorization of SAFETEA-LU offers an important opportunity to address another important environmental sustainability challenge—the future wellbeing of insect and other animal pollinators—by integrating appropriate pollinator habitat into the rights-of-way along highways and railroads. P2 believes **there are practical ways to establish and enhance pollinator habitat on rights-of-way that can actually increase carbon sequestration, reduce fossil fuel emissions by reducing mowing practices and reduce highway maintenance costs.** Targeted amendments can facilitate sound science and provide appropriate incentives encourage adoption of appropriate pollinator-beneficial best management practices.

Insect and other animal pollinators play a pivotal part in the production of food that humans eat—with estimates as high as one out of every three bites—and represent key lynchpins in healthy ecosystems. In fact, over 70% of all flowering plants need help from pollinators to effectively reproduce. **Unfortunately, pollinators and their habitat are at risk. Their wellbeing and the vital ecosystem services they provide require immediate priority conservation actions.**

The Pollinator Partnership sent a letter (attached as exhibit) to President Obama prior to his inauguration urging that his Administration take the following actions to conserve and protect native and managed pollinators:

- Issue Executive Order on Pollinator Protection
- Pollinate Existing Conservation and Natural Resource Programs
- Invest in Pollinator Research
- Provide Pollinator Public Awareness Leadership
- Encourage Grassroots Action to Plant for Pollinators
- Provide International Assistance on Pollinator Protection
- Create Green Jobs to Build Pollinator Habitat and Help Stimulate Economy

With regard to the focus of today's hearing, P2 specifically recommended that the Administration—

> "Aggressively pursue pollinator conservation in existing programs in other Departments that manage or influence private and public lands—including the Department of Interior and its key agencies, the U.S. Environmental Protection Agency and the Department of Transportation.
>
> *Reauthorization of the highway bill* offers a timely opportunity to include provisions that will help 'pollinate' highway rights-of-way with native plants and management practices that can benefit pollinators and help state Departments of Transportation reduce maintenance costs."

Habitat destruction is a major contributor to pollinator declines, and P2 believes a great deal can be accomplished cost-effectively and efficiently to address that deficit through properly managed rights-of-way, and in ways compatible with other important objectives.

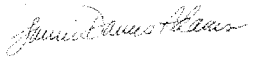
P2 explored possibilities last year with various officials in the Department of Transportation and Federal Highway Administration. We hope to collaborate with officials in these agencies under the new Administration. P2 has also been dialoguing with the Edison Electric Institute about ways to incorporate pollinator-beneficial habitat into integrated vegetation management practices on electric utility rights-of-way.

P2 is pleased that when it comes to pollinator protection and conservation, Congressional support has been broad and bipartisan. In the last Congress, the farm bill was successfully "pollinated," for the first time containing specific provisions for conservation and research related to managed and native pollinators.

The **Pollinator Partnership (P2)** is a nonprofit organization whose mission is to catalyze stewardship of biodiversity. P2 places a high priority on efforts to protect and enhance animal pollinators (*invertebrates, birds and mammals*) and their habitats in both working and wild lands. More information about P2 may be accessed at http://www.pollinator.org.

The Pollinator Partnership stands ready to work with the Subcommittee, the Congress, the Administration and other interested stakeholders in support of targeted and appropriate amendments to "pollinate" SAFETEA-LU and advance policies and programs that will help to protect and sustain pollinators and their habitat on highway and railroad rights-of-way.

Sincerely,



Laurie Davies Adams
Executive Director

Exhibit—January 13 Letter to President-Elect Barack Obama

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January 13, 2009

RE: **Priority to Conserve and Protect Ag/Ecosystem Pollinators And Their Habitat**

Dear President-Elect Obama:

On behalf of the Pollinator Partnership (P2), I would like to urge your Administration to make a priority commitment to conservation and protection of animal pollinators and their habitat. Insect and other animal pollinators play a pivotal part in the production of food that humans eat—with estimates as high as one out of every three bites—and represent key lynchpins in healthy ecosystems. In fact, over 70% of all flowering plants need help from pollinators to effectively reproduce.

Unfortunately, pollinators and their habitat are at risk. Their wellbeing and the vital ecosystem services they provide require immediate priority conservation actions.

In brief, we urge the following actions to conserve and protect native and managed pollinators:

- Issue Executive Order on Pollinator Protection
- Pollinate Existing Conservation and Natural Resource Programs
- Invest in Pollinator Research
- Provide Pollinator Public Awareness Leadership
- Encourage Grassroots Action to Plant for Pollinators
- Provide International Assistance on Pollinator Protection
- Create Green Jobs to Build Pollinator Habitat and Help Stimulate Economy

On the following pages we provide detailed background in support of these recommendations. We welcome any opportunity to discuss these opportunities further at your convenience. The Pollinator Partnership stands ready to work with the Administration to advance policies and programs that will help to protect and sustain pollinators and their habitat.

Sincerely,

Laurie Davies Adams
Executive Director

CC: Obama Transition Team

POLLINATOR PARTNERSHIP

http://www.pollinator.org

Recommended Pollinator-Beneficial Actions for the Obama Administration

P2 offers the following recommendations that your Administration could undertake to help conserve and protect pollinators and their habitat. For the most part, these actions do not involve new programs or initiatives, but rather "pollinate" existing programs and initiatives. Thus, these actions can be undertaken effectively, in resource-efficient ways.

Issue Executive Order on Pollinator Protection.
Designate pollinator habitat conservation and protection as a *priority resource concern* across all Departments and agencies with natural resource responsibilities.

- A lead agency or entity should be designated to encourage and facilitate coordination, efficient utilization of resources and effective outcomes.
- Coordinators in each Department or Agency with natural resource responsibilities should be designated.
- Shared communications and cooperative efforts should be encouraged, both within agencies and across Departments and agencies with natural resource responsibilities.
- A substantive, measurable goal could be collaboratively developed and used as a basis for implementing actions—such as setting a goal of X million acres of pollinator habitat on private and public lands.
- The Administration could advance its objectives by collaborating with P2 to realize the potential of Memoranda of Understanding between P2 and six different federal agencies.

Pollinate Existing Conservation Programs.
Conservation programs can be highly effective in addressing adverse factors which can contribute to declines in both native and managed pollinators, including habitat fragmentation, loss, and degradation; improper use of pesticides and herbicides; aggressive competition from non-native species; disease, predators, and parasites; climate change; and lack of floral diversity. These stressors lead to a reduction of food sources and sites for mating, nesting, roosting, and migration.

Effective pollinator protection practices often overlap and complement other conservation practices, particularly those designed to improve wildlife habitat, and vice versa. In other instances, a practice designed to achieve wildlife or other conservation practices could generate significant pollinator benefits by integrating modest enhancements. For example:

- Implement new pollinator conservation provisions in the recently enacted Farm Bill—
  - Pollinators should be designated as a *priority resource concern* by the U.S. Department of Agriculture (USDA), and in particular by the Natural Resources Conservation Service (NRCS) and the Farm Services Administration (FSA) in their shared implementation of conservation programs.
  - Existing conservation authorities and programs should be used to help private landowners voluntarily protect and enhance native and managed pollinators and their habitat.
  - Other USDA agencies, such as the U.S. Forest Service, can and indeed are playing increasing roles in pollinator conservation.
- Aggressively pursue pollinator conservation in existing programs in other Departments that manage or influence private and public lands—including the Department of Interior and its key agencies, the U.S. Environmental Protection Agency and the Department of Transportation.
  - *Reauthorization of the highway bill* offers a timely opportunity to include provisions that will help 'pollinate' highway rights-of-way with native plants and management practices that can benefit pollinators and help state Departments of Transportation reduce maintenance costs.

Invest in Pollinator Research.
Adequately fund the new pollinator research initiative in the Farm Bill to develop the science and best practices needed to address health and habitat needs of native and managed pollinators. Research on specialty crop pollination is also eligible for funding in the new specialty crops research program. Pollinators, agriculture and healthy ecosystems deserve no less.

Provide Pollinator Public Awareness Leadership.
Leadership involvement in National Pollinator Week, June 22-28, 2009, can help increase public awareness and encourage action. For example:

- The Secretary of Agriculture is urged to issue a proclamation establishing 2009 National Pollinator Week, building upon the leadership actions of previous Secretaries of Agriculture.
  - Other Departments or agencies should be encouraged to take similar and/or complementary actions in an Administration-wide effort.
- Each Department or Agency with natural resource responsibilities should be encouraged to plan pollinator-related events and activities.
- A White House Pollinator Garden Tour or similar event hosted by the First Lady is a positive initiative that would greatly add positive visibility and awareness to this vital issue.

Encourage Grassroots Actions to Plant for Pollinators.
In addition to direct federal agency actions to manage and influence landscapes, the Administration can help increase awareness about the need to increase pollinator habitat and encourage actions at the landscape level. For example:

- *Ecoregional Guides*: The new Ecoregional Guides, "*Selecting Plants for Pollinators*" are intended to be practical tools for farmers, ranchers, gardeners and public land managers who want to establish habitat for native pollinators and honeybees through the establishment of native plant mixes that are specific to their own region.
  - Free guides are available in downloadable form at http://www.pollinator.org/guides.htm.
  - The online Zip Code Habitat Locator will connect the visitor to the appropriate ecosystem map and guide.
  - The guides are science-based. Great care has been taken to avoid including any invasive species in the recommended lists of native plants.
  - Several federal agencies have been involved in P2's partnership efforts to create the ecoregional guides.
- *Private Sector Partnerships*: P2 has been working to develop collaborative relationships with business groups and organizations that manage or influence landscapes. Examples include the National Association of Conservation Districts, the Edison Electric Institute and the American Nursery and Landscape Association. The Administration can leverage scarce federal resources by encouraging and participating in such cooperative efforts.
- *State and Local Governments*: A significant acreage of existing or potential pollinator-beneficial habitat is managed or influenced by state and local government entities. For example, state highway departments and county road commissioners manage road rights-of-way. The Administration can provide information, assistance and incentives to state and local government partners.

'Pollinate' Climate Change Policies and Programs.
Pollinators represent a key indicator species in signaling how ecosystems are being impacted. In addition, how well pollinators adapt will in turn be key indicators in anticipating how agriculture and wildlife ecosystems will be able to adapt to climate change. Policies and programs to address climate change or cope with its impacts should include a pollinator component.

'Pollinate' Department of State Ag/Development Missions in Developing Countries.
In carrying out its important mission on behalf of the United States in promoting global stability and security, it is in the strong interest of the Department of State to help ensure a healthy, sustainable population of pollinators. This is especially true in developing nations and regions where animal pollinated crops represent important components of the diet and agricultural economy. If ag pollinators and their habitat are not protected and sustained, this failure could lead to food shortages and political and military instability in less developed regions of the world.

Where appropriate, agricultural and ecological policies and incentives could be enhanced to support native and managed pollinators, both as they impact global economies and as they represent opportunities for increased revenue and

independence. For example, programs in the Yucatan Peninsula in Mexico support threatened stingless bee species, increase crop pollination, maintain ancient Mayan cultural traditions and provide sustainable income for individuals and communities through honey production. Such opportunities should be supported throughout the developing world.

Restrict and Manage Imports and Transboundary Shipments of Managed Pollinators. If Colony Collapse Disorder (CCD) and other pollinator health issues that affect both managed and native pollinators threaten ag pollination services, P2 cautions against scrambling to fill the void by importing non-native pollinator species from other countries or other ecoregions. The nation needs to avoid compounding one problem by unintentionally creating others that could make the situation far worse. Imported species intended for a good use can quickly become out-of-control ***invasive*** species, or vectors for pests and diseases the imported species may carry and introduce. Unintended consequences could overwhelm the beneficial effects of research and conservation measures and actions being undertaken.

Create Green Jobs to Create Pollinator Habitat and Help Revitalize Economy. The Administration can employ the community outreach model to create green jobs to establish regionally specific, reconstituted landscapes that support native plants and pollinators. Economic stimulus would derive through jobs that include design, procurement, installation, educational and outreach activities. An investment in pollinator-friendly habitat creates the foundation for healthy landscapes, secure food systems, engagement of citizens and the beautification of the country in an immediate as well as long-term return on investment. Similar to WPA legacy projects, this enhancement of natural infrastructure is overdue and ripe with opportunity.

Specifically, P2 recommends funding programs and local projects that would center on pollinator buffers and plantings as follows:

- Farms, ranches and forests
- Transportation corridors
- Oil, gas, and utilities rights of ways
- Golf Courses and public recreational areas
- School, church and home gardens
- Corporate land holdings and administrative sites

The projects would create local job opportunities in the near term and provide for long-range conservation. The projects are results driven and offer potential for public private partnerships.

Corollary benefits include enhanced food security; increased carbon sequestration; science education; and more farmer participation in Farm Bill programs.

Pollinators Play a Critical Role in Agriculture and Healthy Ecosystems and are At Risk

Animal Pollinators Are Critical Food and Ag Partners.
Animal pollinators represent important lynchpins in stable global human and natural systems. Animal pollinators are involved in the reproduction of at least 80 percent of flowering plants and are essential to healthy terrestrial ecosystems. Crops that must be pollinated by bees and other animal pollinators represent important sources of nutrition to humans and wildlife, and provide income to agricultural producers around the world. One out of every third bite of food is said to be linked to an animal pollinated plant. 1000 of the1200 plants grown for crops require animal pollinator visits for reproduction. One-half of the world's oils come from animal-pollinated plant sources.

NAS Pollinator Report Calls for Action.
The National Academy of Sciences (NAS) released a major report in late 2006 on the status and health of pollinators in North America that expressed concerns about the future of pollinators and included a number of recommendations on research and conservation action. The recommendations serve as a blueprint for current and future actions. The report from a cadre of top researchers in North America identifies growing concerns about the future of pollinators and recommends that we must (1) improve our scientific understanding, (2) increase awareness about the amazing world of pollinators and their importance to our food supply and healthy ecosystems, and (3) take action to protect pollinators and their habitat.

The NAS study came about as a result of a 4-year campaign by NAPPC partners and was supported by 52 national organizations including major farm, commodity and agribusiness groups. Diverse stakeholders found common ground in the principle that sound science is essential to guiding policies and actions related to the future of pollinators. These recommendations are now serving as a science-based blueprint as we move forward on research, conservation and other initiatives.

Pollinators at Risk in U.S. and Globally.
Today, possible declines in the health and population of pollinators in North America and globally pose what could be a significant threat to the integrity of biodiversity, to global food webs, and to human health. A number of pollinator species are at risk. Due to several reported factors, the number of commercially managed honeybee colonies in the U.S. has declined from 5.9 million in the 1940's to 4.3 million in 1985 and 2.5 million in 1998. All indications are the problem has worsened in recent years. The cost for pollination services as a purchased agricultural input in the U.S. has actually *increased at a higher rate than energy prices* over the past several years.

Availability of Ag Pollination Services No Longer Certain.
The availability and reliability of these pollination services from both managed and native pollinators are no longer certain. It is thus in the economic interest of both agriculture and American consumers to help ensure a healthy, sustainable and biodiverse population of honeybees and native pollinators.

$250 Billion in Animal Pollinated Crops Globally.
Commodities produced with the help of animal pollinators generate significant income for agricultural producers. A 2008 study by French and German Scientists on the economic valuation of the vulnerability of world agriculture confronted with pollinator decline[1] found that bees and other insect pollinators pollinated nearly $250 billion of food crops globally (based on 2005 harvests and prices). The report also found—

- 9% of value of all food production.
- Fruits and vegetables ~ 1/3 of total.
- Value of crops depend on insect pollinators for their production was on average much higher than that of the crops not pollinated by insects, such as cereals or sugar cane.
- Bee shortage has already hurt growers and consumers worldwide.
- Complete loss of insect pollinators, particularly of honeybees and wild bees which are the main crop pollinators, would not lead to the catastrophic disappearance of world agriculture, but would nevertheless result in substantial economic losses.

$15 Billion in Animal Ag Pollinated Crops in U.S.
In the U.S., domestic honeybees pollinate an estimated $15 billion worth of crops each year, produced on more than 2 million acres. It is increasingly recognized that native bees also contribute significantly, providing "free" ecosystem services in the form of crop pollination. Recent estimates credit native pollinators for providing about $3 billion annually in crop pollination services.

- A recent OAS study estimate places the value of crop pollination services in the U.S. at much higher levels—*more than $70 billion*!

OAS States Vulnerable to Loss of Pollinators.
A recent study [2] of the economic value of animal pollinated crops in Organization of American States (OAS) member states shows that agricultural exports from OAS member states are vulnerable to a loss of pollinators. In the U.S. alone, animal pollinated crops were valued at $71 billion in 2007, or over half the value of total principal crops in the U.S. Animal pollinated crops totaled over 75% of total crop value in 6 states, and over 50% in another 11 states. For agricultural exports from OAS members in 2005, animal pollinated crops exported totaled $172 billion. Over 50% of the value of exports was animal pollinator dependent in 4 countries, and over 25% pollinator dependent in another dozen countries.

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[1] Nicola Gallai, Jean-Michel Salles, Josef Settele, Bernard E. Vaissière: Economic valuation of the vulnerability of world agriculture confronted with pollinator decline. *Ecological Economics* (2008).
[2] Draft, 10/23/08: Mike Ruggerio, Ph. D.

Developing World Vulnerable.
In the developing world, there exists the real possibility of a grim projection of the perfect storm—the intersection of increased population, the demand for food, the reduction in rain and fresh water, the disappearance and degradation of arable land, the loss or migration of pollinators due to climate change, and the reduction in pollinator populations due to habitat loss, disease, pesticides and invasive plants and animals. What this could lead to is no longer a question of higher prices for food, but of scarcity that results in political instability.

- Problems in the world of honeybees and other pollinators are already evident and appear to be growing.
- It is important to undertake reasonable, proactive actions now to protect and sustain pollinators and their habitat, rather than waiting to react to a full blown ag pollinator crisis. The warning signs are clear, just as in hindsight they were for the current financial crisis.
- The costs of reacting will be far greater than the costs of managing problems now.
- Given the nature of biological systems, some harm could be irreversible.

Rising food and energy prices have led to well-documented protests and threats to economic and political stability in regions of the world key to U.S. interests. Particularly in the developing world, further shortages and/or increased costs of crop pollination services could be devastating to both consumers and agricultural producers, and could result in increased food prices and food, economic and political insecurity. Wild gathered food, a key source for the poor particularly in the equatorial belt, is highly dependent on native and wild pollinators for reproduction. Gathered fruits provide essential nutrients to the poor in tropical and neo-tropical developing countries; loss of these pollinators fort these plants eliminates this food source. Food sovereignty as well as food security will increasingly dictate trade and policy decisions.

Bee Importations Increase Risks.
The issue of pollinator importation and the demonstrated risks involved are so great that NAPPC collaborators teamed up in 2006 and produced a "Bee Importation White Paper" focused on the risks and consequences of importing non-native bumble bees. The following excerpt captures what is at stake:

> "Non-native species introductions may have dramatic negative consequences. In the last century, invasive species of all types have cost the U.S. an estimated $137 billion in damages (Pimentel et al. 2000). Yet introductions of exotic plants and animals persist, partly because those who introduce exotic plants and animals may not fully understand or bear the consequences of their behavior (Perrings et al. 2002), which can be devastating on both economic and ecological scales." [p. 23]

The report is at http://www.pollinator.org/Resources/BEEIMPORTATION_AUG2006.pdf and includes a number of key recommendations. If trans-boundary shipments of pollinating species are considered, the greatest care must be undertaken in developing effective protocols to prevent such unintended consequences.

Interest of the Pollinator Partnership

The **Pollinator Partnership (P2)** [3] is a nonprofit organization whose mission is to catalyze stewardship of biodiversity. P2 places a high priority on efforts to protect and enhance animal pollinators (*invertebrates, birds and mammals*) and their habitats in both working and wild lands. More information about P2 may be accessed at http://www.pollinator.org.

P2 is a strong advocate of a collaborative, science-based approach. P2 is honored to have a number of beneficial pollinator partnership efforts ongoing through management of the **North American Pollinator Protection Campaign (NAPPC)**, a tri-national, public-private collaboration of scientific researchers, managers and other employees of state and federal agencies, private industry and conservation and environmental groups dedicated to ensuring sustainable populations of pollinating invertebrates, birds and mammals throughout the United States, Canada and Mexico. NAPPC's voluntary participants from over 125 entities are working together to proactively--

- Promote awareness and scientific understanding of pollinators;
- Gather, organize and disseminate information about pollinators;
- Provide a forum to identify and discuss pollinator issues; and
- Promote projects, initiatives and activities that enhance pollinators.

Since its founding in 1999, NAPPC has been an instrumental cooperative conservation force in focusing attention on the importance of pollinators and the need to protect them throughout North America. More information about NAPPC and its collaborative efforts can be found at http://www.nappc.org.

P2 enjoys strong working relationships with a number of federal agencies. In addition to strong leadership participation in NAPPC by officials from a number of federal agencies, Memoranda of Understanding (MOU's) between P2 and six federal agencies have been signed to date, signaling a strong, shared commitment to work together for the benefit of pollinators:

- U.S. Department of Agriculture (USDA)
  - U.S. Forest Service
  - Natural Resources Conservation Service
- U.S. Department of Interior
  - U.S. Fish and Wildlife Service
  - U.S. Geological Survey
  - National Park Service
- Department of Defense

P2 collaborates with a number of other federal agencies, including CSREES and ARS in USDA, the U.S. Environmental Protection Agency (EPA) and the Department of State.

[3] Founded as the Coevolution Institute, now does business as the Pollinator Partnership.

The Department of State hosted the 2008 NAPPC international conference, and EPA has graciously offered to host the 2009 conference. This international gathering has previously been hosted by the US Department of Interior, USDA, the Smithsonian Institution, the National Zoo, the University of Maryland and the National Academy of Sciences (twice).

P2 seeks to develop partnerships with stakeholders in the non-government world. For example, P2 and the National Association of Conservation Districts (NACD) have a number of partnership efforts underway and signed a Memorandum of Understanding earlier this year. P2 is pleased that a broad range of conservation and environmental organizations has been supportive on pollinator issues. For example, the comprehensive 'Green Group' recommendations to the transition team specifically recognize the importance of pollinators and urge using conservation programs to improve pollinator habitat.

A full list of the organizations and individuals who have been associated with NAPPC can be found at http://www.nappc.org/partnersEn.html .

Action and Results Orientation, Based in Science.
For over a decade, P2 has worked to create on-the-ground, practical solutions to the plight of pollinators. These actions include the aforementioned Farm Bill authorizations, the National Academy of Sciences NRC report, the *Bombus terrestrus White Paper*, the U.S. Postal Service Pollination Stamp Series and more, including:

- FREE Online Ecoregional Pollinator Planting Guides for farmers, public land managers, and gardeners available at http://www.pollinator.org/guides.htm
- FREE Online Education Curriculum, ***Nature's Partners***, for grade 3 to 6 available at http://www.nappc.org/curriculum.
- FREE daily LISTSERV to alert scientists, government officials and concerned stakeholders about pollinator issues
- FREE Outreach Materials for organizers, educators and professionals at www.pollinator.org
- FREE Pollinator Conservation Digital Library and experts databases at http://libraryportals.com/PCDL and http://pollinators.iabin.net.

The Pollinator Partnership stands ready to work with the Administration to advance policies and programs that will help to protect and sustain pollinators and their habitat.

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