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BUILDING BACK BETTER: INVESTING IN TRANSPORTATION WHILE ADDRESSING CLIMATE CHANGE, IMPROVING EQUITY, AND FOSTERING ECONOMIC GROWTH AND INNOVATION

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

FEBRUARY 24, 2021

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

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BUILDING BACK BETTER: INVESTING IN TRANSPORTATION WHILE ADDRESSING CLIMATE CHANGE, IMPROVING EQUITY, AND FOSTERING ECONOMIC GROWTH AND INNOVATION

WEDNESDAY, FEBRUARY 24, 2021

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

The Committee, met, pursuant to notice, at 10:18 a.m. in room 406, Dirksen Senate Office Building, Hon. Thomas R. Carper (Chairman of the Committee) presiding.

Present: Senators Carper, Capito, Cardin, Sanders, Whitehouse, Merkley, Markey, Duckworth, Stabenow, Kelly, Padilla, Inhofe, Cramer, Lummis, Boozman, Sullivan, Ernst, Graham, and Rounds.

OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Good morning, everyone.

I want to call this hearing to order.

We are delighted to be joined today virtually by a noteworthy panel of witnesses to discuss with us surface transportation infrastructure: Governor Whitmer, Governor Hogan, Mayor Hancock, and Commissioner Sheehan. We want to welcome each of them to the Senate Committee on Environment and Public Works' first policy hearing of the 117th Congress.

Here in Washington today, as I walked up from the train station, Union Station to the Capitol, I couldn't help but notice that the sun has come out. The weather forecast is 60 degrees, thank you, God, after a week of brutal winter storms. But despite the sun and the blue skies that greeted us this morning, our country still faces some major hurdles, as we all know.

While our economy is starting to show signs of life, close to 15 million people in the United States remain unemployed, and roughly half of them have given up looking for a job.

Across Texas, families are struggling to recover, as we know, from a catastrophic ice storm, with over 8 million people—8 million people—still without safe drinking water, the latest tragedy in the increasingly frequent extreme weather and climate events of recent years.

This comes on the heels of last year's raging wildfires in California and Colorado the size of my State, hurricane force winds in Iowa that flattened a third of that State's crops last year.

Get this, this is what John Neely Kennedy told me yesterday. He said every 100 minutes, Louisiana loses a football field of land to rising sea levels. Every 100 minutes. If that happened in Delaware, we would be gone in about a year, but they are disappearing in Louisiana, as well.

Scientists tell us that if climate change is left unchecked, these disasters are not going to get better; they will just get worse. A raging pandemic, as well, we face a raging pandemic. Millions of jobless Americans. A growing climate crisis that demands bold action.

The question is, what do we do about it? What do we do about it? Well, there is some good news. That is, as it turns out, smart investments in our transportation infrastructure will enable us to tackle all three of these challenges.

We can improve the conditions of our roads, highways, and bridges in ways that create millions of good paying jobs, lift up our communities, build a more sustainable economy, and improve our air quality for a healthier, more prosperous future for all of us.

The American people are counting on us to make this happen. They don't want to hear us talking about what needs to be done. They want us to work together and get it done.

As we gather today, less than half of our Federal aid highways and bridges are in good condition. Much of our infrastructure is significantly outdated. It was built for different ranges of temperatures, rainfall, and sea levels. In the last 10 years, we have put nearly $19 billion in emergency funds in addition to what we have already provided from the Highway Trust Fund.

Poor road conditions and design flaws create safety challenges, too. Motor vehicle crashes are one of the top causes of unintentional lethal injuries in the United States.

Pedestrians and bicyclists face particularly grave challenges as roads are too often designed without a safe place to bike or even cross the street. In the last decade, we have seen a 44 percent increase in pedestrian fatalities on our roads. Think about that: A 44 percent increase in just one decade.

The burdens of poor road conditions are disproportionately shouldered by marginalized communities. Low income families and peoples of color are frequently left behind or left out by our investments in infrastructure, blocking their access to jobs and educational opportunities.

So, there is a clear need for modernized transportation infrastructure that is safer and more sustainable while better ensuring that we treat other people the way we want to be treated. Fortunately, our Committee has a roadmap that will enable us to meet these needs and more.

Last Congress, as many will recall, our Committee unanimously reported a bipartisan reauthorization bill that outlined an historic investment in our Nation's surface transportation programs. Unfortunately, the full Senate never acted on it. But now, we have an opportunity to build on that promise and actually enact a bill that transforms our transportation sector into one that is more innovative, more resilient, and safer, while creating good paying jobs, lots of them.

Let me briefly touch on some of the key policy priorities for our next reauthorization bill that will help make that vision a reality. Auto manufacturers are preparing to greatly expand their lines of electric and hydrogen fueled vehicles, but too often, drivers lack access to the charging and fueling stations that these vehicles require.

America needs to build corridors of charging stations and hydrogen fueling stations across the country. We also have to make it easier for people to walk safely, bike, or take public transit, so driving isn't the only way to get where we need to go.

We need to strengthen our infrastructure so that it can withstand the devastating effects of extreme weather and climate change, which we are witnessing with alarming frequency. Last year alone, natural disasters fueled by climate change cost us over $95 billion in economic damage. Smart planning to make our infrastructure more resilient will save American taxpayers dollars while helping us avoid rebuilding the same infrastructure projects again and again after severe weather events.

As we work with State and local partners, there must be accountability to ensure that Federal funds are invested in well designed projects that expand equity and lift up our Nation as a whole.

Now, the most challenging part of any discussion on transportation infrastructure: How are we going to pay for it?

When I was new in the Senate, the guy who sat behind me was Ted Kennedy. I didn't know him very well, and one day, I suggested maybe we have a cup of coffee. He actually invited me to his hideaway for lunch, which was quite a thrill. I asked him there, during lunch, I said, "Why do all these Republicans want you to be their lead cosponsor on their big bills? Why is that? You are such a big, liberal Democrat from Massachusetts. Why is that?"

I will never forget what he said. He said, "I am always willing to compromise on policy; never willing to compromise on principle." That is what he said. Always willing to compromise on policy; never willing to compromise on principle.

Well, let's talk a little bit about some of the principles I hope we ought to be able to agree on in this regard. For one, much of our transportation infrastructure is in sorry shape. Unfortunately, a lot of it is getting worse, not better. This is not something the Federal Government should do alone. This is an all hands on deck moment.

The second principle that I think most of us can agree on is that things worth having are worth paying for. We can't just continue to put all of our improvements that are needed on our country's credit card.

I would suggest that a third principle should be that those of us who use our Nation's roads, highways, and bridges have a responsibility to help pay for them. Now, with principles like that, what I hope we will do is develop a bunch of policies that are consistent with those principles.

A growing number of people believe that a national vehicle miles traveled approach will eventually fund much of our transportation infrastructure in the not too distant future.

Mary Barra announced that General Motors, as Senator Stabenow knows—what is it, by 2035, they will not be building any more vehicles, cars, trucks, or vans powered by gasoline or diesel. That was a wake up call, wasn't it?

The reauthorization bill this Committee adopted unanimously in the last Congress called for a national VMT pilot for all 50 States. It was a good idea then; it is an even better idea now.

If vehicle miles traveled turns out to be a big part of the future of transportation funding, we are going to need a bridge, or likely, several bridges, to get us to that future for the next decade or so. For that, we are going to be looking to the Finance Committee for help; some of us serve on that Finance Committee, for help in funding the next 5 year reauthorization, and the Senate Committees on Banking and Commerce have major roles to play, too.

In closing, I am going to say last Congress, EPW led by example, something that we learned in the Navy, didn't we, Mark? We unanimously approved our bill to improve and expand our surface transportation programs, and we did it 14 months before the last 5 year surface transportation reauthorization bill expired. That was one, I think, authored by Senator Inhofe, if I am not mistaken.

It is imperative, however, that this year, our sister committees join us now to begin the critical work that needs to be done and to help get it across the finish line and signed into law long before this fiscal year ends.

Senator Capito and I, along with our staffs, are already getting to work. Last week, we invited all of our Senate colleagues, not just on this Committee, but all Senate colleagues, Democrat, Republican, Independent, to share with us their States' policy priorities, transportation policy priorities with us so we can begin drafting legislation not this summer, but this spring. Our goal is to mark up our bill and report it out of our Committee no later than Memorial Day.

I don't want to get our bill there alone without having some company from the Banking Committee and also from the Commerce Committee. They have to do their part as well, and then Finance.

The conversation we are about to have today in this hearing is critical to that effort. The stakes are high, and a lot of people across the country are counting on us to do our jobs in order to better ensure that they will have the kind of jobs that will enable them to support their own families far into the future.

Before we hear from our distinguished panel of witnesses, we are going to have some introductions. Before we hear those introductions, Senator Capito is going to be recognized, our Ranking Member, for her opening remarks.

Let me just say what a joy it has been serving with you on this new partnership, and we look forward to doing great work for our States and for our country.

OPENING STATEMENT OF HON. SHELLEY MOORE CAPITO, U.S. SENATOR FROM THE STATE OF WEST VIRGINIA

Senator CAPITO. Thank you.

Thank you, and I share the sentiment, Chairman Carper. We have a great thing going here, communication-wise. I thank your leadership and your partnership for today's hearing to kick off this process, which I think is important to every member, and I think we all tune into what we are going to do on a surface transportation bill.

I would also like to thank our witnesses, who are going to be with us remotely today. We look forward to hearing your perspectives on surface transportation policy and other issues of infrastructure importance to your State.

Mr. Chairman, I enjoy our regular conversations on the bill and other important matters before the Committee, and I enjoyed your opening statement, particularly talking about, since I serve on Commerce as well, I am in a good position to gig our chairman there, and the other committees that need to be so important.

I was really encouraged by the conversation that we had last week, or I guess 2 weeks ago now, with President Biden, Vice President Harris, and Secretary Buttigieg on the importance of what we are talking about today. I think the meeting signified a commitment by the Administration to see that this bill becomes a reality, as this is one of my top priorities as our Ranking Member.

It is also about more than just building our infrastructure. This bill can facilitate a recovery from the pandemic that has devastated our communities and wreaked havoc on our communities and our economy. Transportation infrastructure is the platform that can drive economic growth, all American jobs, right there, right on the ground, now and in the future, and improve the quality of life for everyone, on the safety aspects which you so well addressed.

I am optimistic we can deliver that bill before the current extension expires on September 30th, and I noted your commitment to Memorial Day is a good marker.

Our Committee has a strong track record of developing these bills in a bipartisan manner. Our former Chair can attest to that. We passed an excellent bill out of Committee, 21 to nothing, in 2019, that represented bipartisan consensus on issues such as climate change and expediting project delivery.

We can come together, and once again, use this bipartisan process to develop a bill that includes priorities from both parties. I know such a process is what you want as well, Mr. Chairman.

From my perspective, a surface transportation reauthorization bill must, No. 1, provide long term investment in our Nation's roads and bridges in a fiscally responsible manner without partisan or lightning rod pay fors, of course, that would be over in the Finance Committee, that could sink a bill.

The last thing we want to do is have a bill getting out of here that doesn't go anywhere. We experienced that last time; we don't want to experience that again.

We want to give flexibility to our States, and I think our panelists will give us a good idea of that, to address unique transportation needs. We want to keep the Federal interest focused on providing a connected network of roads and bridges to assure that all communities and the economy can thrive.

We want to facilitate the efficient delivery of projects, perennial issues, so that we can improve safety and resiliency of our surface transportation system, and we want to drive innovation. I think that is critical to help pave the way for the system of the future.

As we will hear from our witnesses today, certainty of funding, consistency of regulations, and flexibility in tailoring investments to suit the diverse needs of State, rural, and urban communities is essential. In West Virginia, for instance, we need additional highway capacity and bridge improvements to improve safety and increase our efficiencies.

Corridor H, which goes through the middle of our State, has been one of my biggest West Virginia transportation priorities. I have been working on this throughout my time in Congress. It is the last piece of the Appalachian Development Highway System needed to better connect West Virginia for interstate and intrastate traffic.

Our job is to provide a policy and programmatic framework that recognizes the different transportation needs across the country while balancing important national goals.

We also need to efficiently deliver projects that improve our roads and bridges. With an average of 7 years to complete an environmental impact statement for a highway project, surely everyone can agree that this process should be reviewed and improved upon.

We know time is money. The longer the time, the more money it costs, and the less likelihood that it actually gets complete.

We also know to look at other issues that can impact the delivery of projects and create a better process to move forward from concept to completion. For example, removing impediments to constructing reliable high speed broadband across the country in concert with our road projects. We cannot afford to delay the benefits to States and communities that come from these projects.

We should be forward leaning in tackling the transportation needs not just of today, but those needs of tomorrow. Driving innovation will be critical to supporting the surface transportation system of the future. It will also aid our efforts to reinvest in our existing system. That includes cutting edge technologies, like the Virgin Hyperloop, which will be tested and certified in Tucker and Grant Counties in West Virginia.

I am committed to working on these issues that are important to my friends on the other side of the aisle, and I know they are willing to do the same. There is a lot of common ground from both of our sides. We share the same goal: Getting a bill across the finish line that delivers on addressing the transportation needs of our entire Nation.

I will add, I hesitate to do this, because we have got a lot of good feeling going here, but to temper my optimism—should I stop now?

Senator CARPER. Your time has expired.

[Laughter.]

Senator CARPER. No, go ahead.

Senator CAPITO. I temper my optimism with a word of caution, particularly, when I read this morning the words from the Budget chair in the Senate on the direction this bill may go. The strong bipartisan support that exists for a surface transportation reauthorization bill and other infrastructure legislation should not extend to a multi-trillion dollar package that is stocked full with other ideologically driven one size fits all policies that ties the hands of our States and our communities. I look forward to being a partner and advancing infrastructure legislation in a bipartisan way.

Thank you very much, and I look forward to hearing the testimony.

Thank you.

Senator CARPER. Senator Capito, thank you very much for all of your statement. All of it.

Before we turn to our witnesses to hear from them, we are fortunate to have a panel of public officials who have all wrestled with the challenges of transportation at the State and local levels. I am privileged to know several of them, but not all of them.

We are going to hear their testimony in a moment, but let's just start with a few brief introductions. I am going to begin by recognizing Senator Stabenow to introduce our first witness from her State, her home State, the great State of Michigan.

Senator Stabenow, we are delighted that you are a member of this Committee. Delighted.

Senator STABENOW. Well, thank you so much, Chairman Carper and Ranking Member Capito. I have great confidence in both of your leaderships, and I am looking forward to really important work in a number of areas, particularly around surface transportation reauthorization.

Thank you for bringing together this distinguished panel to offer their collective insights and perspectives on how to address our Nation's pressing transportation needs.

I first have to say that I want to thank Governor Whitmer for her outstanding leadership in addressing the COVID pandemic, as well as, I know, Governor Hogan. I can't imagine more difficult decisions than the ones that you have had to make, certainly in Michigan, to keep people safe and save lives, so thank you. I know, again, Governor Hogan has had the same challenges.

I am very pleased that Governor Whitmer could join us today to speak about investing in infrastructure and what it means to the State of Michigan and to the Midwest and to our country, and frankly, our future. You have her bio in front on you, but I would like to add a few additional comments.

Governor Whitmer was elected in 2018 in part because of her promise to fix Michigan's aging infrastructure systems. Since being elected Governor, she put forward bold proposals to address the condition of Michigan's roads and bridges. She launched the Rebuilding Michigan Program to rebuild the State highways and bridges that are critical to our local economy and carry the most traffic.

So I look forward today to hearing her thoughts and ideas on how we are addressing climate change through infrastructure that is creating good paying jobs and leading us to a more sustainable future. I welcome Governor Gretchen Whitmer from the great State of Michigan.

Senator CARPER. Thank you, Senator Stabenow, and welcome, Governor Whitmer. I know you are out there, and we welcome you to our hearing today. We are honored to have you here.

I will now recognize my friend, Senator Ben Cardin, for another special introduction of my neighboring State's Governor, Governor Hogan.

Ben, please proceed.

Senator CARDIN. Thank you, Mr. Chairman. It really is a pleasure to welcome Governor Larry Hogan to our Committee.

Let me just assure our guests that are coming to us virtually that we are in a committee room that is complying with the CDC guidelines. We are distanced apart. But Governor Hogan, I am following your advice, and I am wearing the damn mask.

[Laughter.]

Senator CARDIN. For those of you who have seen the commercial that he has used, it is been, I think, very effective. I just really want to thank Governor Hogan and Governor Whitmer for being very clear from the beginning about the seriousness of COVID-19. The advice that you gave our citizens clearly saved lives.

So first, thank you for the leadership that you have shown during this pandemic. We all appreciate it. We are very much trying to work in partnership.

Governor Hogan was first elected in 2014 as the Governor of Maryland. As I think most of you know, he became the head of the National Governors Association. In that capacity, he worked with us in regard to the passage of the CARES Act, and in regard to the passage of the December COVID Relief Package. Thank you very much for your work in that regard.

We have Team Maryland. Our congressional delegation works very closely with our Governor on the needs of our State. We couldn't have, I think, a more important witness to talk about the transportation needs.

Maryland set up many years ago a consolidated trust fund, so that we can share the resources in any mode of transportation and use it to be able to advance the transportation needs of our State. It gives us much more flexibility.

But I know Governor Hogan will share with us the tremendous needs that we have in the State of Maryland, and we need a more robust Federal partnership.

Yes, Senator Capito, I could talk about the Appalachia Highway Program. We need to complete that, and we need resources for that. I could talk about the Bay Bridge and the eastern part of our State.

But when we look at our urban centers, we have desperate equity needs. We need to advance our transit in the Baltimore area. It is absolutely essential. We have the WMATA system in the Washington area, the Purple Line. We have the concerns in Southern Maryland as far as transit is concerned in regard to rail. Very appreciative that we got an INFRA grant that allows us to move forward with the Howard Street Tunnel, which is critically important for freight traffic on the East Coast of the United States.

But we have passenger rail needs for high speed rail in order to deal with the gridlocks that we have in our community. Yes, we have bridges that need to be replaced, we have roads that need to be done, we have the I–270 issue.

So there are so many issues in our State that we need a more robust Federal partnership so that we can deal with the issues Chairman Carper has mentioned, and that is the equities and the climate change and those issues, in a way that can be a win-win situation that we modernize our transportation needs, and we can also deal with our equity and environmental issues. I am pleased that Governor Hogan is here to share his wisdom on those issues with our Committee.

Senator CARPER. Thank you, Senator Cardin. I just want to say, Senator Cardin and I like baseball, and so does Senator Stabenow and maybe some other folks on this panel. Every now and then, Ben will take me with him to see an Orioles game. I am a huge Detroit Tigers fan, and I have a baseball signed by Al Kaline, Mr. Tiger, who grew up and played sandlot baseball where?

Senator CARDIN. Baltimore City.

Senator CARPER. Baltimore. He won the American Batting Championship at the age of 21, and he passed away last year. A great human being.

Senator CARDIN. Are you going to give me that one?

Senator CARPER. I have several of these; I could probably do that.

In any event, I brought my Detroit Tigers hat, and I would just say, and my Al Kaline baseball, from where Al Kaline started in the sandlots of Baltimore.

That is a little bit of a history lesson that involves all of us, but one that I think is maybe worth mentioning at least briefly here today.

I take my hat off to our panel today, and again, Governor Hogan, our neighbor across the water, welcome to this hearing.

We have two other esteemed witnesses on our panel today, Mayor Michael Hancock, who is joining us from Denver, Colorado, the mayor of Denver since 2011, a decade.

Thank you, Mayor, for taking time out of your busy schedule to join us.

We are also fortunate to have Victoria Sheehan, not Shaheen, we have a Senator named Shaheen, but Commissioner of New Hampshire.

I wonder if people get that confused, Ben. I bet they probably do, up in New Hampshire.

Anyway, Commissioner, we are delighted you are here to testify with us virtually. Currently the President of the American Association of State Highway and Transportation Officials. So I can tell my wife tonight that we actually heard from the President, which you don't really hear from every day.

Our thanks to all of you for joining us. Thanks for your preparation. Thanks for joining us virtually.

Governor Whitmer, we are going to start with you. You may proceed when you are ready. Thanks so much.

Thank you all. Welcome, one and all.

Governor Whitmer.

STATEMENT OF HON. GRETCHEN WHITMER, GOVERNOR, STATE OF MICHIGAN

Ms. WHITMER. Thank you, Mr. Chairman, and go, Tigers.

I am glad to be with you and Ranking Member Capito and members of the Committee. Thank you for inviting me to testify before your first hearing of the 117th Congress.

I also want to thank Michigan's own Senator, Debbie Stabenow, for the kind introduction.

I am honored to appear before you today to discuss how investing in transportation and leading on climate change are pathways to economic growth in Michigan and across the country.

I want to talk about what is possible if we work together to address the big challenges head on. I am glad to be here with my friend, Larry Hogan, who you quoted as saying, “Wear the damn mask.” Well, before that, I was known for running on and getting elected to “fix the damn roads” in Michigan. I have to say that we need significant investments in our roads and bridges.

Since taking office, my administration has been focused on taking action to build and to rebuild a better Michigan. Our focus on infrastructure has not waned during the COVID-19 pandemic. I will work with anyone who wants to build up our roads and bridges, including our Federal partners. We welcome it, because without significant investments in infrastructure, my State and our Nation will struggle to remain competitive.

A total of 43 percent of Michigan’s major roads are in poor or mediocre condition, and approximately a thousand local bridges are in poor or critical condition. Driving on deteriorated roads and bridges costs Michiganders $4.67 billion annually. That is $659 per motorist. Damaged infrastructure in any area affects personal mobility, affects our safety, and it slows our economic recovery. We have a big opportunity in front of us.

At the start of my term, I proposed spending $2.5 billion to fix Michigan’s roads, but we could not reach a consensus in Lansing. Doing nothing was not an option, so I implemented Plan B, and that is a $3.5 billion bonding program called Rebuilding Michigan to restore our State trunklines. This year, I proposed $300 million in my budget to begin tackling our backlog of closed or critical condition bridges.

The pandemic has had a devastating impact on our transportation revenues, and we desperately need Federal assistance. Doing nothing shouldn’t be an option at the Federal level, either, and I am heartened by the opening comments of today’s hearing. We need long term, sustainable, Federal sources for our infrastructure.

I hope the Committee considers the stakes of the moment that we are in as it drafts the transportation reauthorization bill this year. But we also need a plan that goes beyond just roads. We need a national vision when it comes to transportation, much like the interstate highway system offered 65 years ago. To build a more equitable economy and tackle climate change, we need your help, your leadership.

For too long, there is been a misconception that preparing for the future comes at the expense of economic growth and good paying jobs today, but it is not a binary choice. It is not an either-or; it is really a both-and. The health of our economy is inextricably linked to the health of our people and our planet.

Whether it is a global pandemic or natural disasters caused by climate change, we have seen first hand how failing to invest in environmental protection and public health can devastate our country. In the industrial States like Michigan, we have lost jobs to automation and modernization.

In the past, big changes created winners and losers, and the government didn’t get involved until after the fact. This time, we have got to put workers and communities first, and ensure that people who are threatened by change are able to benefit from it.

Electrification will create jobs, and Michigan is leading in this space. Since I was sworn in in 2019, we have announced over 11,400 new auto jobs, and more on the way. We have committed to being carbon neutral by 2050, a goal that is aggressive and means that we are going to have to work together to achieve it. We have incredible assets, like the American Center for Mobility, and a 40 mile driverless lane from Detroit to Ann Arbor that Senator Stabenow was a part of announcing.

There are great jobs that can be created by new mobility technologies as well, but it is going to require a new set of skills, and that is something where I think we can partner as well.

Michigan has earned several names or expressions over the years. We are the State that put the world on wheels, the birthplace of Motown, the arsenal of democracy during World War II. In the next century, Michigan is going to be the arsenal of ideas and innovation.

At the national level, we have to invest in resilient infrastructure, emerging industries, and transportation. We need policies that will uplift communities that are disproportionately impacted by the transition, address environmental justice, and tackle climate change.

We can't shrink away from the crises that we face. We have to go big and be bold, so let's get to work.

I thank you so much for having me today, and I am really looking forward to your questions, and of course, hearing from my fellow witnesses. Glad to be with you.

[The prepared statement of Ms. Whitmer follows:]

WRITTEN TESTIMONY

OF

Gretchen E. Whitmer
Governor, State of Michigan

HEARING ON

"Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."

Committee on Environment and Public Works
United States Senate

February 24, 2021

Mr. Chairman, Ranking Member Capito, and Members of the Committee, thank you for the invitation to testify before this, your first legislative hearing of the 117th Congress. I am more than pleased to appear before you today about what's possible if we work together to address issues head-on, and how a commitment to investing in transportation and leading on climate change and equity are pathways to economic growth and innovation, not only in my state, but also across the country.

Since taking office, my administration has been focused on taking bold action to build – and rebuild – a better Michigan. Our focus and investment on improving critical infrastructure has not waned during the unprecedented COVID-19 pandemic, and I welcome all to the table, like this Committee and all our federal partners, who can help us achieve our goals.

Rebuilding Michigan

It is important for me as the "Fix-the-Damn-Roads Governor" to start by saying that we need significant investments in our roadways and bridges. Without this significant investment, we struggle to remain competitive for businesses and families. According to TRIP, a national transportation research nonprofit, a total of 43 percent of Michigan's major roads are in poor or mediocre condition and driving on deteriorated roads costs Michigan motorists $4.67 billion a year – $659 per motorist – in the form of additional repairs, accelerated vehicle depreciation, increased fuel consumption, and tire wear.[1]

[1] https://tripnet.org/wp-content/uploads/2020/04/TRIP_Fact_Sheet_MI.pdf

At the start of my term, I unveiled a proposal to raise the state gas tax, which would have generated \$2.5 billion a year to fix the state's crumbling roads. Unfortunately, bipartisan consensus in Lansing could not be found to support it. Doing nothing isn't an option for me, so that's why I put forward "Plan B" – a \$3.5 billion bonding program called "Rebuilding Michigan" to help rebuild the state highways and bridges that are critical to the economy and carry the most traffic. This is being done without raising taxes and will support thousands of good-paying jobs for our hardworking union construction workers in the state.

The first \$800 million of the Rebuilding Michigan bond issuances closed last September. As a testament to the Michigan Department of Transportation's (MDOT) creditworthiness and our timing, that \$800 million in principal generated \$1.1 billion in bond proceeds. Investors paid a premium, acknowledging strong endorsements of ratings agencies. The investment strategy is aimed at fixes that result in longer useful life and improves the condition of the state's busiest commercial and commuter corridors. Rebuilding Michigan allows MDOT to rebuild major segments of highly traveled interstates in Michigan, such as I-69, I-75, and I-94, as well as several other busy freeways. When all of the \$3.5 billion in bonds are sold over the next few years, they will finance or help accelerate rebuilding or major rehabilitation of hundreds of major highway segments across the state.

To be sure local infrastructure needs are also addressed, I have put forward a plan to repair or rebuild hundreds of local bridges. Michigan has approximately 1,000 local bridges in poor or critical condition, many of which have load restrictions and 59 of which are completely closed because they are no longer safe for traffic. Closed bridges, whether in urban or rural areas of my state, not only adversely affect personal mobility, but they also slow our economic recovery by impeding the flow of agricultural products to market, raw materials like lumber to paper mills, and the movement of materials and products associated with our manufacturing industries. As part of my budget proposal to the Michigan State Legislature this year, I have requested approval of a supplemental budget authorization of \$300 million of our state's precious general funds to start chipping away at this backlog and reopen the closed bridges. Building off a successful local bridge bundling pilot project led by the MDOT, in collaboration with our county and city road agencies, this new investment by our state will make a measurable impact. But it is not enough.

Just as the State of Michigan seeks to be a good partner with our local road agencies, we also have sought to be an innovative partner in high profile projects of great promise. For example, we have partnered with Canada to deliver the Gordie Howe International Bridge project. Construction of the bridge – which will link Windsor and Detroit, Ontario and Michigan, and Canada and the United States – is well underway. The Gordie Howe International Bridge will greatly enhance the flow of commerce throughout our entire region and, in particular, with Canada, our most important trading partner; Michigan exports nearly \$25 billion in goods to Canada annually, representing 41 percent of the state's total goods exports. Making this state-of-the-art international border crossing a reality requires a collaborative effort with another government and many other stakeholders. We have a good record of forming successful partnerships to achieve shared goals, but we need focused, long-term, and sustainable funding sources for continued progress on the infrastructure front. The status quo cannot be an option.

Investing in Tomorrow, Today

For too long, there has been a misconception that you can either have environmental protections and public health safeguards or economic growth and good-paying jobs. This is not a binary choice. In fact, the health of our economy is inextricably linked to the health of our people and our planet. This can be a challenge, but we can manage it if we work together.

In industrial states like Michigan, we have seen the loss of jobs to automation, modernization, and market changes. But our economy is vibrant. Michigan is not just the auto capital of the world, we're the advanced mobility leader. Since I was sworn into office, I've announced more than 11,400 new good-paying auto jobs. We've also committed to decarbonizing the state economy-wide by 2050 – and for the state that put the world of wheels – that means aggressively advancing the future of mobility and electrification. Mobility solutions are climate solutions.

Transportation is the biggest source of climate pollution in America. Focusing on electric trucks, buses, and cars – and the batteries that will propel them – will create jobs for the future, clean the air, and help us compete with Europe and China in this rapidly expanding market. Michigan is leading the way in this work.

My state is home to the richest cluster of engineering talent in the country and has the world's most diverse collection of autonomous vehicle testing environments, such as the American Center for Mobility, for both early- and later-stage technologies. Assets like these have helped us attract billions in new investments to fund innovative mobility projects, leading to new technologies being developed and deployed in our state and expanding on our traditional strength in the automotive sector. For example, Michigan is developing a first-of-its-kind, 40-mile driverless vehicle lane between Detroit and Ann Arbor, is working towards building an electric vehicle charging network that connects the entire state by 2030, and has the largest deployment of a Vehicle-to-Infrastructure (V2I) communications network in the world, covering over 500 miles of roadway.

We must work together, not just to fix our failing infrastructure, but to modernize it in ways that leverages new technologies, transforms communities, balances the safety of all users, and facilitates the transformation to connected, autonomous, shared, and electric vehicles. We can lead the world on autonomous and electric vehicles, or we follow. Investing in needed infrastructure will play a critical role in making us – our country – a winner in this space. This is our moment.

Federal Support for States

To effectively rebuild our infrastructure while concurrently supporting our economic growth, states need a supportive and productive partnership with our Federal Government.

The COVID-19 pandemic has had a devastating impact on Michigan's transportation revenues. Our state lost 7.4 percent of expected state Michigan Transportation Fund revenue in fiscal year 2020 and anticipates it will lose another 5.1 and 4.8 percent in revenue in both fiscal year 2021 and 2022, respectively. Michigan, like so many states, desperately needs federal assistance to support its transportation and infrastructure goals and needs.

That is why it is imperative for Congress to enact a timely reauthorization of long-term federal surface transportation legislation with funding that is both predictable and sustainable. Funding stability provided by federal transportation programs is crucial for Michigan's extensive capital investment needs, the needs which take multiple years to plan and construct, especially during a time of financial duress. Short-term program extensions are damaging because they can cause unnecessary program disruptions and delay essential safety and mobility benefits to Michigan communities.

A key feature of reauthorization should be shoring up and stabilizing the Highway Trust Fund. Now how to get there has been debated for years as we all know, and I am not before you today with the answer, but we know that for too long, the Trust Fund has been kept artificially solvent by the transfer of general funds. While often necessary and helpful to stave off crisis, that is not sound budgeting or good policy. As a governor who has been forced to transfer general funds to Michigan roads to prevent further decline, I understand these pressures firsthand.

As you look to craft your reauthorization bill this year, I would ask you to support bold action to reduce carbon pollution from transportation and prepare our transportation system for climate change impacts that are unavoidable. We welcome efforts that can incentivize climate mitigation and resilience in formula and competitive grant funding and support the full transition to electric. With domestic automakers in my state pledging billions to develop and sell more electric vehicles in the coming years, the effort made by this Committee in 2019 to create new competitive grants for alternative fuel infrastructure – a $1 billion program for states and localities to build alternative fueling infrastructure along designated highway corridors – is especially relevant, important, and needed.

As mentioned above, it is tremendously important to incentivize resilience in transportation investments so that the impacts of climate change can be better weathered. Congress should expand infrastructure betterment eligibility, which would make it easier for states to incorporate resilient design and infrastructure materials when using Emergency Relief funds after natural disasters. A federally declared flooding disaster event last year washed area roads and two dams in mid-Michigan, causing immense damage and strife as the state was in the middle of dealing with the COVID-19 pandemic. An expansion of betterment eligibility would allow us to, as we rebuild, improve the resilience of Michigan's infrastructure against future extreme weather events.

Vision for the Future

When talking about investing in transportation, we need a national vision that invests in innovative transportation ideas and needs across our country, much like the Interstate system did 65 years ago, and makes us the envy of the world.

In order to make our economy more equitable for workers and address issues like climate change head-on, we need your help. We need to ensure that these transitions are equitable, and that policies to protect workers and communities are put in place early so we can stop them from being left behind or displaced. This includes workforce investment to ensure the workforce of tomorrow is prepared for a changing transportation sector.

In Michigan, we have recognized that we need more skilled workers, which is why I launched the 60x30 initiative, setting the goal of having 60 percent of Michigan's workforce obtain a post-high school degree or certificate for an in-demand skill by 2030. We welcome Federal Government support to help us achieve this goal by providing funding for critical workforce and education initiatives. Last year, we announced the Future for Frontliners program, a scholarship program for Michiganders without college degrees who worked in essential industries during the state COVID-19 shutdown in the spring of 2020. The program will provide these frontline workers with tuition-free access to local community college to pursue an associate degree or a skills certificate, either full-time or part-time while they work. Additionally, our innovative post-secondary programs in Michigan, such as Michigan Reconnect, provides a tuition free pathway to a two-year degree for adults over 25, and the Going Pro Talent Fund helps employers train and place workers into high skill jobs.

With bold policy direction and a commitment to sufficiently invest in our future at the federal level – be it transforming fleets to include more electric vehicles or investing in emerging technologies and critical supply chains here at home as examples – states can respond and help the Federal Government implement a bold, modern infrastructure foundation upon which our nation's economy can grow and flourish for decades to come, and all the while, support a commitment to improving the environment and lives of our citizens.

Conclusion

My state has earned several names or expressions over the years. We are the birthplace of Motown. We put America on wheels. We were the Arsenal of Democracy during World War II. More recently, we became part of a nationwide arsenal of health as so many of our large and small manufacturers quickly shifted to make the masks, shields, and innovations our frontline heroes needed. Our manufacturing heritage brings us pride – ask anyone who has seen the long awaited COVID-19 vaccine depart the Pfizer plant in Portage, Michigan.

The same holds for my state as an arsenal of ideas and innovation that welcomes federal leadership at this time to harness the moment — not shrink from it — to go big. Invest in the needed infrastructure and policies to address the reality and challenges of climate change and provide environmental justice to communities long underserved. Doing so will indeed build us all back better.

Let's get to work.

Senate Committee on Environment and Public Works
Hearing entitled, "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."
February 24, 2021
Questions for the Record for Governor Gretchen Whitmer

Senator Carper:

1. As a public executive, you carry the responsibility of the public's trust, and are accountable to those you serve. Congress set national goals in 2012 to reduce highway fatalities and keep our roads and bridges in good repair. And since 2012, Congress has provided states with more than 400 billion dollars through the federal highway formula programs. Yet traffic fatalities in 2019 were higher than they were in 2012, and twenty percent of states had more bridges in poor condition in 2019 than they did in 2012. Do you agree that performance accountability is critical, especially when it comes to ensuring federal investments support safety and other national goals?

   Performance accountability is critical, especially for safety and other national goals. Congress' efforts to articulate performance expectations is an important and valuable exercise. But we also need sufficient federal investment to make achievement of those standards and performance expectations possible. In Michigan, like many states, we had declining bridge conditions and increased traffic crashes and fatalities during the initial reporting periods. This has not been for lack of effort. Michigan transportation agencies have employed leading practices of asset management to manage bridge condition within the financial resources available to us. In fact, Michigan has a long history of improving our asset management practices, starting with the establishment of a statewide, cross-jurisdictional Transportation Asset Management Council in 2002. Similarly, with regards to traffic safety, Michigan has employed numerous strategic efforts to reduce traffic crashes and fatalities.

   MDOT is committed to the goal of reducing traffic crashes and resulting injuries and fatalities. The department implements data driven countermeasures, such as intersection-related improvements, including signalization and geometric changes, by converting traditional intersections to roundabouts where feasible. Other improvements include converting four-lane roadways to three lanes, restriping improvements, the installation of centerline and shoulder rumble strips, guardrail upgrades, clear zone improvements, delineation, signing and other projects that target locations that have experienced fatal and incapacitating injury crashes. These projects, along with other research and systemic and systematic safety improvements, including safety funding for local agencies for road safety audits, have provided the foundation for deeper understanding of crash characteristics and prospective countermeasures.

   Crashes are not accidents, and Michigan encourages Congress to take the next step to provide adequate funding to achieve our national goals and expectations for our transportation system.

Senator Whitehouse:

1. States currently have very different rules from one another around how consumers pay for EV charging. This could be its own obstacle to EV deployment. For example, part of what makes long-haul trucking such a relatively smooth experience is that the cost to fill up a truck only varies by about 10-20% across the country. With current charging rules, costs for charging up an electric truck will have the potential to vary by many times that amount. Do you see a need for updated laws, rules, and standards pertaining to EV charging?

   Creating a common user experience for an EV driver and common operation of the charging network - no matter the state - is important to encouraging EV adoption and future-proofing interstate travel and commerce. Governors and states are perhaps uniquely situated to help develop a base level of commonality, while also avoiding the trappings that a one-size-fits-all approach can sometimes result in, and the establishment rules that may be perceived as barriers to entry for this still burgeoning, young market of EV charging.

   Michigan is currently co-leading the discussion in the Midwest to establish a multi-state regional charging network, similar to those you've seen in the Mountain-West and Atlantic-Northeast, that is intended to not only optimize the buildout strategy and more efficiently deploy public resources, but also to standardize regulations and customer interfacing. Perhaps once we have more regional networks in place and they are growing in size, then we will see standardization efforts being co-developed at a more national level.

2. Rules governing EV charging have the potential to exacerbate existing economic disparities. For example, people who live in multi-unit housing and rent their home – a population that is disproportionately low-income and minority – often must pay three to four times what homeowners pay to charge their vehicles. These higher costs come as a direct result of high "demand charges" that utilities impose on commercial charging stations, which according to Rocky Mountain Institute make up as much as 90% of the stations' utility bills. In recent years, a few states have taken up the issue and reformed charging rates for electric vehicles. Do you agree that it is important for all states to initiate utility rate reform for electric vehicle charging in order for our nation to attain our transportation electrification goals in an equitable way?

   We have more than an opportunity, rather an imperative, with the Mobility Revolution and automated, connected, shared and electric vehicles to do-it-right-the-first-time when it comes to equitable transportation solutions. Improving the rate design for charging stations will be essential to encouraging the further deployment and utilization of residential and commercial EV chargers and will help to ensure that we shift this increased load to cheaper times and non-peak hours.

In Michigan, there is currently a demand charge "holiday" for DCFC chargers in several electric utility service areas; this allows for DCFC chargers installed and operated in those service territories to avoid demand chargers for a certain period of time. Demand charges, however, are not necessarily arbitrary. The "spikey" or sporadic high kW demand associated with DCFC chargers translates to higher amounts of demand spread over a shorter duration or fewer kilowatt hours. Demand charges help to recover the costs associated with this higher and more sporadic demand, and reflects the higher relative cost associated with providing power to this type of load. Absent the demand charges or another rate design mechanism, the additional cost to serve these customers would have to be recovered from other ratepayers. Again, further exploration and discussion of alternative rates for DCFC chargers will be critical to supporting further EV adoption while not wholly shifting the cost burden associated with charging these vehicles to other ratepayers. It should be said that increased EV adoption and the associated increased load associated with charging these vehicles has the potential to lower costs for all ratepayers by spreading the fixed cost to maintain the grid over more kilowatt hours, thereby lowering the cost per kilowatt paid by each customer.

As an aside, there are other policies that we can utilize to address equity and public health through vehicle electrification, including the following:

- *Incentivize the electrification of public transit, school buses, and other large commercial vehicles in historically marginalized and impacted communities; this would allow for lower emissions and reduced O&M costs for those communities and their residents.*

- *Incentivize or subsidize chargers placed at multifamily housing to encourage installation of this equipment by property owners and address the split incentive that exists between tenants and building owners.*

- *Encourage the Department of Energy to invest in research that can assist states in reducing the soft costs (permitting, licensing, interconnection process, etc.) of installing EV chargers.*

- *Federally incentivize exploration of V2G and bidirectional power flow technologies that would result in EVs helping mitigate low-income households' demand for power purchased off the grid during peak usage time and avoid demand charges.*

3. In infrastructure projects, innovative material have the potential to improve efficiency and extend useful life. For the materials to compete with traditional ones, standards need to be updated so engineers feel comfortable using newer materials in their designs. This issue was highlighted in the National Academies' report on innovative materials in bridges. The House-passed highway bill from last Congress included several provisions of the IMAGINE Act led by Rep. Cicilline. Do you support the adoption of materials that will last longer and cost less than traditional materials in our highway infrastructure?

Yes, Michigan supports the adoption of materials that last longer and cost less than traditional materials in our highway infrastructure. Michigan is proud to be a leader in pursuing and implementing innovation, including new materials that produce better outcomes. MDOT has built a dozen bridges using Carbon Fiber Reinforced Polymer (CFRP) reinforcement, and in partnership with Lawrence Technological University, has developed design guide specifications, standard details, and training for designers and practitioners. MDOT has become a leader in implementing this innovation and is helping other states incorporate CFRP into their bridges, such as Ohio, North Carolina, Virginia, and Maryland. MDOT has also lead pool-funded research projects with other states such as Ohio, Florida, Oregon, and Virginia on further research on FRP composites. In addition, the MDOT Chief Bridge Engineer is chair of the American Association of State Highway and Transportation Officials (AASHTO) Committee on Bridges and Structures technical subcommittee on FRP composites, which has published several design specifications, and has shaped national policy on FRP.

The application of new materials is always important to us, but so is our responsibility as government entities to protect the public safety and welfare. To effectively determine if new materials will perform as expected requires patience, and the means to evaluate performance over time. Additionally, until new materials are broadly available and adopted, they are often initially more costly, and so increased investment to incentivize their use is helpful. Finally, having a robust, national research program would be beneficial to advancing the adoption of innovative materials, technologies, and practices.

As an example, Michigan took part in the Strategic Highway Research Program 2 which was created nationally to find strategic solutions to three national transportation challenges: improving highway safety, reducing congestion, and improving methods for renewing roads and bridges. Research was focused in four areas--safety, renewal, reliability, and capacity. More details are available at: www.TRB.org/SHRP2 .

4. U.S. ports are significant sources of emissions through heavy equipment, vehicles, and vessels in action at the facility. Efforts to reduce these emissions through electrification efforts will support reductions in these emissions. Do you support additional funding to electrify and reduce emissions at our ports? Do you support additional funding to electrify our vessels that use the waterways?

   Michigan is in support of improving the efficiency and competitiveness of the Great Lakes maritime transportation system, including efforts to invest in vessel electrification. Michigan Technological University is currently conducting research in automated movements of water freight traffic, which could be part of the foundation for planning and deploying electrification on our waterways. Electrification also presents an opportunity to reduce traffic and emissions at the ports. Assistance in electrifying fleets and reducing traffic through congested areas would be immensely helpful for the state of Michigan.

   In addition, the Great Lakes St. Lawrence Governors & Premiers (GSGP), of which Michigan is a member, has partnered with the maritime industry, universities, and other *stakeholders to create the Smart Ships Coalition. The Coalition is working to establish the region as a global center of excellence for researching, developing, and testing smart ship technologies both on vessels and on shore. GSGP worked with Hamburg Port Consulting to research how smart ship technologies can improve the efficiency of the maritime system. One example is the use of route optimization, allowing the ship operators to save fuel, operating hours, and emissions. Just-In-Time Arrival technology also enables a vessel to maintain optimal operating speed to arrive at the Pilot Boarding Place (i.e., the place where the pilot needs to board the vessel in order to navigate it to the dock) only when the availability is ensured, resulting in fuel savings from reduced waiting times. Michigan looks forward to continued efforts by the GSGP to leverage smart shipping, increase maritime efficiency and improve environmental performance.*

We know there is a heavy source of emissions from equipment, vehicles, and vessels at ports. It is important that we electrify ports as quickly as we can. States, like Michigan, are currently planning to use vital Volkswagen settlement dollars to do this. However, those fund dollars could otherwise be utilized in electrifying the car park. This is why it is so important for Congress to reauthorize the LIFT Act and support funding to state energy offices to fund port electrification efforts in ways that us achieve climate goals and the green economy.

Senator Inhofe:

1. Governor Whitmer, I appreciate your administration's focus on improving Michigan's infrastructure, however I remain concerned about destructive "Green New Deal" policies that will have major impacts on different parts of the country. Notably, as you may be aware, California has proposed to ban new internal combustion engine (ICE) vehicles by 2035. This is simply out of touch with America, especially the U.S. agricultural sector. Additionally, a number of States, including Massachusetts, New York, New Jersey, Washington, and the District of Columbia, have already signaled that they will pursue versions of California's vehicle ban as well. An ICE ban/electric vehicle (EV) mandate would force hardworking farmers, ranchers and others in the agricultural sector to purchase EVs at significantly higher costs. These EV mandates would deal a severe blow to America's farmers and ranchers and the millions of people who work in those industries.

    a. Do you support the policy to ban the sale of new vehicles with ICEs starting in 2035?

       Global auto manufacturers have made significant investments in electrifying their light and mid-duty vehicles and companies like General Motors have committed to eliminate gasoline and diesel light-duty cars and SUVs by 2035.

       Transportation is the biggest source of climate pollution in America. Focusing on electric trucks, buses, and cars – and the batteries that will propel them – will create jobs for the future, clean the air, and help us and our companies compete with Europe and China in this rapidly expanding market.

b. Is this policy problematic for those working in the U.S. agricultural sector?

Manufacturers have a lot of work to do to develop electrified heavy-duty vehicles to help meet the needs of our agricultural sector.

c. How would you address the issue of building out electric vehicle charging infrastructure to rural communities?

Key to the continued innovation and development of electric vehicles is the adoption of light and mid duty vehicles and the subsequent build out of publicly available charging stations capable of serving light-to-heavy duty vehicles. Over the past 2 years, between state and local dollars, our utility providers, and auto manufacturers, the state of Michigan has invested millions of dollars in electric vehicle charging infrastructure – among the most in the Midwest. With those stakeholders, we are working to build an electric vehicle charging network that connects the entire state by 2030 – and hopefully will connect with other networks across the Midwest.

Our charging infrastructure across the country has to be connected to provide assurances to families, business owners, and rural and urban communities alike that they can travel comfortably and ensure that access to charging is convenient and reliable to increase adoption of electric vehicles.

Senator Lummis:

1. In order to maximize return on investment when it comes to federal dollars being spent on infrastructure, Congress needs to address project delivery. The previous administration addressed these issues with the One Federal Decision policy. As Congress begins working on the next highway bill, what opportunities should Congress explore to expedite project delivery.

   Federal procedures should recognize the reality of the "digital divide" affecting many different communities that are stakeholders in agency decision-making. The communications modes and procedures used by agencies should not exacerbate the communications challenges that some communities may face in, for example, the NEPA process, including some Tribal communities, rural residents, impoverished areas, and areas without robust, affordable internet service. Innovation in NEPA-related communications should expand and strengthen information flow between the public and decision-makers, such that efficiency and quality improve hand-in-hand. In some cases, the best form of communication may not be the most modern, and agencies should have discretion to match modes of communication to the particular circumstances of different constituencies.

   Widespread use of innovation is also essential to meeting customer needs and increasing the efficiency of project delivery. FHWA's Initiatives such as Every Day Counts (EDC) and State Transportation Innovation Councils (STIC) among others are designed to promote innovations and support the highway community partnerships by putting them *into practice. Whether through training, workshops, demonstrations, technical assistance or incentive funding, the result of these initiatives is rapid technology transfer and accelerated deployment of innovation. More detail is available about the Michigan STIC at: https://www.michigan.gov/mdot/0,4616,7-151-9623_61313-507811--,00.html .*

2. Do you believe that the strict federal oversight that happens on large infrastructure projects in your state cause delays due to permitting issues?

   Michigan does not have the same issues as other states due to how federal permitting is delegated to our various agencies in our state, however, my administration supports the goal of expediting the delivery of transportation and other infrastructure projects while also protecting the environment.

3. Should the One Federal Decision policy, or a similar policy, be codified into law?

   Michigan supports updating federal regulations in a way that reflects current technologies and agency practices, encourages brevity, and promotes better decision making. Overall, lead agencies need flexibility to conduct, for example, NEPA environmental reviews in a way that minimizes financial and administrative burdens, informs public decisions, protects the environment, and avoids unintended consequences such as public or agency uncertainty or increased litigation risk.

4. Do you believe that your state can deliver high-quality infrastructure projects that account for environmental outcomes without extensive federal oversight?

   a. If yes, please explain what specific provisions are causing delays in your state.

   b. If no, please explain how your state has been able to successfully expedite project delivery.

   In Michigan, we do not experience excessive federal oversight, due to the use of Programmatic Agreements with the federal government that help streamline environmental review and compliance processes. We also do not have very many infrastructure projects that require complex environmental review processes and the preparation of an Environmental Impact Statement, for example.

   If we did have more of these types of projects, we would explore National Environmental Policy Act (NEPA) assumption, which Congress has authorized in past transportation legislation. We recommend that Congress continue to allow states to assume NEPA responsibilities for the federal government and seek ways to make NEPA assumption easier to pursue and maintain.

Senator CARPER. Governor Whitmer, thanks for your testimony.

Senator Barrasso, who used to sit, actually, used to sit right here as the Chairman until very, very recently; he and I love music. Every now and then, we have quips about music. I am trying to think of a Motown song that might be appropriate for us as we get ready to get started. I don't know it was the Temptations or the Four Tops, but Get Your Motor Runnin', Head Out on the Highway, Get Ready, Here We Come, one of those two probably works. So, get ready, here we come.

Thank you, Governor, and thank you also for sending us Gary Peters and Debbie Stabenow, two of our best.

Again, Governor Hogan, thanks for joining us this morning. You may proceed with your testimony. Thanks, Governor.

STATEMENT OF HON. LAWRENCE J. HOGAN, JR., GOVERNOR, STATE OF MARYLAND

Mr. HOGAN. Well, good morning, Chairman Carper, Ranking Member Capito, my Team Maryland member, Senator Cardin, thank you, and members of the Committee. Thanks for having me.

It is also really good to be with my colleague and friend, Governor Whitmer, this morning.

As chairman of the National Governors Association, pre-COVID, I launched a national infrastructure initiative, which was focused on repairing and modernizing America's infrastructure in ways that will drive long term economic growth while addressing short term recovery needs. It would encourage innovation and efficient approaches to delivering projects that build the transportation networks of the future.

For this national initiative, we brought together thought leaders from all levels of government, from business and labor and academia to get their input. We held a series of stakeholder summits across the country and around the world to tackle an issue that is so fundamental to our economy, our environment, and our way of life.

We released a final report with a series of recommendations, including a number related to the reauthorization of a long term Federal surface transportation bill. The National Governors Association recommends that States should be granted maximum flexibility to relieve congestion and to invest in adaptable and innovative solutions with more reliability and certainty of formula funding.

To reduce program burdens and improve project delivery, we recommend that the One Federal Decision policy should be codified for highway projects, to establish a 2 year goal for completion of environmental reviews and a 90 day timeline for related project authorizations.

We recommend that Congress make investments in resiliency and security to allow us to harness the full potential of financing and leveraging private sector investment, which has been critical to our success here in the State of Maryland, where we have taken a balanced approach, an all inclusive approach to infrastructure.

We are moving forward on nearly all of the highest priority transportation projects in every jurisdiction all across our State, and investing far more in roads and transit than any other administration in Maryland history.

We have over 800 projects, totaling $9 billion, in roads, bridges, and tunnels currently under construction. We have improved more than 85 percent of our entire State highway system, invested $150 million in innovative traffic congestion solutions, smart technology, and cutting edge smart signalization networks.

We advanced the Purple Line from Prince George's County to Montgomery County in the Washington Capital region, which is a partnership between the Federal, State, and local governments and the private sector. It is the largest P3 transit project under construction in North America.

Just last week, we announced the procurement of a developer for the largest P3 highway project in the world to relieve traffic congestion on I–270 and I–495, the Capital Beltway, and to finally build a new American Legion Bridge across the Potomac River. My fellow Governors all across America have similar success stories to share.

In States throughout the Nation, they are upgrading roads, bridges, and mass transit; they are improving airports and ports, fixing aging water systems, and expanding rural and urban broadband. Investing in infrastructure is more important than ever as we work to bring the pandemic to an end and to get more people back to work and to build a sustainable economic recovery.

As I said recently to President Biden when I was with him in the Oval Office, the Governors urge that any major infrastructure effort be bipartisan. Democrats and Republicans, business and labor leaders, all of us believe that infrastructure should be a top national priority.

Governors on both sides of the aisle have shown that there are more than enough good, common sense ideas where we can find bipartisan support.

We stand ready to work with you in this effort. Together we can rebuild America's infrastructure so that it will once again serve as an example for the rest of the world. We hope that this hearing will serve as a springboard for real progress.

I want to thank you, Mr. Chairman and members of the Committee, for giving me the opportunity to be here with you today.

[The prepared statement of Mr. Hogan follows:]

STATEMENT OF THE HONORABLE LAWRENCE J. HOGAN, JR.

GOVERNOR, STATE OF MARYLAND

BEFORE THE

U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

BUILDING BACK BETTER: INVESTING IN TRANSPORTATION WHILE ADDRESSING CLIMATE CHANGE, IMPROVING EQUITY, AND FOSTERING ECONOMIC GROWTH AND INNOVATION

WEDNESDAY FEBRUARY 24, 2021

Good morning Chairman Carper, Ranking Member Capito and members of the committee. I am Larry Hogan, Governor of the State of Maryland. Thank you for inviting me to testify at this hearing, and I want to acknowledge Governor Gretchen Whitmer of the State of Michigan.

On behalf of the nation's governors, our hope is that this hearing will serve as a springboard for federal leaders to take action on solutions to sustain and improve our transportation systems. Sound policies and wise infrastructure investments promote economic recovery, facilitate the movement of essential goods and freight, ease congestion, and benefit residents and businesses alike for generations to come.

The COVID-19 pandemic has shown that it is absolutely critical we sustain and improve our transportation infrastructure. In Maryland, our transit systems carry health care workers and other essential personnel to the front lines of this pandemic. BWI Thurgood Marshall Airport and the Port of Baltimore bring in important cargo from all over the world and allow for its efficient distribution to homes and businesses nationwide. Maryland's highways and toll facilities enable the movement of critical goods and services throughout the region. And our motor vehicle services keep commercial operators on the road, supporting a critical link in the supply chain.

Maryland's Transportation Trust Fund took a devastating hit last year as fuel taxes, titling fees, and other revenue sources dropped sharply due to historic reductions in travel volumes. While travel volumes are starting to rebound, the impacts have been significant. We need to be innovative to address these issues and to secure an effective and efficient transportation system.

President Obama and President Trump both identified infrastructure reform as one of their top priorities. Yet, year after year, nothing has gotten done in Washington.

Now, President Biden has rightly put this issue at the top of his agenda, and the nation's governors stand ready to work with him and his administration.

While Washington has been stuck in gridlock, the nation's governors – both Republicans and

Democrats alike – have been taking the lead on rebuilding our crumbling infrastructure.

We have been working together in a bipartisan way – both in our states and between states – to make smart, targeted investments in infrastructure. We have shown that it is possible to make real bipartisan progress without raising taxes or burdening future generations.

Last year, as you know, I had the honor of serving as chairman of the National Governors Association. Recognizing the urgent need for federal action and all that governors could offer on this issue, I made repairing the nation's infrastructure my signature initiative as chairman.

Throughout the year, we convened a series of summits with the nation's governors and industry leaders to learn from their experiences and expertise.

Even though the pandemic significantly shifted our focus, in an effort to lay down a marker for future action on this issue, we released a report focused on four key pillars:

1. Relieve Congestion to Boost Economic Competitiveness.
2. Enhance Efficiency by Eliminating Red Tape and Integrating Smart Technology.
3. Strengthen Security and Resiliency by Protecting America's Critical Infrastructure from Disaster and Cyber Threats, and
4. Finance for the Future by Leveraging Private Sector Investments.

We know these pillars work and have vast bipartisan support because Republican and Democratic governors have been implementing them successfully for years. They are critical to building a strong and sustainable transportation system and stimulating the economy, especially as we work to bring the global pandemic to an end.

These pillars represent exactly the balanced approach to infrastructure that we have already been taking in Maryland, where we have made significant gains in making roads more safe, efficient, and functional.

We are delivering big infrastructure projects that solve congestion challenges and meet other needs by incorporating technology, flexibility, and capacity for future growth. We are prioritizing state of good repair and system preservation efforts while providing safe and accessible mobility choices for all users. Through these efforts, we are establishing a sustainable, customer-focused transportation vision for our highway, rail, bus, air, and port infrastructure. We also are striving to implement data-driven solutions to mitigate hazards and ensure the safety of the transportation network.

Existing laws authorizing the Federal transportation programs expire in 2021, and Congress must pass legislation reauthorizing those programs, as well as the funding mechanism (namely, the

Highway Trust Fund) used to pay for surface transportation construction programs. The major issues that must be addressed include:

- Finding a stable source of long-term funding for the Highway Trust Fund.
- Providing funding to the states through categorical programs, distributed by formula, rather than discretionary grants. This would provide predictable funding streams around which our transportation departments can plan programs.
- Continuing to support innovative project delivery mechanisms such as public-private partnerships and other alternative project delivery methods.
- Balancing the need for streamlined project delivery while never compromising environmental protection.

Finding a viable solution to providing sustainable, long-term funding for transportation needs is especially critical. It is estimated that states will see about a 40 percent drop in highway funding from FY 2020 to 2021. In the past, similar shortfall situations have led to the possible reductions in federal reimbursements to states for existing obligations, raising serious cash flow problems for states, and causing project delays. Additionally, because of a projected shortfall in the Mass Transit Account, new federal transit obligations are expected to be zeroed out between FY 2021 and FY 2023. We must act decisively to address these problems.

As Congress considers the next surface transportation authorization act, states should be granted maximum flexibility to address local needs and pressing problems. Congress should pursue a funding approach that supports all modes of transportation. This initiative should include increased formula funding for transportation programs. Formula funding provides a steady, predictable source of funding that can be relied upon as a foundation for long-term capital programming and for certain eligible operations activities. There is a broad consensus among the states that additional federal funding and investment in infrastructure is warranted and that maintaining existing program levels will not suffice.

Additionally, more can be done to streamline the delivery of critical projects. The efficiency of project delivery is measured by three key determinants: the cost and duration of a project, project outcomes, and the ease of maintaining the asset. Past measures designed to eliminate redundant reviews and streamline permitting processes, such as those contained in the FAST Act, have been effective; however, these measures must be expanded to ensure that projects are delivered on a least cost basis without sacrificing thorough environmental reviews. Beyond permitting and process reforms, efforts must also be made to increase the efficiency of infrastructure itself, by incorporating new technological capabilities related to increased connectivity, autonomy, digital information, and electrification.

We also need to explore innovative, alternative financing mechanisms to fund projects and ensure transportation needs are met and sustained long-term. A valuable tool in these efforts is public-private partnerships, or "P3s." P3s leverage the power and creativity of the private sector to fund and deliver projects that meet critical needs, on top of allowing us to stretch scarce dollars even further.

Maryland has had great success with P3s. Thanks to a P3 agreement between the Maryland Port Administration and Ports America Chesapeake, the Port of Baltimore has seen record growth and is poised for even more growth in the years to come. This partnership allowed the Port to add a second 50-ft berth this year. As a result, the Port of Baltimore set a record this month for 6,000 container moves conducted by longshore workers from the Maersk Edinburgh – the most ever from a single ship in the 315-year history of the Port. The P3 forged with Ports America created the capacity to enable this achievement. We are also in the process of removing the last pinch point for double-stacked containers on rail along the East Coast by expanding the Howard Street Tunnel through another P3 made possible by investments from CSX and state and federal transportation funds.

Likewise, we are pursuing complementary P3s that will greatly enhance our transit and highway systems in the National Capital Region, one of the most congested systems in the nation. The Purple Line is a 16.2-mile light rail line under construction in Montgomery and Prince George's counties. In addition, we are working to build a new American Legion Bridge across the Potomac River, add high-occupancy toll lanes across the bridge and up I-270, and improve transit and bicycle/pedestrian access along these heavily traveled corridors through a Progressive P3. These critical projects would not be possible without partnering with the private sector.

Clearly, we must sustain and improve the nation's transportation infrastructure, but Congress should not focus its attention on these needs alone. I encourage Congress to consider what other actions might be taken to support the sustenance, modernization, and expansion of the full portfolio of public infrastructure assets, such as water and wastewater systems, dams and reservoirs, electricity grids and power plants, and broadband networks. This analysis should consider the special circumstances of rural and economically distressed communities, as well as large cities and urban populations.

Looking ahead, Maryland will continue to develop creative solutions to address its transportation needs, but the federal government must also embrace and support these efforts. My hope is that the new administration will work collaboratively with Congress and the states to find constructive solutions to pressing problems. The American people deserve a strong state-federal transportation partnership. They deserve infrastructure they can be proud of through sustained investment. They deserve an investment in our nation that helps our economy thrive. They deserve relief.

Perhaps most of all, I respectfully urge Congress and the Biden administration to make this effort bipartisan. Any reforms that do not have support from both parties are destined to fail and even further divide our nation. No party has a monopoly on good ideas. There is no reason why this should be a partisan issue. Governors have already shown that there are more than enough innovative and common-sense ideas that have strong bipartisan support. We can get this done by strengthening, not burdening future generations. That is the foundation of our approach in Maryland, and it was the guiding principle of our national infrastructure initiative.

Thank you again for the opportunity to speak with you today. Together, we have an opportunity to create a world-class transportation and infrastructure system – one that will serve as an example to the world for generations to come.

Senate Committee on Environment and Public Works
Hearing entitled, *"Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."*
February 24, 2021
Questions for the Record for Governor Larry Hogan

Senator Carper:

1. *As a public executive, you carry the responsibility of the public's trust, and are accountable to those you serve. Congress set national goals in 2012 to reduce highway fatalities and keep our roads and bridges in good repair. And since 2012, Congress has provided states with more than 400 billion dollars through the federal highway formula programs. Yet traffic fatalities in 2019 were higher than they were in 2012, and twenty percent of states had more bridges in poor condition in 2019 than they did in 2012. Do you agree that performance accountability is critical, especially when it comes to ensuring federal investments support safety and other national goals?*

   Performance accountability is critical to ensuring that appropriate resources go to the areas of highest need. The Maryland Department of Transportation State Highway Administration (MDOT SHA) uses asset management systems, including its Bridge Management System and Pavement Management System, to ensure that our resources are invested prudently. These asset management systems involve a program of monitoring, assessment, planning, and action.

   Bridges are a critical part of the infrastructure we are responsible for and something the people we serve should never worry about. When our administration took office in 2015, Maryland reported 69 poor rated bridges, all of which have since been addressed. For reporting year 2021, MDOT SHA has reported 29 poor rated bridges, all of which we are currently addressing through active construction or design. Though Maryland has made good progress in addressing our state's poor rated bridges, states across the country, including ours, have been challenged in funding repairs on major bridges while still making investments across our respective bridge programs. With the right focus, states can make progress on 90% of our bridges, but without federal assistance on the major ones, the ability to address other needs in the bridge program is diminished. In Maryland, those are bridges like the Thomas Johnson Bridge near Naval Air Station Patuxent River and the American Legion Bridge right here in your backyard.

   In the area of traffic safety, traffic fatalities across the nation have increased over the last ten-year period; and there is some correlation with much higher traffic volumes. However, Maryland's fatality rate has dropped from 0.90 in 2012 to 0.84 fatalities per 100 million vehicle miles traveled (VMT) in 2018. Maryland is currently among the ten lowest states for fatality rate.

   Effective traffic safety requires a multi-disciplinary approach, but current federal regulations limit flexibility in states' use of safety funds. Each year, a significant number of fatal and serious injury crashes on our networks are attributable to things like behavioral factors - which is often best addressed through increased education and/or enforcement measures, both of which are severely restricted under current federal regulations. Meaningful traffic safety strategies require a comprehensive approach, and it is important that federal regulations be updated to provide states flexibility to appropriately address traffic safety needs and enhance transportation network safety.

Senator Whitehouse:

1. *States currently have very different rules from one another around how consumers pay for EV charging. This could be its own obstacle to EV deployment. For example, part of what makes long-haul trucking such a relatively smooth experience is that the cost to fill up a truck only varies by about 10-20% across the country. With current charging rules, costs for charging up an electric truck will have the potential to vary by many times that amount. Do you see a need for updated laws, rules, and standards pertaining to EV charging?*

   With long-haul battery electric trucks (BETs) still a nascent technology, there has been little progress related to standardizing electricity prices to enable long-haul trucking. While electricity prices vary, the efficiency of BET drive trains can provide significant fuel savings compared to diesel vehicles and historically, electricity prices have shown less volatility than diesel prices.

   As technology progresses and we see greater adoption of BETs, laws, rules and standards directing utilities may need to be reevaluated and updated, taking into consideration EV-friendly rate design, through a combination of updated demand charges alongside updated time of use rates, and expectations for higher load demands on existing grid resources, anticipating the growth in electrification of commercial fleets and trucking.

2. *Rules governing EV charging have the potential to exacerbate existing economic disparities. For example, people who live in multi-unit housing and rent their home – a population that is disproportionately low-income and minority – often must pay three to four times what homeowners pay to charge their vehicles. These higher costs come as a direct result of high "demand charges" that utilities impose on commercial charging stations, which according to Rocky Mountain Institute make up as much as 90% of the stations' utility bills. In recent years, a few states have taken up the issue and reformed charging rates for electric vehicles. Do you agree that it is important for all states to initiate utility rate reform for electric vehicle charging in order for our nation to attain our transportation electrification goals in an equitable way?*

   Although equitable charging rates are an important part of the overall conversation, equitable access to EVs and EV charging goes beyond rate reform. Equitable access to EVs and EV charging should also encompass: the structure of EV purchase incentives; workplace charging opportunities; equity and diversity in education and outreach; and other tools for reducing EV operational costs.

Demand for EV charging at Multi-Unit Dwellings (MUDs) is still emerging and local development regulations are in various stages of requiring new multi-family residential construction to be EV-ready. Installation of EV charging at MUDs requires a host of logistical, legal, and maintenance considerations, and it is important that these are carefully evaluated to ensure successful deployment of an EV charging network.

There are several initiatives underway in Maryland examining how to best modernize utility rate policies to accommodate the growing adoption of EVs in our state. Utilities in Maryland have been actively working to find solutions, as reported under the Public Service Commission 5-year pilot program (PSC Order No. 88997, which allows utilities to first examine EV charging on a smaller scale to determine how to best deliver an efficient and reliable charging network in Maryland. This is also a topic the Maryland Zero Emission workgroup has frequently discussed, and case studies on Homeowner Association (HOA) adoption of EV charging are posted on the MarylandEV.org website.

As policies to ensure equitable access to EV's and EV Charging stations are developed, rate reform, though important, will only be part of the discussion. Meaningful policy changes will require a more comprehensive approach that takes into account a wide breadth of factors and presents solutions that work in synergy to provide the most fair and equitable access.

3. *In infrastructure projects, innovative material have the potential to improve efficiency and extend useful life. For the materials to compete with traditional ones, standards need to be updated so engineers feel comfortable using newer materials in their designs. This issue was highlighted in the National Academies' report on innovative materials in bridges. The House-passed highway bill from last Congress included several provisions of the IMAGINE Act led by Rep. Cicilline. Do you support the adoption of materials that will last longer and cost less than traditional materials in our highway infrastructure?*

   Maryland actively supports innovation and the adoption of materials that extend the life cycle of assets across all modes of transportation and remains committed to pursuing innovation and sustainable material management initiatives. A recent example is the award of five contracts by the Maryland Port Administration (MPA) for the innovative reuse of dredge material. These projects include the development of items like ceramic bricks and permeable pavers, re-engineered soil for growing sod, and lightweight aggregate.

   The strategic management of dredged material helps MDOT and the U.S. Army Corps of Engineers maintain the approximately 150 nautical miles of channels that serve the Port of Baltimore, allowing us to remain one of the few eastern ports that can accommodate the large ships coming through the Panama Canal.

   MDOT continues to seek improvements and innovations in materials technology such as Corrosion Resistant Reinforcing Steel and Ultra High-Performance Concrete (UHPC) and has started using these materials in projects and plans to continue their use in future projects.

Maryland transportation engineers have noted that innovative materials provide flexibility to improve efficiency, and we continue to explore new methods to adopt innovative materials in a safe, reliable, and cost-efficient manner as we improve and maintain our state's infrastructure.

4. *U.S. ports are significant sources of emissions through heavy equipment, vehicles, and vessels in action at the facility. Efforts to reduce these emissions through electrification efforts will support reductions in these emissions. Do you support additional funding to electrify and reduce emissions at our ports? Do you support additional funding to electrify our vessels that use the waterways?*

The State of Maryland is committed to meeting its Greenhouse Gas Reduction Act (GGRA) goals of a 25% reduction by 2020, and a 40% reduction by 2030. Based on a study by the Maryland Department of the Environment (MDE), the state is well on its way to meeting and even exceeding established reduction targets and is projected to create and retain more than 33,000 jobs in the process.

The Port of Baltimore has been an important element in the state's plans to achieve our reduction goals and is diligently working to identify and implement technologies and practices that reduce greenhouse gas and diesel emissions to "near zero." Additional funding to electrify and further reduce emissions at the port would support our state's ongoing efforts.

The port has successfully implemented a number of strategies that focus on improving air quality, meeting water quality goals, and reducing energy consumption. The port's air emissions inventory prepared in 2016 showed that diesel emissions per ton of cargo from state-owned marine terminals decreased by 19% while cargo tonnage increased by 10% between 2012 and 2016. As this inventory is updated, it is expected that these trends will continue.

The Port of Baltimore has achieved emission reductions by modernization of the fleet of cargo handling equipment including evaluating electrification, replacement of dray trucks, and operational changes that increased the efficiency throughout the state-owned marine terminals. It was recently announced that Ports America Chesapeake will bring in 15 new hybrid rubber-tired gantry (RTG) cranes to expand operations and reduce diesel emissions at the port's dedicated container terminal at Seagirt Marine Terminal, greatly reducing the terminal's environmental impact, while also increasing cargo handling efficiency.

A large part of the Port's success in environmental stewardship has been possible through competitive grants from the Environmental Protection Agency (EPA) for diesel engine upgrades and dray truck replacement. Since 2014, the Maryland Port Administration (MPA) has received five EPA Diesel Emission Reduction Act (DERA) grant awards totaling more than \$6.1 million, including \$1.8 million in 2019. The awards have helped local truck owners replace more than 240 older dray trucks with newer models since 2012 and repowered or replaced approximately 100 pieces of cargo handling equipment, marine engines and locomotives since 2008. The Maryland Port Administration is currently in the process of submitting an application to the DERA program's latest round of funding.

<u>Senator Lummis:</u>

1. *In order to maximize return on investment when it comes to federal dollars being spent on infrastructure, Congress needs to address project delivery. The previous administration addressed these issues with the One Federal Decision policy. As Congress begins working on the next highway bill, what opportunities should Congress explore to expedite project delivery?*

   Agencies often have different responsibilities under the law, and it is important to maintain appropriate measures to provide thorough analysis and review; however, to the extent agencies have common compliance obligations or consultation requirements that overlap, efforts should be pursued to avoid duplication and to streamline reviews. It is important to emphasize that such initiatives should be designed to be efficient without sacrificing important considerations such as proper environmental scrutiny, user safety, and reliable design. The largest financial cost for any infrastructure project is delay, so all options to minimize setbacks to project completion, while ensuring appropriate levels of review, should be explored and entertained.

2. *Do you believe that the strict federal oversight that happens on large infrastructure projects in your state cause delays due to permitting issues?*

   I believe that effective oversight is needed to promote successful investments and decision-making for large projects. In all cases, the goal should be to ensure that appropriate oversight is provided to guarantee that the purposes of applicable federal statutes and regulations are fulfilled. That oversight must occur through processes and schedules that guarantee it is effective but provided on a timely basis. To the extent improvements can be made to streamline reviews for large projects without sacrificing their quality or intended purpose, I believe such initiatives should be encouraged. Our goals should always be to promote efficiencies in government, and build effective partnerships, with local, state, and federal agencies addressing issues and working together to improve the quality of life of our citizens.

3. *Should the One Federal Decision policy, or a similar policy, be codified into law?*

   In general, citizens and stakeholders need certainty and consistency in how laws and policies are interpreted. Regulatory uncertainty and inconsistent interpretations of the law among agencies hinders innovation and growth. Accordingly, initiatives that are intended to ensure the government speaks with one voice should be encouraged. With that said, the differing expertise of federal agencies needs to be considered and detailed analysis including environmental scrutiny, community impact, and safety review should not be sacrificed. There is a lot of value in continuing meaningful discussions on important aspects of the One Federal Decision to the extent that the One Federal Decision unified federal agencies in working through issues with a common voice while still maintaining their areas of individual expertise and oversight and held agencies to accountable timelines.

4. *Do you believe that your state can deliver high-quality infrastructure projects that account for environmental outcomes without extensive federal oversight?*

    a. *If yes, please explain what specific provisions are causing delays in your state.*

    b. *If no, please explain how your state has been able to successfully expedite project delivery.*

Our goal is to deliver projects in a timely, cost-effective way, with appropriate levels of oversight and community involvement. The federal oversight authorized by Congress serves an important role in the process but must be delivered through transparent and well-defined channels. Recognizing that delays often result in rising project costs, it is important that project oversight is assigned to pertinent parties and clear timelines are developed and observed. These initiatives must be thoughtfully pursued to ensure that project quality is not compromised.

Senator CARPER. Governor Hogan, thanks so much. Thank you for your leadership in the National Governors Association. As a former Governor, former NGA Chair myself, we value very much the NGA and look forward to partnering with the NGA. You could probably play a key role in that, and we look forward to that.

Mr. HOGAN. Thank you, Chairman.

Senator CARPER. You bet.

Next, we are going to stay with the baseball theme, on the on deck circle, is Mayor Hancock from Denver. It is one of the positions I always thought would be fun to have, but maybe yes, maybe no. We will see.

Mayor Hancock, welcome today, and you are recognized. Please proceed.

STATEMENT OF HON. MICHAEL B. HANCOCK, MAYOR, CITY AND COUNTY OF DENVER, COLORADO

Mr. HANCOCK. Thank you, Mr. Chairman, to the Ranking Member, and Committee members. It is an honor to be here with you.

First, let me thank you as well for your leadership and for acting on COVID-19 relief in the last Congress. I speak on behalf of all local governments. We thank you for your tremendous leadership and support. I am honored to be here with Governors Whitmer and Hogan and with Secretary Sheehan.

Now as we address the new Congress, the first thing I want to share is that we hope and encourage you to act on the American Rescue Plan to deliver much needed fiscal relief to cities and counties across this country. We have been the first responders to this pandemic, our first line of defense for the majority of our citizens in this great country. But we need your continued help and support, and we thank you for what you have done in the past, and we are encouraged by what we hope you will do in the future.

Mr. Chairman, let me recognize your personal efforts on our behalf, as well. It is not been lost on us that you have advocated for direct funding to cities and counties throughout this country, and we are greatly appreciative of your efforts.

As a former Governor, you know all about State and local finance. We thank you for talking to your colleagues about the challenges we face.

Now, as we look to build back better, it is about reviving our economy at every level and doing it in ways that confront the key challenges before us.

Mr. Chairman, you mentioned just recently in this hearing about what Motown song might be appropriate for this moment. It got me to thinking as a music fan myself, that the song Ain't No Mountain High Enough by Marvin Gaye and Tammi Terrell might be appropriate for this theme of building back better. Local governments have recognized there ain't no mountain too high for us, for our residents, to make sure that their quality of life is sustained, and that we provide safe passage on our roadways.

Investing in transportation and other infrastructure we recognize is the cornerstone of that effort. Let me speak to the surface transportation specifically, because FAST Act reauthorization is before you this year.

The structure of the FAST Act is sound. It is built on the foundation of the ISTEA that this Committee set 30 years ago, and the law can be adapted to confront the challenges we are discussing today: Climate, equity, economic recovery, and innovation. It can advance recovery in local areas where people and small businesses have been most harmed by this pandemic.

My written testimony addresses these challenges in more detail, but I want to share this message with you all today. We ask you to rely on your local leaders. Invest in us, and again, there has been no mountain too high for us as we work to address the challenges facing our citizens. We ask you to lean on us, to challenge us, to lead us out of this pandemic and help recover our economy.

My recommendation is simply this, and I recognize that this is a pebble in the pond that is going to send a ripple effect and might be contrary to what some of the previous testimony has been, but we believe that one, you need to use the Surface Transportation Block Grant to accomplish this. Two, we ask you to direct all these flexible resources to local areas, to metro areas like Denver, and to smaller areas, working through the States. This expanding commitment means using local leaders to address key priorities in areas where most people live and work, and by investing more in metropolitan areas, cities, and counties, where most of our economic output is generated.

Today, I offer this division of labor: Keep States focused on intercity and interstate corridors with resources from the National Highway Performance Program; and two, use the Surface Transportation Block Grant to local areas to lift the economy for the local level up and accelerate progress on the key priorities before us.

Increasing STBG funds to local areas, we believe, is the best way to deal with conditions on the ground during a pandemic, and after. It is also the best way to move the needle on key priorities before us and put us on the track for transitioning from rescue to recovery. It is efficient; it means we can address equity and climate much more prudently on the local level.

Mr. Chairman, this is a seminal moment for Federal transportation policy and for broad infrastructure policy. Mayors will be prepared to support this Committee as we learn more about the direction you take on a broader infrastructure recovery package. Mayors and other local leaders are ready, willing, and more than capable of delivering for the future.

Thank you for this opportunity to join you today, and we look forward to the testimony and your Q and A session.

[The prepared statement of Mr. Hancock follows:]

Senate Environment and Public Works Committee

"Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation"

Wednesday, February 24, 2021
10:00 a.m.

Written Testimony
of
The Honorable Michael B. Hancock
Mayor of City and County of Denver

Chairman Carper, Ranking Member Capito, and senators.

Thank you for this opportunity to participate today in this hearing. I am Michael Hancock, Mayor of the City and County of Denver.

Mr. Chairman, I want to commend you for convening this hearing, and for giving me the opportunity to share my views on the transportation landscape before us, which I believe COVID-19 has altered significantly, and even permanently in ways we are still trying to comprehend.

My testimony focuses largely on the City and County of Denver and the broader Denver region, providing perspectives from my local area that will be similar to what you hear from mayors in your own states and throughout the nation. I will also provide some broader context for my views, drawing upon my role as Chairman of the Transportation and Communications Committee of The United States Conference of Mayors, the bipartisan organization of the nation's mayors representing cities with a population of 30,000 or more.

Before addressing the specific issues before this Committee, I want to explain to you briefly why I support President Biden's "American Rescue Plan."

COVID-19 has ravaged families and upended lives and our economy in so many ways. It continues to threaten our public health, today and well into the future. As the mayor of a major local government, as well as one with considerably immense public health responsibility, we still have much to do to bring this pandemic under control and get our economy back to where it needs to be.

A few months ago, I cut nearly $200 million from my budget, working hard to protect our first responders and other governmental workers. Absent fiscal relief and other commitments included in this Rescue Plan, local governments in the Denver region will be forced to make more spending cuts and layoffs. Later in my testimony, I provide additional details about how COVID-19 has impacted Denver, including how it has affected transportation and other infrastructure investment.

The rescue plan now before you addresses the most immediate challenges before our cities and before the nation; invests in actions that are needed now; and makes additional federal funding commitments that will make a real difference for our residents in the places where they live and work. As mayors, we had to make the tough choices, so on behalf of all counties, cities and towns, I want to especially highlight the need for state and local fiscal relief. These resources will help stabilize the financials of the governments on the front lines of this pandemic.

Mr. Chairman, as a former Governor, you are well aware of state and local finance issues, and I want to thank you for your efforts as you work with your colleagues to sound the alarm on the immediate need for help. Thank you for your leadership on this matter.

ISTEA and FAST Renewal

Thirty years ago, this Committee developed legislation that became the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). This landmark transportation law – which originated in this Committee as a bipartisan proposal – advanced through the 102nd Congress and was enacted largely as originally envisioned by your predecessors.

Among ISTEA's defining features, whether its "flexible" funding, clean air funding, multi-modalism or resources to redress impacts on communities from previous transportation investments, most of which are still largely reflected in current law, I want to focus on what mayors believe was the law's key feature and that is its commitment to local decision-making and planning – at the metropolitan and regional level – whereby city, county and other local government leaders join together to plan and decide collectively how federal funds are invested, subject to fiscally-constrained investment plans. Three decades later, these features of ISTEA continue to define much of the FAST Act law before us today.

It is particularly noteworthy for me that during the formulation of ISTEA, the nation's local and regional governmental organizations, including The United States Conference of Mayors, came together around several principles, called the "Denver Accords." The core principle of this strategic agreement was increased metropolitan/regional decision-making and planning as an appropriate federal policy response as we neared completion of the Interstate Highway System.

Notably, the ISTEA law envisioned that in future years more decision-making and funding would be devolved further to local officials, who in concert with their local counterparts on a regional basis, would have more say and input over time on how available federal dollars were invested. Since 1991, largely at the urging of state DOT officials, key industry interests and some governors, further devolution of these programs and federal highway resources to local leaders and local areas were halted and, in some cases, ISTEA-enacted commitments were weakened or overturned.

Mr. Chairman, we believe that COVID-19 and its impact on the transportation sector can spark a shift in transportation policy never seen since the initial completion of the Interstate System. As if the pandemic isn't enough to drive this redirection in policy, we now confront unprecedented climatic events and growing focus on historical inequalities, fueled in part by past transportation investment practices. Denver still experiences separated and disconnected communities resulting from the history of railroads expansion, interstate highways and other infrastructure that divided neighborhoods. In addition, the history of "redlining" entrenched housing policies that confined minority and low-income populations adjacent to industrial areas and infrastructure with limited safety and environmental safeguards. Although these practices are decades old and no longer documented official policies, Denver and many other cities are currently grappling with how to fix poorly designed infrastructure, remove barriers, and reconnect communities to ensure efficient and safe access to jobs and amenities.

FAST Act Renewal, Infrastructure Investment and Fiscal Conditions

As I mentioned earlier, local fiscal conditions have eroded considerably due to the pandemic, a reality that we, as local leaders, urge you to reflect in your work on FAST Act renewal and infrastructure investment.

We urge you to rely on local leaders and to use the FAST Act renewal to reaffirm and expand your commitment to local empowerment. We will help deliver the key policy outcomes that are so desperately needed. That is why mayors throughout the nation have been calling on you and others in Congress to significantly raise existing funding commitments to FAST Act Renewal and to infrastructure more broadly. We see this policy direction as vital to the economic recovery we need and the outcomes we are discussing here today.

In addition to increased funding, there are specific policy changes – some modest and others more significant – that could help us locally accelerate the work we have already started, and "Build Back Better" as we move toward a post-pandemic world. Let me first talk about FAST Act renewal.

Our top priority is the allocation of all Surface Transportation Block Grant (STBG) resources to local areas – specifically, by raising the "local share" from 55 percent to 100 percent (while preserving current law set aside for Off-System bridges).

When Louisville Mayor Greg Fischer appeared before you in June, testifying on these same issues as President of The United State Conference of Mayors, he said, "Mayors know our cities will be changed by this pandemic, as it realigns our business sectors and workforces as well as local government services. COVID-19 is forcing change on a massive scale and at a very rapid pace, challenging our public, private and non-profit institutions like never before. And, it has brought unprecedented disruption to our transportation networks and services, forcing this Committee to reexamine and revisit its FAST Act renewal proposals."

His assessment then has proved to be quite prescient in describing the scale of the challenges we face, and at that hearing he also urged shifting STBG funding to local areas as a response to these changes. I strongly agree with Mayor Fischer's assessment and urge you to embrace this expanded commitment to STBG local area funding as a solution for the times before us, adding only that now it is a foregone conclusion that more of these COVID-induced changes will not only be enduring but, in some cases, permanent.

Among mayors, we have talked about COVID-induced changes – and we are witnessing a remarkably high share of U.S. workers now telecommuting, at levels past estimates predicted were not even possible. This trend alone could reshape our commute patterns, "flattening this curve" during peak commute periods and potentially create new demand for different types of trips throughout a day.

Almost daily we see reports about the relocation of the nation's workforce, a new paradigm where thousands of workers are exiting higher-priced metro markets for others; within markets, thousands are relocating as well, seeking a home and an office simultaneously. In addition to disruptions in the residential housing markets, commercial real estate markets, especially in larger cities, have been roiled by the pandemic, with many building owners looking to a future where commercial office space may soon be converted to housing or other uses.

In this new era, the street in front of your house – AND now increasingly also your new workplace – is almost always a city- or county-owned or maintained street, a key part of our national transportation infrastructure that has been mostly ignored or dismissed in the debate on federal transportation policy. And, it is also these local streets or "last mile" networks that are now absorbing the shift from storefronts to increased home deliveries; in other cases, it is streets in local commercial areas where so many small businesses have borne the brunt of this pandemic.

These new realities are where we need to turn our attention: direct additional resources. Rely on local leaders to sort out what all of this means for our transportation systems, for our economic recovery, for curtailing harmful emissions, and for equity. As we assess and confront these challenges, I don't believe that the answers will be found in our state capitals and in the nation's capital but, rather, locally where mayors and other local leaders work collectively to comprehend and address the transportation changes and other conditions before them, and "Build Back Better" together.

The Surface Transportation Block Grant – with this commitment to local area funding which is so flexible – is exactly the right program at this time to help local leaders address the myriad of needs before them and, when coupled with other policy changes and commitments, will make a difference in our national efforts to recover more fully and advance key priorities more quickly and effectively.

State DOTs, for their part, can continue to focus on the National Highway Performance Program which has always been their priority. To the extent states have a need for additional flexible funding that the STBG program now provides, they can generate those funds, as they have for many years, by using the flexibility the law grants to states to shift apportioned funds among other program categories.

It is neither reasonable to continue the "status quo" delivery of these resources, nor it is reasonable to assume or expect that State transportation departments have the capacity to comprehend and respond to the travel, housing, economic and other changes affecting our regions, our cities and our neighborhoods.

The reality before us is challenging, to say the least. As a mayor, I and others in local government struggle with it every day, working as best we can, in real time, to adjust and contemporize our city's practices, policies and investments, knowing there are changes underway that are not yet fully understood. But, Mr. Chairman, I can assure you that local elected leaders, like myself, are more attuned and best positioned to respond to the current environment before us and help lead us forward during this most challenging period.

Mr. Chairman, let me mention climate, as one example, to show how an expanded STBG commitment is so important at this time. We all know that the expanded use of EVs is in our future, but this will require new infrastructure investment to support EV use on our Interstate (and on intercity highway) networks and on our local highway networks. States have a massive account – the National Highway Performance Program – that can fund EV infrastructure on our Interstates and on our principal arterials. Additional STBG resources to our MPOs will help accelerate the buildout of public and private EV infrastructure on local highway/street networks – where most people live and work.

But getting to a low or zero carbon future is about more than substituting EVs for gas-fueled vehicles. In Denver, expanding public transit, with a strong emphasis on Transit-Oriented Development, and non-auto travel options means fewer and shorter auto trips, reduced VMT overall and less carbon use, in the near term. In addition to FTA's transit funds, STBG funding helps us deliver cost effective projects, relatively quickly, to expand mobility options in our TOD areas and other parts of the city. In addition to lower relative carbon use, lower per capita VMT means less-costly, highway infrastructure in the future. Notably, TOD projects benefit from the relative energy efficiency of multi-family compared to single family housing, reducing carbon use in the building sector. In my city, we are working to make these connections; added STBG will help us accelerate the infrastructure improvements to achieve these outcomes.

Finally, let me add some context for why empowering local officials in their local regions is so important and is an area of interest for the entire nation. Mr. Chairman, I know you are well familiar with metropolitan economies and their importance to national economic growth. Mayor Fischer in his testimony discussed the Louisville metropolitan area and its significance to his home state.

According to the most recent U.S. Metro Economies report, prepared for The United States Conference of Mayors by IHS Markit, the Denver metropolitan area economy accounted for an estimated 58 percent of the state's total economic output, with the region producing $213 billion in gross metropolitan product in 2020.

In FY'20, the FAST Act allocated STBG formula funds directly to these three metro areas – Boulder, Colorado Springs and Denver – totaling $51 million. Notably, these three metro areas, each with a population of more than 200,000 people, accounted for nearly three quarters (73 percent) of the state's economy. This relatively modest commitment represents only 8.5 percent of the state's $589 million in apportioned funding in FY'20. Our proposal on STBG funding to local areas would raise the metro share from 8.5 percent to 14.3 percent of the state's total share, in a state where local governments own nearly 88 percent of all road and street mileage.

Let me share a final comment on the role of metropolitan economies as we think about our economic recovery strategy. Prior to the pandemic, all of economic forecasters, including IHS Markit for the Conference of Mayors, indicated that metropolitan economies will account for an ever-higher share of U.S. economic output in the future. This means for the Denver region and others throughout the nation that how successfully we move people and goods in these metro areas – our effectiveness and our efficiencies – translate into dollars gained or lost. Our people everywhere, and our national economy, prosper accordingly. We are not saying "defund state DOTs" but rather invest more in the places that will disproportionately determine our future success.

I have discussed our STBG recommendation in some detail because mayors and other local officials are certain it is a change that can be especially impactful at this time. These funds not only have the greatest flexibility, but they will contribute the most to new ideas on transportation system enhancements and allow us to see transportation system improvements never seen for the last century. We cannot do what has to be done through the status quo.

Notably, our recommendation on STBG Local Area funding has no effect on the flow of apportioned highway program funds among the states, but rather it only affects the flow of funds within states.

Another recommendation is to adjust federal matching requirements to incentivize investment in the outcomes we are seeking. For example, waive federal matching requirement over the near term for targeted transportation investments, including those being discussed today (e.g., climate mitigation and resilience, equity and restorative infrastructure, innovation and recovery projects in neighborhood/places impacted disproportionately by coronavirus). Instead of a programmatic waiver, such as waiving CMAQ Program matching requirements as was done in the past, consider linking the matching waiver to specific outcomes – projects that advance equity, climate, innovation and economic recovery, especially impacted local areas and neighborhoods.

Instead of mandating actions (i.e., project selection), incentivize them with a 100 percent federal share for investments that address specific outcomes, keeping others at the historic 80/20 share. This would incentivize investment in certain desired outcomes, avoiding the vitriol associated with federal mandates and other command and control regimes.

Finally, on FAST renewal, a clear challenge before local governments, our regions and states is the need to modernize planning tools and data systems and to adjust and adapt existing investment plans (e.g., TIPS, STIPs and long-term plans) to a pandemic-altered world, which I have only briefly described in this testimony. While I don't have specific recommendations, I do know that raising metropolitan planning (PL) funds would be one recommendation, helping us at the regional level consider fully changes that have occurred and are occurring now at the local level, trying to bring real-time data to bear and help imagine a future that is possibly different than the one we have been planning for.

All of us are now struggling with how we sort through the "project pipeline" to make sure we are making the best choices at this moment in time. In effect, we need to "stress test" our planned project investments against various future scenarios. To illustrate with an example from the Washington, DC region, a report last week estimated that 60 percent of all area workers are now telecommuting, up from the pre-pandemic rate of 5 percent. The new law should find ways to help your state and local partners look for projects, going forward, that make sense under various scenarios – in this example, account for an uncertain share of these workers who may or may not return to the office.

Infrastructure Investment and Economic Recovery

The nation's mayors – through The U.S. Conference of Mayors – have developed an initial infrastructure agenda, calling on Congress to "localize" more of the available federal funding. I discussed one of these priorities – STBG Local Area Funding – as part of my comments on FAST Act renewal, the only issue squarely before this Committee. These are our priorities:

1. **Invest in Neighborhood infrastructure** – by directing more resources to HUD's Community Development Block Grant Program (CDBG);

2. **Invest in Greener Energy infrastructure** – by restarting DOE's Energy Efficiency and Conservation Block Grant Program (EECBG); and

3. **Invest in Local/Regional Transportation infrastructure** – by allocating all Surface Transportation Block Grant (STBG) funds to "local areas."

Mr. Chairman, I know this Committee is planning to advance water resources legislation early on in this Congress. Tomorrow, the Conference of Mayors is providing its recommendations to the House Transportation and Infrastructure Subcommittee on Water Resources on this legislation. I am certain the Conference will be sharing these recommendations with you.

We all know that increased infrastructure investment is one of the most productive public investments we can make. We also know that the pandemic has wrought such economic upheaval that increased infrastructure investment of any kind is needed now and would be productive economically.

That said, I do want to return to the issue of fiscal relief that I discussed earlier in my testimony, and underscore why an increased federal financial commitment is so important at this particular time.

It is often overlooked but the fact is local governments – cities and counties – are the nation's largest single investor in the nation's infrastructure. Local financial commitments to airports, public transit and water infrastructure, as notable examples, have always surpassed financial commitments by the federal government and state governments.

Among the most important issues before this Committee is funding for highway infrastructure. As Mayor Fischer pointed out in his June testimony, local governments in recent years have far outpaced the federal government and state governments in growing new revenue commitments to highways. Local governments so outpaced its governmental partners that the "local government share" of ALL new governmental revenues for highways reached 34.1 percent in 2015, up from 28.6 percent in 2001, totaling almost $72 billion in 2015. The local share of new revenue commitments during this period increased 19 percent, as state commitments fell 5.4 percent and the federal commitment declined by 14.4 percent.

Sustaining our efforts is really what is at stake at this particular juncture. Local governments have been the overperformers over the last couple of decades. But as Mayor Fischer noted in his testimony, "Given the current economic outlook, especially the uncertainty about the status of local and state fiscal relief, cities and other local governments will be unable to grow their commitments at this rate. It is certain that total highway investment will contract, absent greater commitments in your renewal legislation." A strong fiscal relief element, as set forth in the pending rescue plan, as I discussed earlier, will be key to limiting the contraction in local government infrastructure commitments that is surely to result from the economic effects of the coronavirus.

Let me now shift my comments to specific concerns and issues in my city and how we are taking action to address specific issues before the Committee today.

Denver's Investment in Sustainable Infrastructure

Like no other economic shock we have previously experienced, COVID-19 immediately decimated city revenues. While previous economic downturns took place over months, COVID-19 impacted us in days. When schools, restaurants, hotels and businesses shuttered their doors, the city's largest revenue source, based on sales and use, largely ceased. Downtown Denver saw an immediate downturn, with retail sales falling up to 63 percent and hotel lodging down nearly 90 percent. At the same time, we had to increase city spending on social stability programs like unemployment, homelessness, eviction protection, temporary testing facilities and many more. But we did it. And we see the light ahead. Moreover, with decreased revenues and increased costs for social needs, our capital program suffered delays.

As far back as the Works Progress Administration in 1935 to the American Recovery and Reinvestment Act in 2009, we have seen how infrastructure investment not only creates jobs, it has multiplier effects throughout the economy and infuses cash that increases spending. Such spending commitments are needed now to help small businesses and retail sectors.

Denver doesn't just have ready-to-go projects that were put on hold, we have JOB READY projects. As I noted earlier in my remarks, the Surface Transportation Block Gant Program is the fastest way to get transportation project dollars flowing to our region and cities to create jobs.

Infrastructure investment driven by additional STBG dollars into Denver has and will continue to leverage our workforce development programs to target our unemployed, focus on minority owned and small business participation and be the tide that raises all boats.

Denver will reconstruct our outdoor mall in the central business district which is served by a robust transit line with 39,000 riders daily. The project will not only revitalize our core economic engine, it will also create 1,843 jobs and have an overall economic impact of $4 billion of value add to the regional economy.

Denver is entering the final NEPA stages of its first new bus rapid transit service, along a corridor with high ridership ripe for revitalization. This new service is projected to double ridership by 2035 improve travel time for transit users by 15 minutes and improve access to 280,000 jobs and 50 schools in the service area.

A 2019 study by the National Institute of Building Sciences found that every $1 invested in hazard mitigation projects, such as elevating homes or removing homes at risk of flooding, reduces future costs by an average of $6. Denver recently finished a multi-million dollar flood and drainage way improvement that removed thousands of homes from a flood plain and created linear parks and trails in areas of our city that previously had no amenities.

I mention this project because it is an outstanding example of how Denver prioritizes hazard mitigation strategies and our infrastructure investments for equity. We assess individual neighborhoods for needs and help lift those up who need it most. For too long we have looked only at the infrastructure needs and not included the needs of the people that use them. I am proud to deliver equitable infrastructure in Denver.

As we deliver these critical projects, Denver also focuses on sustainability. Our building code has reduced the impact of new development and roadways on our environment. Last year Denver established a sustainability office and passed a voter approved sales tax to fund our efforts. We are under contract now to deliver one of the largest sewer heat recovery systems, which will supply heating and cooling to our new agri-business campus under construction right now.

Our local code also sets requirements to expand our capabilities to meet the increasing electric vehicle market. Charging stations across the city and specifically in locations where communities need better access to transportation along with electric car sharing is underway now.

Denver's Efforts to Address Coronavirus and Transportation

The pandemic in Denver, like so many cities, upended our transportation system, in ways that will be with us for years to come. And, notably, some changes have been positive – many of our neighborhoods and communities were very supportive of redesigning certain streets in favor of people walking, biking, dining, and going to local restaurants. Many businesses and organizations, including the city, managed a rapid shift to Work from Home, which by many accounts has led to increased employee satisfaction and productivity, while reducing commuter trips.

To provide additional clean mobility options during the pandemic, Denver expanded electric carshare service in under-resourced communities. Almost overnight, Denverites were imagining a very different way to get around, a different way to use our streets and public spaces. And yet, we're also grappling with the negative impacts. Loss of transit ridership, tremendous impacts to our local revenues, subsequent major cuts to service and staffing at our regional transit agency. The revenue impacts will be hard to recover from, and yet we'll need bold solutions, quickly, if we are to meet our ambitious goals for transportation, equity, and climate.

Our vision for Denver is bold. We strive for an equitable city of complete neighborhoods and networks, so that all Denverites can access their daily needs. We seek to build a more complete multimodal transportation system, with an emphasis on safety, moving people, and creating sustainable public places. We have goals to double the number of people walking, rolling, biking and taking transit by 2030, while reducing the number of trips people take alone in a car. We can encourage this shift through land use and infrastructure improvements that use our space more efficiently while expanding access. We also seek to align private development with transportation infrastructure to encourage walkable, bikeable, transit-friendly communities.

To meet our equity and climate goals, we need to make transit more reliable, more frequent and more convenient. We need to prioritize safety, particularly of our most vulnerable users – people walking or using a wheelchair and other mobility devices. And we'll need to ensure that Denver residents particularly in historically under-resourced areas benefit from investments made in our infrastructure.

We will also need to ensure that Denverites have convenient access to electrified mobility options, such as e-bikes, scooters, electric vehicles and electrified transit service. We need to increase access to electric vehicle charging so that it's convenient for all Denver residents. We also need to drive community awareness about electric options and help facilitate EV adoption while expanding electrified mobility services like carshare and rideshare.

Denver's Economic Recovery and Infrastructure Strategy

Denver's economic recovery plan dovetails with much of our climate action work, because this crisis has revealed the interconnection between economic vitality, environmental justice, and public health. Denver's efforts to bring people back to work will focus on infrastructure jobs, jobs that not only provide long-term career paths and family sustaining wages, but also provide healthy workplaces for employees, safe working conditions, and purposefully avoid negative environmental impacts.

Rebounding from the COVID-19 pandemic, the economic downturn it caused, and the racial justice inequities will be a tremendous challenge for cities and the United States. While there will be a need to invest and create new policies on multiple fronts, Denver believes investing in sustainable transportation and infrastructure can advance a more just, equitable, healthy and resilient city. We seek to invest in projects that support Denver's overarching goals of increasing mobility and safety while reducing congestion and fighting climate change. In this recovery and into the future, we are focused on delivering safe, efficient and equitable transportation improvements, which will help invest in the economic recovery of our city and region for coming years.

Denver's Climate Strategy

Denver has accepted the reality that the science is clear, and we must cut greenhouse gas emissions, setting a goal to cut our emissions in half by 2030, with the expectation that the dire consequences our communities are already suffering will only get worse.

We know that extreme weather events – most recently, the deep freeze in Texas or the dramatic wildfire season that obscured the skies in Denver for more than two months last year – are certain to become more frequent and more intense.

We also recognize that climate change affects black and brown communities more, representing another threat that makes existing inequities even worse.

When you look at transportation emissions specifically, we estimate that this sector accounts for more than 30 percent of Denver's annual greenhouse gas emissions and is the number one source of air pollution in Denver. And we know that major reductions in the short term are needed, and that every year we delay meaningful action will lead to even more business disruption, more property loss, and more death.

Not only can we prevent more harm, we believe we can harness the opportunities of climate action by investing in climate action. Create good jobs, clean our air and water, and improve quality of life in our communities.

In Denver, the people support bold climate action and want their government to do more and do it faster. As one example of this support, nearly 65 percent of Denver voters approved a sales tax increase, to raise up to $40 million per year just to create the Climate Protection Fund. Transportation investments that improve and electrify mobility are one key part of this new fund.

Our plans are focused particularly on infrastructure projects that will benefit communities that are most burdened by climate change impacts, including providing zero-emission mobility options for essential workers. These programs will improve people's lives by reducing exposure to dangerous co-pollutants that cause respiratory health impacts and they will make our communities far more resilient to the impacts of climate change.

At the same time, we recognize that the need for low-carbon mobility options and resilient infrastructure far outpaces the funding available at the local level. Mr. Chairman, I want to commend you and others on this Committee for taking a look at the link between transportation and climate and taking initial steps in the bipartisan legislation you considered in the last Congress. Like you, we recognize that transportation continues to be the heaviest polluting sector of the U.S. economy, with emissions slated to grow higher in future years.

Earlier in my testimony, I talked about the need to deliver all STBG funds to local areas, a change that will help Denver and other cities in the region invest in transportation solutions that deal with our transportation emissions. Although not an issue directly before this panel, another important policy and funding priority is public transit. I want to acknowledge and thank you for your your efforts to sustain our important public transit services and expansions through this difficult pandemic period, providing much needed transit funding support as part of the COVID relief packages.

The House version of the rescue plan includes additional resources – $30 billion in emergency relief – that is so vital at this time to our local efforts and those across the country to keep public transit operating and our local economies moving forward. When we look to the future and the climate challenge before us, we will need additional long-term investments in transit to keep our emissions low and in order to provide equitable transportation services.

Denver's Vision Zero Strategy

As a "Vision Zero" city, Denver has committed to taking a bold approach to creating safer, better streets for people moving throughout our city. We focus on protecting our transportation system's most vulnerable users and call upon our partners and the public for their support in eliminating traffic deaths and serious injuries and creating the safest roadway system possible. Our goal is to eliminate fatal and serious injury crashes in Denver by 2030. We know you are already considering how FAST Act renewal can help us accelerate our Vision Zero efforts in Denver and elsewhere.

Technology and Innovation

We all recognize that we are on the precipice of a transportation technology shift, and the shift is needed. As just noted in our Vision Zero strategy, there are simply too many injuries and deaths that occur in our transportation systems and networks.

Like other cities, we see the vast potential to use technology to prevent deaths and injury but doing so will require much more investment. In Denver, to inform these investments, we are gathering more and better data of where and how crashes occur.

We are currently investing in modifications to a state highway through the city. You can imagine that in the nearly 100 years since it was aligned and constructed, the businesses, people, and modes of traffic have changed significantly. Many of our major arterials are have been designed to accommodate as many cars as possible, leaving pedestrians and other modes behind. In addition, we have yet to provide the enhanced mobility that transit systems need to be successful. Denver is working with others, including our state department of transportation, to change that.

Denver's Equity Lens and Investment Practices

Denver has established equity as our north star, and this has changed how every agency delivers its services and develops new policies and programs. Like most local governments, we know where the challenges are, but we are using data to pinpoint not only the problems, but also to identify solutions and measure our progress.

Our climate office, planning department, public health, parks, and emergency management are all working together to account for climate change in our hazard mitigation plan, maps on health disparity, access to green space, energy cost burden, and many more indicators and then, most importantly, will work with the impacted communities to implement solutions that they believe will serve their residents best.

Equity is a critical consideration for our transportation system as well. While improving transportation will have tremendously positive impact on all our residents, expanding clean, affordable transportation options will be transformative for our must vulnerable.

People who work multiple jobs, people who cannot afford the high expense of personal car ownership, older residents or people with disabilities who cannot drive, people who live in our most polluted zip codes – these people will benefit the most by a shift to a robust multimodal transportation system. In fact, we cannot have an equitable Denver, nor can we address the climate crisis, without reimagining transportation.

As a city and as a nation, we should recognize the harm inflicted on our communities – particularly communities of color and immigrants – to build the transportation system we have today. Recognizing that history, and the continued impact of transportation pollution in our neighborhoods, our transportation system of the future must do better. It must be cleaner, healthier, safer, more efficient and accessible for all.

Denver's Transformative Projects

Investment in transformational infrastructure is a priority for the city, especially if we hope to achieve the transportation mode shift, air quality conformance, environmental restoration and natural disaster protection as well as supporting job creation, economic recovery and development, among other goals we have identified.

Our city has been seeking partnerships and funding to deliver major capital projects that will transform our city while infusing vital resources into the national economy. A keystone project of ours is Bus Rapid Transit on Colfax Avenue. Building on years of study, planning and significant community input, we are now completing the National Environmental Policy Act (NEPA) process and preliminary design for the project. We plan to leverage bond funding, which the voters passed in 2017, and seek additional grants to achieve the full vision of East Colfax BRT. This project will significantly shift people from vehicles by improving transit travel times, reliability and convenience. By our estimates, we could double ridership on the corridor by 2035, from 22,000 up to 50,000 daily riders. Travel times during peak hours could be 15 minutes shorter – an improvement that particularly improves the lives of our lowest-income residents who depend on transit to meet their needs. Overall, this BRT project will improve access to 280,000 jobs and nearly 50 schools along and near Colfax Avenue.

As Denver continues to grow and our mobility needs mount, it is time once again to make vast improvements in how we move people, goods and services, and how we remain connected to one another, to the region and to the world. Our very future depends on a renewed commitment to create, operate and maintain a safe, equitable, zero-emission and cost-effective transportation system.

Closing

Earlier this month, Mr. Chairman, you and a bipartisan group of Senators met with President Biden and Vice President Harris to talk about the need to invest in infrastructure, with renewal of the FAST Act a key piece of this effort.

After that meeting, you said: “By holding this bipartisan meeting today, President Biden made it clear that investing in our transportation is a top priority. The American people desperately want us to bring our roads, trains, and bridges out of the last century and into the future. And President Biden and I know that we need to do that in a way that builds back better, putting our transportation sector on a path to zero emissions and creating millions of good-paying jobs in the process.” You also said, “Reauthorizing our surface transportation programs is how we make this happen. A surface transportation reauthorization bill can reduce greenhouse gas emissions, create jobs to strengthen our economy, and move us to a cleaner, safer future.”

Mr. Chairman, we couldn’t agree more with your statement. Please know that I – and I speak for so many other mayors – stand ready to help you advance legislation renewing the nation’s surface transportation law and other legislation raising our investments in the nation’s infrastructure.

Again, I want to express my appreciation for this opportunity to testify before this Committee, and I would be pleased to answer any questions you may have.

Senate Committee on Environment and Public Works
Hearing entitled, *"Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."*
February 24, 2021
Questions for the Record for Mayor Michael Hancock

Senator Carper:

1. As a public executive, you carry the responsibility of the public's trust, and are accountable to those you serve. Congress set national goals in 2012 to reduce highway fatalities and keep our roads and bridges in good repair. And since 2012, Congress has provided states with more than 400 billion dollars through the federal highway formula programs. Yet traffic fatalities in 2019 were higher than they were in 2012, and twenty percent of states had more bridges in poor condition in 2019 than they did in 2012. Do you agree that performance accountability is critical, especially when it comes to ensuring federal investments support safety and other national goals?

- *Designing streets for people remains an uphill battle for cities, including Denver. From one-size-fits-all design requirements unsuitable for urban contexts to repetitive regulatory reviews to limited internal capacity, cities face serious barriers accessing and using the federal funds allocated to them by Congress. Currently, the federal surface transportation program is structured to meet the goal of moving high volumes of cars at high speeds. In order to achieve outcomes aligned safety, Denver agrees that federal support must be tied to different metrics:*
  - ***Safety:** Some states have set annual safety goals for fatalities and serious injuries (KSI) among people walking or biking that are higher from year-to-year, not lower. The next reauthorization must prohibit states from setting regressive safety performance targets and deny funding for plans that do not contain a strategy for improving road safety, especially in disproportionately impacted communities.*
  - ***Speed:** End the bias against lower speed limits in performance measures such as the Peak Hour Excessive Delay (PHED), particularly in contexts where low speeds are necessary for the protection of those traveling outside of single-occupancy vehicles.*
  - ***Equitable Access:** Congress should direct USDOT to establish multi-modal access metrics to ensure projects equitably connect people to jobs, services, and schools, with a specific focus on marginalized communities including immigrants, Black communities, low income communities, people with disabilities, women, transit-reliant individuals, and those without a personal vehicle.*
  - ***Transit:** Evaluate the quality of transit through metrics such as person throughput and frequency, rather than ridership alone.*
  - ***Climate:** The next reauthorization should require states to measure and cut their transportation emissions, as well as to set a goal to reduce vehicle miles traveled.*

Senator Cardin:

1. It is my understanding that your city has embraced an ambitious goal of eliminating traffic-related fatalities by 2030. I have further heard that one tool that could help your progress in achieving this goal would be to update and improve FHWA's Manual on Uniform Traffic Control Devices (MUTCD), which applies to all roadways.

   a. Can you describe how the MUTCD in its current form and application might be detrimental to improving the safety conditions on roadways in cities such as yours?

   - *Historically, the MUTCD has failed to address the approximately 40,000 annual traffic fatalities on U.S. streets (the highest rate, by far, of any high-income country). The Manual's focus on motor vehicle operations and efficiency above all else undercuts the Biden Administration efforts to address climate change and social inequities, and USDOT's stated mandate to prioritize safety in the country's transportation system.*

   - *The draft 11th Edition of the MUTCD, released in December 2020, introduces nearly as many new barriers to implementing environmentally responsible bicycle and transit infrastructure as it eliminates, and would do little to fix the inequities that previous editions helped entrench.*

   - *We need an MUTCD that leads to safe urban streets, free of traffic deaths and serious injuries. To achieve this outcome, USDOT will need to either overhaul the current MUTCD to create proactive safety guidance, or re-focus the document, returning it to a basic enabling regulation.*

   b. In what ways can the MUTCD be improved to better serve your safety goals?

   - *Denver feels that a meaningful overhaul of the current MUTCD is needed to create a more proactive safety regulation. For example, FHWA could require an injury-minimization approach to speed limits and require that new signals be prioritized at pedestrian risk points rather than motor vehicle delay points. Doing so takes advantage of a once in a generation opportunity to align streets with goals. Denver further suggests that FHWA go beyond removing prohibitions on needed infrastructure and instead enact standards of care, requiring action where lives are at stake. Doing so puts key administration goals (safety, climate, equity) as the default, not an add-on to motor vehicle efficiency. This change, while taking effort up front, would reduce costs and delays associated with red-tape requirements that are placed by the current MUTCD on urban-supportive projects.*

   - *Additionally, Denver recommends that FHWA focus on the core regulation of signs and markings, and remove the engineering guidance, opinions, support statements, and images from the MUTCD (e.g. instead of recommending how speed limits are set or bike signals are* *used, the MUTCD would simply state how speed limit signs and bike signals look.). Doing so would allow cities and states to have broader latitude to create their own guidance on how to use each device and free up cities and states from non-regulatory 'scare language,' bringing actual regulation into sharp relief.*

- *Regardless of the path taken, Denver requests that USDOT engage in a collaborative dialogue with interdisciplinary stakeholders and Manual users, including city transportation experts.*

Senator Whitehouse:

1. States currently have very different rules from one another around how consumers pay for EV charging. This could be its own obstacle to EV deployment. For example, part of what makes long-haul trucking such a relatively smooth experience is that the cost to fill up a truck only varies by about 10-20% across the country. With current charging rules, costs for charging up an electric truck will have the potential to vary by many times that amount. Do you see a need for updated laws, rules, and standards pertaining to EV charging?

   Standardization in the pricing strategies allows for a consistency that could improve consumer adoption as well as create a transparency in the actual costs to own or operate an EV. Gross inconsistency makes it difficult to predict those costs. States are starting to pass laws that create pricing strategies that allow for more consistent pricing. Right now, different private providers all have different pricing strategies and if utilities move into the space that adds another layer. Gas stations and others are regulated and audited in order to provide some level of consistency. Any regulation must be thoughtful. The total cost should not be set nationally because the cost of electricity varies by location; gas costs also vary by location. Rather, like most utilities, a regulated rate of return and the costs passed thru to customers usually is calculated as cost of service plus rate of return. To remove barriers, universal payment platforms would be most helpful.

2. Rules governing EV charging have the potential to exacerbate existing economic disparities. For example, people who live in multi-unit housing and rent their home – a population that is disproportionately low-income and minority – often must pay three to four times what homeowners pay to charge their vehicles. These higher costs come as a direct result of high "demand charges" that utilities impose on commercial charging stations, which according to Rocky Mountain Institute make up as much as 90% of the stations' utility bills. In recent years, a few states have taken up the issue and reformed charging rates for electric vehicles. Do you agree that it is important for all states to initiate utility rate reform for electric vehicle charging in order for our nation to attain our transportation electrification goals in an equitable way?

   This is a complicated issue. Multi-family units are often on a community meter and the timing of when charging occurs can cause peak demand challenges. Some utilities offer *special residential rates for PEV charging. Residents could be encouraged to charge during off-peak hours if the chargers are connected to a community meter. They could charge PEV drivers a flat rate or for their electricity usage (especially if using wall outlets). Depending on the building architecture, the charging station may be connected directly to the resident's electric meter.*

Despite a property manager's best intentions, it may be too difficult or too expensive to install charging at your multi-unit residence at this time. Other options may be available, including:
• Low-level charging. A 110-volt outlet or low Level 2 charger may work, as well as high-power Level 2 charging, and be easier to fit into the building's electrical capacity.
• Charging at work. Workplace charging is growing rapidly, and may provide an option for drivers who cannot install charging at home. See Additional Resources.
• Public or fast charging. Public charging stations convenient to your path of travel can provide an alternative to home charging.
• Car sharing. Car sharing services are purchasing PEVs and may provide a viable option.
• Third-party managers. Your property manager could contract with a third party, which would install, own and operate the charging unit. You would pay a monthly fee for the charger which may also include access to other chargers in the provider's network

These strategies could be negotiated with equity access and charging in mind.

Other policy options to consider are:
- Pricing transparency (consumer predictability on costs)
- Building codes that require EV investment and policies on pricing
- Use of LV1 or 2 charging (they typically don't require smart phone interactions and payment removing a barrier)
- Prioritizing public charging systems nearby affordable housing areas

3. In infrastructure projects, innovative material have the potential to improve efficiency and extend useful life. For the materials to compete with traditional ones, standards need to be updated so engineers feel comfortable using newer materials in their designs. This issue was highlighted in the National Academies' report on innovative materials in bridges. The House-passed highway bill from last Congress included several provisions of the IMAGINE Act led by Rep. Cicilline. Do you support the adoption of materials that will last longer and cost less than traditional materials in our highway infrastructure?

   - *Denver supports the adoption of non-traditional materials. Modern materials and construction practices can provide significant benefits for states and municipalities and will optimize asset management approaches. We encourage the committee to provide funding to states and municipalities to incentivize the testing of new materials and further evaluate its effectiveness, including lifecycle and maintenance costs.*

<u>Senator Lummis:</u>

1. In your testimony before the committee, you advocated for the Surface Transportation Block Grant (STBG) program to be allocated entirely to local governments rather than the current standard of 55% going towards local governments with the rest going to the state. Given the varying needs of states arising from differences in geography, topography, and population density, why is the current 55% set aside inadequate for local governments?

   - *The current set-aside delays project delivery in areas that need infrastructure improvements now. To ensure cities of all sizes and resource levels can achieve the economic benefits of faster project delivery, Denver believes that Congress and the administration should require states to sub-allocate federal formula funds to metro areas at a level equivalent to their economic contribution to the state. The law should specify that cities have programmatic control over these funds, as opposed to allowing other entities to spend them on projects within a city's borders.*

   - *Additionally, Cities cannot currently move a federally-funded project forward without state DOT approval, even after meeting all FHWA requirements. This presents an acute problem for the nation's largest cities (including Denver) that already maintain more roadway miles and complete more annual projects than many state DOTs. FHWA should adopt a direct aid model that includes an optional grant of 'self-certification' and delegation of design authority directly to the cities with the capacity to meet federal requirements.*

2. There are many states, including my home state of Wyoming, that are geographically large and do not contain large urban centers. The current flexibility in the formula funds allows the states to allocate funds to the projects of highest need and impact. Are you concerned that your proposal to change the local government allocation in the STBG would adversely affect these types of state which rely on federal-aid highways to connect the population centers?

   - *We recognize that what works for Denver and other large urban centers doesn't necessarily work for everyone. But Denver believes that enabling more local control over project selection, design, and development will better allow cities and states alike to more efficiently allocate resources and improve project delivery. For example, state departments of transportation already have the ability to waive their oversight over federally funded projects in cities, but rarely do so. For cities, this often results in long delays, duplicative design and environmental reviews, and requirements that may contradict local safety or sustainability goals.*

   - *To ensure state DOTs support their local counterparts and defer to their authority as required by the law, Denver requests that Congress incorporate language into the law explicitly granting default design authority to cities, provided they are using an approved design guide. When states administer federal funds to cities, they are neither required nor* *permitted to require cities to comply with state design standards or safety policy. Language stating that cities have design authority by default must appear in the next reauthorization.*

- *State DOTs are authorized to exercise a great deal of flexibility to streamline project delivery. Denver feels that these same flexibilities should be extended to cities. This would include exempting small projects from environmental review, transferring funds between formula programs, and expanding design options which would allow cities to better achieve improved safety, climate, and state-of-good-repair outcomes.*

Senator CARPER. Mayor Hancock, Senator Stabenow and I heard it through the grapevine that you were a big Marvin Gaye fan. I guess you are.

Mayors are going to play a big role in this legislation as we go forward, and we welcome your participation, but also mayors across the country, just as we welcome the involvement of our Governors.

Next, the fourth witness today on our panel is Victoria Sheehan.

Commissioner Sheehan, thank you for joining us, and please proceed with your statement.

STATEMENT OF HON. VICTORIA SHEEHAN, COMMISSIONER, NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION; PRESIDENT, AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

Ms. SHEEHAN. Good morning, Chairman Carper, Ranking Member Capito, and members of the Committee. Thank you for this opportunity to appear today and speak to the critical need for timely reauthorization of the Federal surface transportation legislation.

My name is Victoria Sheehan, and I serve as the Commissioner of the New Hampshire Department of Transportation, and as President of the American Association of State Highway and Transportation Officials, or AASHTO. Today, it is my honor to testify on behalf of the Granite State and AASHTO, which represents the State Departments of Transportation in all 50 States, Washington DC, and Puerto Rico.

First, allow me to express on behalf of all the State DOTs our gratitude for your leadership on the $10 billion in COVID-19 relief provided last December. We also thank you for your firm commitment to getting the Federal surface transportation bill done on time, as well as possibly providing infrastructure funding as part of a future economic stimulus and recovery package.

This morning, I would like to begin by discussing why timely reauthorization of the Federal surface transportation programs is so important. New Hampshire, as a small, rural State, relies heavily on Federal funds to make infrastructure improvements. Any delay, or even worse, a series of short term extensions, would wreak havoc across the country and would impact not just State DOTs, but our partners, which are local governments and the construction industry.

Further, a stable Federal surface transportation program has become even more crucial as States like my own continue to deal with the loss of State revenue with the impacts of the pandemic.

Here in New Hampshire, we use Federal funds to complete projects across the State, projects such as the reconstruction of Route 16 in rural communities like Cambridge, Gorham, and Errol, and to make safety improvements like the intersection of Routes 16 and 41 in Ossipee, New Hampshire.

We also invest in large scale projects in more urban areas using the Federal program and the funding tools it provides to ensure that major projects are not advanced at the expense of smaller projects in less populated regions of the State. As an example, to complete the reconstruction of Interstate 93 from Salem to Manchester, New Hampshire secured a TIFIA loan. This loan has allowed the Granite State to pledge State revenues to rural paving and bridgework, and stretch the value of the State gas tax increase, that otherwise would have funded only this one, large scale project.

Now, I would like to talk about how transportation investment can serve as a key economic stimulus to drive a recovery nationwide. A well performing transportation network allows American families to benefit both as consumers for lower priced goods and as workers by gaining better access to employment. It also allows businesses to manage inventories and move goods more affordably while ensuring employees can reliably get to and from work.

As Congress considers providing additional financial support to stimulate the economy and to recover from the effects of the COVID-19 pandemic, AASHTO asks you to provide funding through existing highway and transit formulas, that they provide funding in the quickest, most efficient manner, understood by our State DOTs, and provide funding to every State and locality. It is also important that Congress not attach unrealistic timelines related to the obligation of economic recovery funding, nor should such funding come with additional Federal requirements that delay obligation and expenditure of funds.

Last, as you consider surface reauthorization policies, know that AASHTO strongly supported the bipartisan process this Committee used in the last Congress to develop the America's Surface Transportation Infrastructure Act. Based on that foundation of partnership, we believe the next bill's core policy principles should look at the following: First and foremost, like I said earlier, timely reauthorization of long term build. A long term sustainable revenue solution to the Highway Trust Fund, increased and prioritized formula based funding to States, increased flexibility, reduced program burdens, and improved project delivery and support to ensure State DOTs are able to harness innovation and technology.

Meanwhile, our State DOTs will continue addressing ongoing and emerging policy issues, such as performance and asset management, infrastructure resiliency, equity, carbon reduction, as well as broadband and other technology deployment in our highway right of way.

To conclude, this week hundreds of State DOT leaders from all corners are gathering virtually at AASHTO's 2021 Washington briefing. While we won't be able to visit with you in person as we normally do, AASHTO and the State DOTs will continue advocating for strong Federal-State partnership to address our surface transportation investment needs.

Thank you again for the honor of being here today and the opportunity to testify. I am happy to answer any questions.

[The prepared statement of Ms. Sheehan follows:]

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO

TESTIMONY OF

Victoria F. Sheehan

President, American Association of State Highway
and Transportation Officials
Commissioner, New Hampshire Department of Transportation

REGARDING

Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation

BEFORE THE

Committee on Environment and Public Works
of the United States Senate

ON

Wednesday, February 24, 2021

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INTRODUCTION

Chairman Carper, Ranking Member Capito, and Members of the Committee, thank you for the opportunity to appear today and speak to the critical need for timely reauthorization of the federal surface transportation legislation, as well as the importance of infrastructure investment as part of an economic recovery package.

My name is Victoria Sheehan, and I serve as Commissioner of the New Hampshire Department of Transportation (NHDOT) and as President of the American Association of State Highway and Transportation Officials (AASHTO). Today, it is my honor to testify on behalf of the Granite State and AASHTO, which represents the state departments of transportation (state DOTs) of all 50 states, Washington, DC, and Puerto Rico.

First, allow me to express the state DOTs' collective and utmost appreciation for you—the members of the Environment and Public Works (EPW) Committee. Your leadership on several important issues affecting state DOTs must be commended: the repeal of the $7.6 billion rescission of highway contract authority in 2019; the extension of surface transportation programs through fiscal year 2021, while providing the funds needed to shore up the federal Highway Trust Fund during that period last fall; the $10 billion in COVID-19 relief funding for state DOTs to help replace lost revenue in December; and just as important, your firm commitment to getting the federal surface transportation bill done on time and possibly providing infrastructure funding as part of a future economic stimulus and recovery package.

As part of your efforts to reauthorize the federal surface transportation bill and to consider economic stimulus and recovery funding, AASHTO and its member state DOTs welcome the opportunity to discuss the importance of both at today's hearing.

At the outset, I'm proud to share the overarching policy vision for AASHTO, as laid out in our new 2021-2026 Strategic Plan. In it, we are calling for providing improved quality of life through leadership in transportation—and a key goal is Safety, Mobility, and Access for Everyone which we look to achieve through the following objectives:

- Advance a safe, multimodal transportation system
- Connect community, economy, land use and the environment
- Advance equity and social justice
- Improve asset performance
- Strengthen resiliency
- Align transportation interests across partners and regions

With this in mind, I would like to emphasize the following issues as part of my testimony today:

- The importance of a timely reauthorization of federal surface transportation programs;
- The tangible economic benefits of investing in highway transportation and other infrastructure—both as part of the reauthorization effort and as part of any investment in the recovery from the current pandemic; and
- The surface transportation reauthorization policy priorities of AASHTO's state DOT members.

THE IMPORTANCE OF A TIMELY REAUTHORIZATION OF FEDERAL SURFACE TRANSPORTATION PROGRAMS

The COVID-19 pandemic has impacted all of our lives—the way we work, where we work, and how we travel. State DOTs have had to work hard to adjust to these changing conditions.

As critical infrastructure workers, our primary focus was on keeping our state DOT staff and contractors safe. Many of our engineers and administrative staff pivoted to full-time telework, while state DOTs partnered with the construction industry and other stakeholders to develop protocols that would reduce the spread of COVID-19, allowing our construction programs to continue. While some states did have to shut down their construction programs for short periods, in other states steps were taken to advance projects and take advantage of lower traffic volumes. As an example, in New Hampshire we had several projects that were planned to be completed in multiple phases, with single lane closures in each phase. With lighter traffic additional lanes could be closed at one time, allowing the work to proceed more efficiently and shortening the overall duration of construction.

The reduction in traffic volumes does, however, translate to a reduction in revenue. The $10 billion in COVID-19 relief funding that Congress provided to state DOTs late last year has helped stabilize state DOT budgets. But another important way that Congress can further help is by reauthorizing surface transportation programs prior to the expiration of the current extension on September 30.

States like New Hampshire rely especially heavily upon the federal surface transportation program in order to enable the necessary infrastructure investments for our citizens. And a stable federal surface transportation program has become even more crucial as New Hampshire deals with the continued loss of state revenue due to the impacts of the pandemic on our state. Any delay—or even worse, a series of short-term extensions—would wreak havoc across the country and would impact not just state DOTs, but our partners such as local governments and the construction industry.

So AASHTO and its members stand ready to assist this Committee and others in Congress to successfully complete the reauthorization of a multi-year surface transportation on-time and with robust funding.

THE TANGIBLE ECONOMIC BENEFITS OF INVESTING IN TRANSPORTATION INFRASTRUCTURE

Surface Transportation Reauthorization

For many years, Congress has struggled with how to address the insolvency of the federal Highway Trust Fund (HTF). Since 2008, Congress has had to transfer over $150 billion from the General Fund of the Treasury to the Highway Trust Fund in order to maintain funding levels. While AASHTO is very grateful for Congress's unwillingness to reduce surface transportation investments, we recognize the General Fund transfers do not provide the long-term solution needed to stabilize these important programs.

We know that substantial and recurring funding challenges have caused the investment backlog for transportation infrastructure to increase—reaching $836 billion for highways and bridges and $122 billion for transit according to the United States Department of Transportation.

According to recently released baseline projections from the Congressional Budget Office, in order to simply maintain the current Highway Trust Fund (HTF) spending levels adjusted for inflation after the current extension of the Fixing America's Surface Transportation (FAST) Act, Congress will need to identify $74.8 billion in additional revenues for a five-year bill through 2026; $97.2 billion would be needed to support a six-year bill through 2027 for both the highway and transit accounts. At the same time, the purchasing power of HTF revenues has declined substantially mainly due to the flat, per-gallon motor fuel taxes that have not been adjusted since 1993, losing over half of its value in the last 28 years.

As you know, every state is required to have a Statewide Transportation Improvement Program, which identifies funded priorities for the next four years. In order to do this, every state must make assumptions about what might happen to federal funding when the programs expire on September 30th. Any shortfall or delay in federal funding will lead to serious cash flow problems for states and local governments. A lack of stable, predictable funding from the HTF makes it nearly impossible for state DOTs to effectively plan – and this is especially true for large projects that need a reliable flow of funding over multiple years. Projects that state DOTs undertake connect people, enhance the quality of life for our citizens, and just as important, they stimulate economic growth in each community where they are built.

The NHDOT recently completed the reconstruction of Interstate 93 from Salem to Manchester. While this was a capacity improvement project—which has led to significant economic activity along the corridor—this project also reconfigured five interchanges to improve safety. Additionally, there was work performed on 45 bridges and culverts, 20 of which were structurally deficient, with numerous others in need of rehabilitation or preservation.

This southern New Hampshire project is located in a more urban region of the state; however, to fund the final phases of this $800 million project, NHDOT pursued a Transportation Infrastructure Finance Innovation Act (TIFIA) loan, backed by a state gas tax increase. The TIFIA loan is structured so that New Hampshire is paying interest only for the first ten years of the 20-year loan, allowing us to pledge the additional new revenue collected to rural paving and bridge work. Using state revenue and a federal loan for the completion of this major project enables us to direct regular federal apportionment to work across New Hampshire, but specifically to rural areas.

NHDOT advances a wide variety of projects in rural areas with federal funds. From the resurfacing of US Route 2 and NH Route 16 in rural communities like Gorham, Cambridge, and Errol, to making safety improvements at the intersection of Routes 16 and 41 in Ossipee. We also fund a significant number of bridge preservation, bridge replacement, and resiliency projects with federal dollars. The Lancaster-Guildhall bridge replacement project replaced a structurally deficient and functionally obsolete bridge over the Connecticut River into Vermont. This is a critical crossing located along a significant freight corridor.

A recent project in Errol repaired a failed slope along the Magalloway River, an area that has experienced several severe storms, causing erosion of the river bank, which left the roadway vulnerable to being undermined during future events.

Many of these projects are located on vital north-south and east-west corridors, which carry a high percentage of truck traffic, as well as vacation traffic travelling to and from the White Mountains. If these improvements were not made, down posting of bridges or closures during future extreme weather may have been necessary, leading to lengthy detours and significant impacts on individuals, communities, and commerce.

Economic Stimulus and Recovery

Fortunately, infrastructure investment is again one of the top national policy agenda items the last few years, even if significant action is yet to be taken. This year is no different, with Congress and the Biden Administration discussing potential economic stimulus and recovery legislation that would include infrastructure investments.

Investments in highway and transit projects are a critical component of a federal economic recovery package, as benefits go well beyond short-term construction jobs created.

The Federal Highway Administration (FHWA) estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of $5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs, and reduced emissions as a result of improved traffic flow. Perhaps most importantly, according to an FHWA study, $100 million spent on highway safety improvements will save 145 lives over a ten-year period.

Another significant project that NHDOT is advancing is the construction of a new interchange, Exit 4A on Interstate 93 in Londonderry. The cost avoidance due to travel time savings for commuters is estimated at $890,000 annually when this project is complete. Additionally, the project will allow for the development of land adjacent to the interchange, which is expected to lead to $134 million in economic activity. The development planned in this area is mixed use, with office, retail and residential units, a place to live, work and play.

A well-performing transportation network allows American families to benefit both as consumers from lower priced goods and as workers by gaining better access to jobs; and also allows businesses to manage inventories and move goods more cheaply and get employees reliably to work.

During the pandemic, a majority of states classified the transportation industry and its workers as essential. This designation demonstrates the important role of state DOTs in sustaining jobs, including in the private sector.

As Congress considers providing additional financial support to stimulate the economy and to recover from the effects of the COVID-19 pandemic, AASHTO would make the following recommendations as it relates to surface transportation investments:

- Provide funding through existing highway and transit formulas as the recommended distribution mechanism, as the existing formulas:
    - Provide economic recovery funding in the quickest, most efficient manner;
    - Are understood by state DOTs and public transportation agencies, and;
    - Provide funding to every state and every public transportation agency.

It is also important that Congress:

- Not attach unrealistic timelines related to the obligation of economic recovery funding, nor should such funding come with additional federal requirements that delay obligation and expenditure of funds;

- Focus on programs and projects that generate the most benefits through the entire lifecycle of the asset, rather than mandating short spending deadlines which will lead to less efficient use of taxpayer dollars due to project sponsors' inability to address longer-term needs, and;
- Provide highway and transit economic recovery funding at a 100 percent federal share in recognition of the ongoing revenue losses being experienced by state DOTs and public transportation agencies.

The COVID-19 pandemic has been devastating to so many of our citizens, our businesses and our communities. Given these impacts, we now have an opportunity to restore the economic vitality that makes America a nation we are proud to call home. To do this, the situation demands bold action to invest in our transportation infrastructure in order to rebuild our economy, while also making long-lasting improvements to the transportation systems that we rely upon every day.

The Surface Transportation Reauthorization Policy Priorities of AASHTO's State DOT Members

State DOTs are truly multimodal. They build, operate and maintain a world class highway system, invest in public transportation, fund intercity passenger rail and support airports, short line railroads and harbors. Because of this, AASHTO and its state DOT members play an important role in the surface transportation reauthorization process.

AASHTO strongly supported the policies and goals of this Committee's reauthorization proposal in 2019—America's Surface Transportation Infrastructure Act or ATIA. This multiyear legislation increased surface transportation program funding levels, maintained the use of formulas to apportion the majority of these funds and recognized the importance of emerging policy areas such as reducing greenhouse gas emissions, addressing climate change and infrastructure resiliency and refraining from adding burdensome requirements on state DOTs. ATIA was a well-balanced and a unanimously bipartisan bill that AASHTO was proud to support and we are grateful that it will serve as the starting point for the Committee's work on reauthorization legislation this year.

As the Committee works on its new proposal, I want to make you aware of AASHTO's core reauthorization principles:

- Timely reauthorization of a long-term bill to prevent unnecessary program disruptions and delays in safety and mobility benefits to states and communities;
- Enact a long-term, sustainable revenue solution to the Highway Trust Fund to provide multiyear federal funding stability to support state transportation investment needs;
- Increase and prioritize formula-based funding to the states, which optimally balances national goals with state and local decision making;
- Increase flexibility, reduce program burdens, and improve project delivery to speed up delivery of transportation investments while protecting the environment and lowering project costs, and;

- Support and ensure state DOTs ability to harness innovation and technology to achieve a safer and more resilient, efficient, and secure surface transportation system.

AASHTO members are also working on emerging policy areas including:
- Performance and asset management to maximize system-wide efficiency and lifecycle by building upon the MAP-21 performance measures;
- Infrastructure resiliency and emergency relief that utilizes an all-hazards approach to enable flexible solutions for construction, reconstruction, restoration, rehabilitation, and preservation;
- Carbon reduction including electric vehicle charging infrastructure that expands low-carbon travel options and focuses on reduction of tailpipe emissions, and;
- Broadband and other technology deployment in the highway right-of-way that enables highest and best use of a critical transportation resource owned and operated by state DOTs.

CONCLUSION

State DOTs are absolutely dedicated to supporting Congress in the development of strategies to ensure full economic recovery and growth, and enhancing quality of life through robust investments in transportation programs and projects.

This week, hundreds of state DOT leaders from all corners of are gathering virtually at AASHTO's 2021 Washington Briefing. While we won't be able to visit with you in person like we normally do, AASHTO and the state DOTs will continue advocating for the reaffirmation of a strong federal-state partnership to address our surface transportation investment needs.

Thank you again for the honor and opportunity to testify today, and I am happy to answer any questions.

Senate Committee on Environment and Public Works
Hearing entitled, *"Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."*
February 24, 2021
Questions for the Record for Commissioner Victoria Sheehan

Senator Carper:

1. As a public executive, you carry the responsibility of the public's trust, and are accountable to those you serve. Congress set national goals in 2012 to reduce highway fatalities and keep our roads and bridges in good repair. And since 2012, Congress has provided states with more than 400 billion dollars through the federal highway formula programs. Yet traffic fatalities in 2019 were higher than they were in 2012, and twenty percent of states had more bridges in poor condition in 2019 than they did in 2012. Do you agree that performance accountability is critical, especially when it comes to ensuring federal investments support safety and other national goals?

   AASHTO Response

   AASHTO and the State DOTs are supportive of the MAP-21 and FAST Act performance management provisions and believe that the performance management principles can be implemented along with the performance-based transportation planning provisions in a manner that advances a safer and more efficient transportation system without imposing undue regulatory burdens on States. Performance management, including the establishment of performance measures and performance targets, are not new to the State DOTs. For the last decade, many State DOTs have developed and implemented various performance management systems to help them make effective investment decisions within resource limitations while at the same time meeting stakeholder expectations during a time of financial uncertainty. There are some recognized challenges ahead in the effort to achieve those goals and AASHTO and the State DOTs continue to engage with U.S. DOT to address these challenges and work together.

   It is important to note that implementing a robust performance management program, as Congress required in 2012, does not result in immediate and improved performance. First, the regulations implementing the statutory requirements of MAP-21 and the FAST Act did not get finalized until January 2017. The first cycle of target establishment and reporting will be complete at the end of 2021. AASHTO looks forward to seeing the results of the first reporting cycle. Second, Congress has not significantly increased the amount of funding over the 2012 to 2019 time frame. Thus, State DOTs are allocating limited and declining resources using a performance management framework. And, in some cases, the performance management framework is being used to better manage declining performance of the transportation system since additional resources have not been made available.

   One of the biggest challenges that has been identified by both the State DOTs and USDOT is communicating performance management to the public, professionals, and decision makers. The State DOTs are creating a tremendous amount of data and information and many different aspects of the transportation system. One concern of the State DOTs is that organizations and others will selectively choose and use data elements to support a certain narrative they believe to be true and not represent the entire story on the condition of the transportation system that the State DOTs own, operate, and manage. For example, the condition of bridges can use either the count of bridges (treating all bridges as equal) or normalize based upon bridge deck area (larger bridges have more importance). In setting up your question you use data on the count of bridges. At the aggregate level, between 2012 and 2018, the count of all bridges in either good or fair condition was 92%. Over that same time period, the count of bridges in poor condition decreased by nearly 18%. Focusing on National Highway System bridges, NHS bridges in good or fair condition represented 97% of all NHS bridges.

Safety will always be the highest priority for State DOTs. As you stated, traffic fatalities have increased between 2012 and 2019. CY2021 fatalities and fatality rates are trending in the wrong direction. While State DOTs can use performance management data to drill down and see where the increase in traffic fatalities are occurring, there is no mistaking that we must do more to drive the numbers down. State DOTs, in working with our partners at the federal, state and local level, will continue to use performance management and a data-driven approach to identify how best to improve the safety of the transportation system for all users.

AASHTO is supportive of the statutory goals underlying the law and regulations concerning performance management. Fundamentally, the national level performance measures adopted by USDOT will serve to improve communication between transportation agencies and decision makers and users. However, the national-level measures will not be the only measures a State DOT will use to manage their transportation system. U.S. DOT, decision makers, and users alike must know that State DOTs use numerous different performance measures to manage the assets in their system and that these other measures must be given due consideration when assessing how the state is performing.

Senator Whitehouse:

1. States currently have very different rules from one another around how consumers pay for EV charging. This could be its own obstacle to EV deployment. For example, part of what makes long-haul trucking such a relatively smooth experience is that the cost to fill up a truck only varies by about 10-20% across the country. With current charging rules, costs for charging up an electric truck will have the potential to vary by many times that amount. Do you see a need for updated laws, rules, and standards pertaining to EV charging?

AASHTO Response

Electric charging for long-haul trucking EVs will likely be done at dedicated commercial facilities because of the high wattages and duration needed. Like the initial growth of gas stations, the private sector EV charging infrastructure companies will likely see stabilization of charging fees based on supply and demand mechanisms that will rationalize and level-set charging costs. There may be an initial need for jump-starting the provision of such long-haul truck charging facilities and local EV charging infrastructure, but over the long term, market forces should be allowed to account for competition, public utility readiness and electric grid capacity, and demand.

2. Rules governing EV charging have the potential to exacerbate existing economic disparities. For example, people who live in multi-unit housing and rent their home – a population that is disproportionately low-income and minority – often must pay three to four times what homeowners pay to charge their vehicles. These higher costs come as a direct result of high "demand charges" that utilities impose on commercial charging stations, which according to Rocky Mountain Institute make up as much as 90% of the stations' utility bills. In recent years, a few states have taken up the issue and reformed charging rates for electric vehicles. Do you agree that it is important for all states to initiate utility rate reform for electric vehicle charging in order for our nation to attain our transportation electrification goals in an equitable way?

AASHTO Response

We think that states should initiate utility rate reviews for electric vehicle charging to assure that utility grids are able to support likely supply and demand scenarios, so that EV charging costs are rationalized to provide equitable access to vehicle charging infrastructure. Depending on electrification goals, this could perhaps be supported or incentivized by the EV industry. EV ownership and use should be assessed as part of an integrated transportation system that supports fair and equitable mobility in a sustainable way.

3. In infrastructure projects, innovative material have the potential to improve efficiency and extend useful life. For the materials to compete with traditional ones, standards need to be updated so engineers feel comfortable using newer materials in their designs. This issue was highlighted in the National Academies' report on innovative materials in bridges. The House-passed highway bill from last Congress included several provisions of the IMAGINE Act led by Rep. Cicilline. Do you support the adoption of materials that will last longer and cost less than traditional materials in our highway infrastructure?

AASHTO Response

Yes, AASHTO and the State DOTs fully support the adoption of materials that last longer and cost less than traditionally-used materials in our highway infrastructure. There are at least two challenges to overcome in this area. The first challenge is to prove that these materials do, in fact, last longer (e.g., they maintain their strength and durability) over the long haul, as many transportation materials are expected to last anywhere from ten to over 100 years. At some point, testing in real world situations must take place and an agency must take on the risk of being the first to use a new product. Pilot programs for testing and sharing the resulting information are useful in this area, and AASHTO has a program for testing new and unique materials that do not currently have a standardized testing method in our National Transportation Product Evaluation Program (NTPEP), along with the AASHTO Product Evaluation List (APEL). The second challenge is the low-bid requirement on most construction projects. In some cases, the initial cost of a new technology is prohibitive when competed against other more traditional materials that have a known track record of performance, even when there are claims of improved performance.

4. U.S. ports are significant sources of emissions through heavy equipment, vehicles, and vessels in action at the facility. Efforts to reduce these emissions through electrification efforts will support reductions in these emissions. Do you support additional funding to electrify and reduce emissions at our ports? Do you support additional funding to electrify our vessels that use the waterways?

   AASHTO Response

   AASHTO supports additional federal resources to electrify and reduce emissions at ports and to electrify vessels that use the waterways. It is also important such resources are provided with flexibility to ensure successful implementation. Specifically, the definition of "automation" needs to be clarified to utilize already-provided funds from Congress for this purpose. Also, as much of the electrification equipment is made outside of the US, there is a Buy America implication to address as well. Lastly, electrification technology for container handling equipment is still developing; as such, funding should also support hybrid and other measures that still provide reductions in carbon emissions.

Senator Inhofe:

1. Ms. Sheehan, I'm glad to see that one of the policy areas that you are focusing on is related to transportation workforce development. During development of ATIA in 2019, I worked to secure a Workforce Development, Training, and Education program within the bill. This provision would have required the Secretary of Transportation to make workforce development grants and would have expanded the eligibility of funding towards apprenticeships and on-the-job training, educational institutions beyond institutions of higher education, and outreach partnerships with labor organizations and local economic development organizations. Additionally, this provision would have authorized the Secretary to award grants for training deployment purposes to develop, test, and implement new curricula and educations programs.

   By expanding the ability for States to support workforce development programs and encouraging collaboration between State DOTs, industry, economic development organizations, and labor groups, we are helping foster the next generation of the surface transportation workforce.

a. Would these changes have a positive impact on the ability of your State to address surface transportation workforce needs?

AASHTO Response

Workforce development is a top-tier issue for state departments of transportation across the country. State DOTs rely on contractors, consultants, and vendors to assist us in delivering projects, programs, and services. For this reason, not only do state DOTs need to recruit and retain a diverse group of workers, but continuous engagement with a wide range of stakeholders from the transportation community, along with input from industry, business and labor is critical to meeting workforce needs of today and tomorrow.

b. What surface transportation workforce changes do you foresee impacting your State in the coming years? What impact would this have on your States' ability to finish projects in a timely fashion?

AASHTO Response

State departments of transportation have an aging workforce and a significant portion of it is currently eligible to retire, with even more becoming eligible to retire in the coming years. Transportation jobs are good paying jobs that pay a living wage and can contribute to our country's economic vitality and an enriched quality of life for our citizens. It is important that we continue to work to highlight and promote these opportunities to recruit and retain top talent. There is also a need to recruit both traditional and non-traditional workers. New technologies and innovation require new skillsets and competencies. Likewise changes in the workplace culture and generational differences require different management competencies. It starts with recruitment, then training programs, followed by the implementation of knowledge management tools and leadership development programs. Only if investments are made in each of these areas will our industry have the workforce necessary to deliver the robust transportation system our country needs.

c. Would these programs allow people to 'hit the ground running' when entering the surface transportation industry without causing significant retraining delays?

AASHTO Response

Exposing students as young as elementary school to the variety of careers associated with the transportation sector and providing quality education, including STEM education is the first step. Enhancing on the job training programs and continuous education for transportation works would then help strengthen the workforce and ensure a pipeline for the future transportation workforce.

Senator Lummis:

1. One of AASHTO's proposals for Congress to consider in the next highway bill is a pilot program that would give "a limited number of states the option to treat all federal funds they receive during the pilot program years as having been apportioned to that state under the most flexible of the existing federal funding categories."

   a. Do you believe such a program would further highlight the importance of the formula funding structure as currently enacted by Congress?

      AASHTO Response

      The purpose of the pilot program is to demonstrate how states produce results using a flexible needs-based and outcome-oriented project prioritization and programming process. States rely on the MAP-21 performance management framework to guide demonstration of results. We believe this pilot would enable Congress to tangibly consider the benefits of increased flexibility based on practical, real-world experience.

   b. Do you believe there would be a significant amount of interest from states to participate in such a program?

      AASHTO Response

      Yes, may state DOTs would be interested in harnessing greater formula funding flexibility while demonstrating performance and accountability in using federal funds.

2. How can Congress foster innovation in the transportation safety sector without burdening states with cumbersome mandates? Please list specific examples as appropriate.

   AASHTO Response

   Ensuring states have the flexibility to apply funds to safety activities as best suits their individual needs will provide opportunities for innovative approaches to reducing traffic fatalities and serious injuries. Specifically, the ability to apply Highway Safety Improvement Program funds to projects, activities, plans, and reports that meet the general objectives of improving traffic safety without being limited to a list of eligible project types, will allow states to expand and be creative with their toolbox of safety countermeasures.

   In addition, flexibility to apply HSIP funds to non-infrastructure safety initiatives (such as enforcement, education, or emergency medical service programs) will allow for innovative approaches that support states' work to address safety from all disciplines. This will also allow states to more effectively collaborate with non-infrastructure partners to combine efforts to make progress more quickly toward zero fatalities and serious injuries.

Senator Shelby:

1. Commissioner Sheehan, a narrative has emerged in Washington, DC and many states that follows this general pattern: There are synthetic materials used for transportation and other types of infrastructure, but these materials are discriminated against by state DOTs, other entities responsible for public infrastructure and engineers in several ways. First, they are not treated fairly in the standard-setting process. Second, state DOTs, other government entities and engineers are not using these synthetic materials because they do not know about them or are not doing their job correctly. Third, there is no rational basis why a state DOT, public entity or engineer might not want to include these materials in their specifications or use them for their projects.

    a. Is this narrative accurate?

    AASHTO Response

    This narrative is not accurate. State DOTs specify and use synthetic materials all the time. Examples include: polymer-modified asphalt and emulsions, which are commonly used for paving and maintenance projects; geosynthetic materials are used for slope and water mitigation; joint-bearings are used on bridges; paints for lane markings; reflective materials in paints and signage; thermoplastic pipe; synthetic block-outs for guardrail; truncated domes on accessible pedestrian treatments and other safety devices, and many more. All of these examples are or include synthetic materials, and all are commonly used in the construction and maintenance of the transportation infrastructure.

    When determining suitability for inclusion within a construction project, there is generally not a discrete decision, and not a positive or negative association between whether materials are manufactured, naturally occurring, or produced by some other means. States determine whether materials are suitable for construction based on quantitative analysis, and they take this responsibility very seriously, as a failure of a material can lead to unnecessary cost or even injuries or deaths on the transportation system. As public service organizations, it is their responsibility to establish a material's performance through rigorous testing, determine whether it meets design and engineering requirements and qualifications for the use case, and determine whether its use is in the best interest of the taxpayers.

b. Is the standard-setting process for materials broken or discriminatory against synthetic materials such that we need to expedite the approval process for certain classes of materials or replace existing industry consensus standards with federal standards?

AASHTO Response

The standards development processes within AASHTO are established and agreed upon by the 52 AASHTO member organizations, which are the state governmental transportation departments across the country. In addition, these development processes rely on input and expertise from outside entities as well, including the private sector and the academic research community. For materials testing, states may choose whether to adopt the AASHTO standards and specifications into their work plans. The standards themselves do not qualify, approve, or certify any specific material or manufacturer. Instead, they establish minimum criteria that are used to classify those materials through materials specifications, and establish testing protocols to determine those physical properties. Individual states set acceptance criteria and accept or reject materials based on the data produced from those tests. The AASHTO Committee on Materials and Pavements consists of 21 working groups of states and industry participants working together to develop specifications and test methods for all types of transportation materials. In fact, AASHTO recently established a new technical subcommittee (working group) on "Geosynthetics and Erosion Control Devices" to meet the growing need of states and industry in this area of geosynthetic materials.

As mentioned previously, AASHTO does not approve or purport to approve any materials. However, there would be concerns regarding the quality and longevity/durability of transportation infrastructure, including roads and bridges, if materials were to be thrust upon DOTs without evidence supporting their long-term performance. There is additional concern in expediting testing procedures and mandating them prior to determining whether long-term performance is impacted.

c. Can you discuss how the AASHTO standard-setting process works and whether synthetic materials have the same opportunities to participate as other types of materials?

AASHTO Response

There are several standards development organizations (SDOs) that work in the materials field, including AASHTO, ASTM (American Society for Testing and Materials), ISSA (International Slurry Surfacing Association), and AWPA (American Wood Protection Association), to name just a few. Each of these SDOs operates differently and has varying participation from industry, government, and academic institutions. The AASHTO materials standards development process was established to develop, maintain, and continually improve materials specifications, practices, and test methods for the materials most often used in the transportation industry. While this process generally supports the needs of the State DOTs as an AASHTO program, participation is open to (and encouraged of) industry and academia as well. Anyone may request to participate and/or attend a meeting where our standards are being discussed, developed, and updated, and there are many industry and academic associates (aka "friends") within the AASHTO Committee on Materials and Pavements that participate regularly and contribute a great deal to standards development. They are welcome to develop a draft standard and submit it to the relevant technical subcommittee for consideration, and many have seen their work successfully established as an AASHTO test method. Many of our standards also come out of research conducted by the National Cooperative Highway Research Program, in which industry and academia also participate. As noted above, there is no positive or negative association among the material representatives – everyone has an opportunity to submit test methods for consideration. ASTM, mentioned previously, develops materials standards mostly through industry participation, and the State DOTs are aware that these standards exist and some specify them as well. In short, there is a great deal of opportunity for industry input in test method development through AASHTO as well as through other standards development organizations in the transportation field.

d. Can you explain the safety and other reasons for the time devoted to establish AASHTO standards?

AASHTO Response

If materials aren't tested rigorously and appropriately for performance, strength, durability, and any number of other factors, the roads and associated structures built with those materials could fail. Failed roads are more expensive to repave, maintain, and/or reconstruct, and obviously lead to longer-term costs. In addition, in a worst-case scenario, a failure of a material or product can also lead to loss of life. Data on long-term performance is critical to ensure that materials will perform adequately over the life of a project.

Standards are developed so that test results from lab to lab will provide the same information for use by engineers in designing and constructing transportation facilities. Engineers and technicians are able to look at the test results from one lab and know how those number are derived, and any agency is able to compare products in an apples-to-apples way, even when they have been tested by different labs, because the testing procedures being used are the same.

e. Are state DOTs aware of these synthetic materials?

AASHTO Response

Yes, as mentioned previously, the State DOTs are very familiar with and use a wide range of synthetic materials, and AASHTO and the State DOTs have programs and methods available to test and approve synthetic material products for use on the transportation system.

f. If these synthetic materials are not used, are there rational bases for not using them?

AASHTO Response

If certain synthetic materials are not being used, it is either because there are no established testing criteria for determining whether the materials are suitable for construction (which could potentially be addressed through the AASHTO National Transportation Product Evaluation Program (NTPEP) mentioned previously), or the data produced from testing indicates that the materials are not suitable for the use being proposed. In addition, if a facility or structure is being well-maintained through routine/traditional maintenance activities, there is typically little incentive (and possibly an inability) to change methods midstream.

2. Commissioner Sheehan, the proponents of this narrative have proposed several policy provisions to address these supposed problems. One policy approach is to prohibit public entities, such as state DOTs, from specifying or using the material of their choice. This approach has been mislabeled "open competition" by some proponents and has been rejected by Congress repeatedly.

a. Are construction materials fungible or do different construction materials have different properties, thereby leading some public entities to use a specific material as opposed to other materials for their projects?

AASHTO Response

Every material has different properties, but some materials or products may be swapped out for others if they perform similarly and meet minimum criteria for the use that they are intended. Every material needs to be tested, at which point the State DOT determines whether that material may be exchanged for another based on the resulting test data. For example, there may be multiple quarries within a region producing similar aggregate materials for a road base. It's possible that the aggregates obtained from those quarries have similar enough materials properties that they may be interchanged.

b. Are there rational reasons why one state DOT might include a material, such as a synthetic material, in a specification or a bid and another state DOT might not?

AASHTO Response

There are many factors that must be considered in the selection of construction materials, and the decisions made by State DOTs to accept or reject a material for use in their state or on a particular project may be due, but not limited, to a combination of the following factors:

- the intended use of the material;
- the performance specification(s) that must be met within that state, or on a particular project, or for a specific use;
- climate/environmental considerations, such as freeze/thaw, rainfall, and extreme temperatures;
- geology, including availability of materials, but also soil type and seismologic considerations;
- availability of materials;
- availability of contractors who are familiar with the material and competent in its use; and
- budgetary considerations, including cost-effectiveness for the intended use.

c. Can you discuss whether this approach is necessary and a good policy?

AASHTO Response

It is important to define what a good policy is or how success is to be measured. If states are successful in responsibly spending tax dollars to build and maintain safe roads with products that have proven performance, then that would point to flexibility for states being a good policy. Requiring or rushing untested or unproven materials to be used carries multiple risks, including failure of the facility, wasted taxpayer dollars, delays from unnecessary construction and maintenance, and any safety hazards associated with such construction or maintenance.

Given that state DOTs are using many synthetic materials already, it is hard to imagine a situation in which a State DOT would exclude an appropriate synthetic material from consideration in building and maintaining their transportation facilities.

3. Commissioner Sheehan, in 2019 Commissioner Braceras addressed the idea of federal legislation to promote "innovative materials." Is there a need for new federal legislation or a new source of funding to provide special treatment for these "innovative" materials? Is there anything that has changed regarding AASHTO's position on this issue as reflected in Commissioner Braceras' testimony in 2019?

AASHTO Response

It is important to establish that the terms "synthetic" and "innovative" cannot be used interchangeably, as there is a vast range of materials and technologies used in all aspects of transportation construction that are synthetic, innovative, or both. In the realm of innovation, it is also important to include innovative *processes*, as they can also be critical in establishing more cost-effective, environmentally responsible, and safe practices – not just new materials. Funding for additional research, testing, implementation, and education about new technologies and processes is welcome.

In determining what may be considered "innovative," one must recognize that different states and jurisdictions have knowledge in different areas and experience with different products and processes, so a material or process that is new to one state may be something another state has been using for years. Another aspect of innovation can be adaptive reuse, in which a by-product of some other manufacturing process, while not a new product in and of itself, might find a new "innovative" application in construction. Thus, AASHTO and the State DOTs are supportive of the promotion of innovation in all of its forms in transportation construction.

Senator Sullivan:

1. In your testimony, you list several of AASHTO's priorities for the surface transportation legislation. One of these priorities is to "increase flexibility, reduce program burdens, and improve project delivery to speed up delivery of transportation investments while protecting the environment and lowering project costs". As you know, I've been working for several years to improve the transportation project delivery process and that remains a priority for me this year as well. Would you highlight some examples of how we can achieve our shared goal of speeding up project delivery while also protecting the environment?

    a. Does it have to be a choice of one or the other, either speeding up project delivery or protecting the environment?

    AASHTO Response

    AASHTO believes there are opportunities to accelerate project delivery of transportation projects while protecting the environment and that the two are not mutually exclusive. For example, NEPA modernization efforts through the past few transportation reauthorizations have allowed state DOTs to achieve some degree of project delivery acceleration. NEPA state assignment has allowed a handful of states to assume responsibilities of the U.S. Department of Transportation under NEPA and related federal laws for surface transportation projects. Clarification and expansion of the authorities that may be assigned to the states would help the state DOTs with NEPA assignment gain additional efficiencies and would lower the barrier for other state DOTs to assume NEPA responsibilities.

    Additionally, modernizing some of the applicable laws under NEPA including the Endangered Species Act, Clean Air Act, and the Clean Water Act would help achieve added efficiencies while maintaining critical environmental protections. For example, currently there are three standards for particulate matter—1997, 2006, and 2012 and three standards for ozone—1997, 2008, and 2015. Each successive standard has tightened air quality standards. Transportation agencies in nonattainment areas must document how they plan to achieve cleaner air for all applicable existing standards. This adds costly delays unnecessarily. Transportation agencies should only need to conform to the most recent standard.

Efficiencies in project delivery could also be achieved by making all categorical exclusions available for use by any federal agency. Under current NEPA regulations, each federal agency adopts its own list of categorical exclusions (CEs) applicable to actions that the agency carries out. If multiple federal agency approvals are needed for the same projects, and only one agency has an applicable CE, then that agency can issue a CE but the other federal agencies much prepare an environmental assessment (EA)—slowing down the process unnecessarily. We recommend enacting legislation authorizing any federal agency to apply a CE that has been adopted by any other federal agency. This authority would make CEs interchangeable among all federal agencies. For example, the U.S. Army Corps of Engineers could apply a CE from FHWA's list.

Significant progress has been made toward the goal of finding efficiencies in the environmental review process for transportation projects. Average review times are faster, programmatic approaches are more widely used and environmental documents are becoming more reader-friendly. While challenges still exist in the environmental review process, our recommendations focus on making continued improvement to the NEPA process and in making the NEPA process work more smoothly with other federal requirements.

2. Alaska's rivers are our highways, but, unfortunately, the Surface Transportation Block Grant Funding allocations do not provide the flexibility necessary to meet the demands of many of my constituents. Although this is the funding stream that is intended to allow maximum flexibility to meet local needs as determined by locals at the state level. Would you support efforts to ensure flexibility for states with unique needs in the Surface Transportation Block Grant to provide adequate authority for state DOTs to prioritize funding to address the transportation needs in their communities, including those in rural Alaska?

   AASHTO Response

   With the broadest eligibility criteria of Federal-Aid Highway programs, the Surface Transportation Block Grant (STBG) program allows states to program federal dollars to meet their unique infrastructure needs. AASHTO favors the maximum flexibility possible for STBG program funds and to this end, supported language included in the American Transportation Investment Act to allow rural barge landing, dock, and waterfront infrastructure projects STBG program eligibility. We support inclusion of this provision in the next iteration of surface transportation reauthorization legislation.

Senator CARPER. Commissioner Sheehan, thank you very much for your testimony, and to all of our witnesses here today. It is hard to think of a better panel to begin consideration of our surface transportation bill than this panel.

I want to start off, I am going to just run through quickly the names of those who have shown up in person or virtually, In this order, myself, followed by Senator Capito, Senator Cardin, Senator Inhofe, Senator Sanders, Senator Cramer, Senator Whitehouse, Senator Lummis, Senator Stabenow, Senator Kelly, and Senator Padilla. All right, that is about nine people.

Let me just start off with a quick question for Governor Hogan.

Governor Hogan, as you know, the Northeast Corridor runs from down by rail, down and around Washington, DC, all the way up to Boston. There is a stretch between Aberdeen, Maryland, and Newark, Delaware, where it goes from three rails to two. There has been talk for a long time about adding a third rail between Aberdeen and Newark, Delaware, that is probably about 6 or 7 miles.

Is this a project that you have ever heard discussed in Maryland? Is this something that people of Maryland might be willing to collaborate with Delaware and the USDOT on?

Mr. HOGAN. Senator, I know that our Department of Transportation has had discussions, and we certainly look forward to continuing to talk with you about that possibility. I think those bottlenecks where, we have gone through this in Maryland, we are moving forward on the Howard Street Tunnel, where we moved from where we could only do single stack trains and it was a real bottleneck, I think, in a similar way. If you have multiple lanes going up multiple tracks going into a fewer number of tracks, it causes congestion. We think it is probably something that we would love to work with you on.

Senator CARPER. All right. Thanks so much.

Question, if I could, for Governor Whitmer.

Governor, reducing transportation emissions is a top priority for reauthorization. The good news is that the world is moving toward zero emission vehicles. A decade ago, the number of electric vehicles on the roads in the United States could be counted in the hundreds. Today, we are approaching 2 million, and it seems that a week doesn't go by that automakers don't announce an increase in ambition.

I mentioned General Motors' announcement that come, what, 2035, they will not be building any more gasoline or diesel powered vehicles, but the Ford Motor Company apparently has recently announced that all of the cars that they sell in Europe will be electric by, I think, by 2030.

Yet the market forecasts predict that the EV share of new car sales in the U.S. will lag in comparison with Europe and China. I am concerned that if the U.S. lags on EV policy, investments in manufacturing will flow to other parts of the world.

My question, Governor Whitmer, is how do we ensure that U.S. consumers are purchasing zero emission vehicles, and what are the perils of ceding our leadership here to other nations?

Ms. WHITMER. Thank you, Mr. Chairman. I appreciate the question, and at the risk of taking this Motown question too far, I think Dancing in the Streets by Martha Reeves and the Vandellas might be the right song for this undertaking, hopefully. That means we are successful in it.

I think you are asking a very important, thoughtful question. As we are trying to transition our economy and our consumption, address climate change, and our work force needs as well, and do it equitably, this is an important part of the conversation.

In Michigan, our economy is inextricably linked to the auto industry. The future of our mobility and our decarbonization goals all need to be woven together, so that we can tackle emissions.

We have to invest in and push for bold electric vehicle policy as a pathway to economic opportunity for our country and a way to address climate change. These are linked; you can't pull them apart. It is not if-or; it is both-and.

We are heavily focused on building a statewide connected charging network in Michigan. We are working to help communities and businesses transition their fleets and ensuring that we have got tools to attract and retain electric vehicle employers and to reskill our work force. All of these are important pieces of it.

I would like to highlight just one quick thing. My State's Office of Future Mobility and Electrification, one of our efforts is called Flip Your Fleet. It is a $3 million program aimed toward small businesses and school districts that we proposed in the Mobility Futures Initiative in my fiscal year 2022 budget.

So, thinking creatively about how do we incentivize this transition, how do we upscale our work force so that we are prepared? How do we build up the infrastructure across the State so that when you buy your EV that is American made, that you are able to utilize it and have confidence in that?

So these are all important pieces to incentivizing this investment in this American transition that I think we are going to need to partner at the Federal level, at the State level, at the local level, as the Mayor was speaking to. I think these are all aspects of being successful doing that.

Senator CARPER. Governor, it is encouraging to hear you tell us of the leading role that the State of Michigan is playing toward beginning to create this corridor of charging stations and fueling stations.

Senator Kelly is a retired Navy captain, a pilot, astronaut, and he knows we have a saying in the Navy, all hands on deck. When it comes to creating these corridors of charging stations and fueling stations, it really is all hands on deck. It is just not all on the Federal Government; it is not all on the State and local governments; it is not all on State Departments of Transportation. It is not all on the convenience stores of the world, the Wawas, it is a burden that we all carry, but it is an opportunity that we all share.

All right, thanks. Thank you, Governor, and next, we will turn to my colleague.

Senator CAPITO. Thank you all.

Thank you, Mr. Chairman.

My first question is to Governor Hogan, our neighbor to the north of West Virginia. Your western part of Maryland is, we often say, is just West Virginia again, or maybe you would say maybe our part of our State is Western Maryland, but we are very much tied to one another. I know that is where you have your Appalachian Development Highway System that Senator Cardin talked about. We have been working together.

My question, really, is aimed at, because you have talked about the congestion in Baltimore. You have massive transportation challenges in your more populated area, but then as you move to Western Maryland, you have the rural areas. What do you see in terms of being able to meet the transportation, that we need to put in this bill to make sure that you, as the Governor, have the ability to meet the transportation needs of both your rural and urban areas?

I do want to thank you for mentioning the One Federal Decision. We thought that was a very good part of the last bill that we passed, and we hope to incorporate it into this one.

So Governor Hogan, could you talk about the rural-urban flexibilities that you may need?

Mr. HOGAN. Sure. Thank you very much, Senator. It is great to have you as a neighbor.

I think you are absolutely right. I think the flexibility is something that I think we agree on, that the States need to have that ability to be flexible.

But it is also really important that we balance, that we address issues in both our rural and our urban and suburban communities. That is what I mentioned earlier, what we have tried to do in a very balanced plan by moving forward on every priority project in every one of our jurisdictions, from Western Maryland to the Eastern Shore.

We have done some really big projects in the urban areas, but some really important projects in all of our rural areas, as well.

I think it is critical that we come up with a certainty of a funding formula that gives us flexibility on surface transportation dollars, rather than some prescriptive regs regarding exactly how we have to use. I think new discretionary grant programs that could be awarded through other entities.

But we look forward to working with you. There is no question we have to find a balance, and going back to my comments earlier about getting a bipartisan bill, I think if we want to get everybody on board, we have got to address the transportation and infrastructure needs of all the States and all the communities across the country.

Senator CAPITO. Let me just, as a point of clarification here, in terms of the formula funding that is built into all of these bills that, as we have moved along the 5 or 6 year increments, we have, from time to time, earmarked certain parts of that formula for certain, specific types of projects, like transportation enhancement projects, and others.

Is basically what you are saying, don't take away from the formula money where you have the greatest flexibility as the Governor to create new discretionary programs that might take from your ability to be able to make those decisions at the State, local, and municipal level?

Mr. HOGAN. That is exactly right, Senator. We agree with that, and it is hard with the discretionary funding, it is hard to make long term planning decisions. Transportation projects happen over a long number of years, and for us, to really plan for all the improvements we want to make, to have some type of certainty is better, having flexibility to do what we want. But a reliability and a certainty of the funding formula is something that the Governors would prefer.

Senator CAPITO. Thank you.

Commissioner Sheehan, you mentioned in your statement about the failure to act. If we fail to act, what consequences, or if we do another short term, could you expound on that a little bit on our failure to get to a lengthy bill, a very robust, lengthy bill, as opposed to kicking the can down the road for another year? What impact does that have on you as a State commissioner, and all States?

Ms. SHEEHAN. Thank you for that question, Senator. As transportation professionals, we work closely with communities to understand what their transportation needs are, and then we set forth and develop either 5 year or 10 year transportation plans.

You make some assumptions around what Federal funding will be available. In the case of New Hampshire, for our 10 year plan, we assumed level Federal funding into the future. That is so that we can prepare the projects and have them ready to access dollars when you make them available.

Any interaction in the Federal program means that we lose an entire construction season potentially, if we are dealing with short term extensions and having to really meter the projects that we advertise and move into construction.

It is very concerning for the State DOT that directly impacts State and local governments, as well as all of the contractors and vendors that we do business with. They are staffing up and preparing to bid on all of the work that they see us advancing through our advertising programs. When we don't have the financial resources, it is devastating to those sectors of our economy as well.

Senator CAPITO. All right, thank you.

Thank you, Mr. Chair.

Senator CARPER. Thank you, Senator Capito.

Senator Cardin.

Senator CARDIN. Thank you, Mr. Chairman. Let me thank all of our witnesses for their presentation.

I want to follow up on Senator Capito's point dealing with the topic of our hearing, building back better, investing in transportation, fostering economic growth.

So, if I could, Governor Hogan, start first about your thoughts about how we can tailor this transportation program to deal with challenges in our urban center.

I specifically mentioned Baltimore City. I am aware of one major transportation request we have in for Baltimore City in regard to the I–95 exit for Port Covington. But it seems to me that, in many respects, it is more challenging to use public-private partnerships in urban centers. For a city like Baltimore that really doesn't have a rapid rail transit system and has two lines, but not a system, transit development has become more challenging.

So, as we look at reauthorizing a transportation program, do you have thoughts as to how we can make it more attractive for transportation to assist economic growth in cities like Baltimore?

Mr. HOGAN. Thank you, Senator. Yes, I do think that we have to focus on looking at every mode of transportation. I am a big believer in a balanced transportation system. We have invested $14 billion in transit in both the Baltimore and Washington region, and we re-did the entire bus system in Baltimore, hundreds of millions of dollars. We run the transportation system for Baltimore City.

There is no question that, I mentioned earlier that we did a P3 on the Purple Line and the Washington suburbs. You could do the same thing in Baltimore. But the previous plan was just one line that didn't really provide any kind of a system. But you have to make it attractive to the private sector. We would have to have the flexibility of funding.

But we have invested money to save the Washington Metro System, to build the Purple Line, and to re-do the transit system in Baltimore. But there is no question that as we try to come out of this pandemic, and we head into economic recovery, particularly in some of our urban areas, investment in infrastructure can help us create more jobs.

Just on the road project in Metropolitan Washington, on the Capital Beltway and fixing the bridge, that is going to provide 11,000 jobs for every billion dollars invested in that project, and it is going to be about a $10 billion project.

So there is no question that this is going to be a big part of our economic recovery, and it is why we have got a number of labor groups that are just as excited as some of the business entities and the State and local governments.

Senator CARDIN. There is no question we have an aggressive program for the Washington area dealing with both transit and roads. I find Baltimore has challenges that have not yet been met. So I would just welcome your thoughts as we go through the process as to what incentives we can put into a transportation reauthorization that makes it easier for urban centers themselves, not necessarily suburban areas, but the centers themselves to be able to attract economic growth.

Mayor Hancock, I would like to ask you a question, following up on Senator Capito. I am the author of the Transportation Alternative Program. It gives flexibility on the use of transportation funds for local government units, so that they can deal with their needs and have some ability to deal with paths, bike paths, bike safety, tourism type transportation needs, et cetera.

Can you just tell me, how important is it for a mayor of a major city to have some flexibility on the use of transportation money coming from the Federal Government and not have to solely rely upon the allocation and partnership with the State?

Mr. HANCOCK. Senator, your questioning is so on target with what most mayors across this country are dealing with and are asking for with regard to our plan, from the U.S. Conference of Mayors to the U.S. Congress and to the Biden administration.

Local governments have the ability to be much more nimble with their ability to address the challenges facing their residents. Here is the reality: 80 percent of all the roads that we as citizens travel on, are sitting in front of our homes. They are sitting in front of our small businesses. It is the road that we use to get to work every day.

Yet, we are only seeing a small portion of the resources that are coming to our States to, particularly, our metro-urban centers. You mentioned Baltimore. Denver is not much different, as well as the other large, metropolitan areas in the State of Colorado, namely down south in Colorado Springs and here in the metro Denver area.

We could take those resources and create the multi-modal role that we feel we need to do and address the issues around equity and again, climate change, that we put forth as priorities.

If we have greater flexibility and more resources directed to city governments, I think you will see us move much more efficiently to address the overwhelming infrastructure challenges that face, again, 80 percent of the roads that our people are traveling on every day.

Let me just mention this. Post-pandemic is going to mean that we are going to have a different work culture in this country. We believe that most people are going to have a rotational basis of working remotely and then in person. You are going to see small businesses who have been disproportionately harmed working to try to come back and recover as quickly as possible.

I think the faster, more efficient way for us to address the roads will help everybody get to a better state of recovery in the next economy, and that is going to be critically important. We won't have time, as the Ranking Member talked about, bogging down municipalities in bureaucracy and having this intermediary of the State, again, playing a role.

Although the State, and I am going to say, the States have been great partners. But we can move much more efficiently and be more nimble and accountable in moving forward with these road improvements that we have to have, be more multi-modal, and again, addressing the issues of climate, equity, and improvement on a much more fast track basis.

Senator CARDIN. Thank you very much.

Senator CARPER. Thank you, Mayor, and thank you, Senator Cardin.

Now, another former mayor, and a mayor of Tulsa, if I am not mistaken, who has led this Committee, led the Armed Services Committee, and knows a thing or two, having authored major legislation for years on transportation.

Senator INHOFE. It is been a joy working with a lot of the people who have—Ben is leaving right now, and the rest of us here. This is what we are supposed to be doing, the two most important things are defending America and infrastructure. At least, that is what I have always believed.

Real quickly, I have a couple of UCs I want to propose at this time. One would be, I wrote an op-ed piece in the Washington Times this morning having to do with the bipartisan necessity that we are going to be dealing with right now to have a successful bill, and I ask unanimous consent that it be made a part of the record.

Senator CARPER. Without objection.

[The referenced information follows:]

We can come together for smart infrastructure

By U.S. Sen. Jim Inhofe

I am eager to get to work on infrastructure policy to further Oklahoma priorities and bring needed investment to the roads, bridges, and infrastructure that connect communities, support economic productivity, and create jobs across America. I am confident we can do this unless the left wing of the Democratic Party insists on their radical agenda being included. Infrastructure legislation has historically been an area where the two sides have come together with bipartisanship as a commitment. As we continue to rebuild and reconnect our communities from the past year, we must ensure any infrastructure focuses exclusively on just that: real, needed infrastructure.

We have proven time and again that infrastructure is something we can come together to do. We did it in 2012 with the Moving Ahead for Progress in the 21st Century (MAP-21) and in 2015 with the Fixing America's Surface Transportation (FAST) Act.

We've made real change happen in the past. With strong bipartisan support in Congress, MAP-21 made real progress to accelerate construction by putting the power back where it should be—in the hands of the states. It gave states like Oklahoma much needed flexibility to use transportation money how they saw fit, cutting Washington bureaucrats out of the process. We must preserve and advance this progress in future bipartisan transportation reauthorization bills.

We have proven time and again that infrastructure is something we can come together to do. We did it in 2012 with the Moving Ahead for Progress in the 21st Century (MAP-21) and in 2015 with the Fixing America's Surface Transportation (FAST) Act.

In 2015, then-Sen. Barbara Boxer (D-Calif.) and I led the charge in passing the much-needed Fixing America's Surface Transportation (FAST) Act—the sixth reauthorization bill I have worked on and the first long-term federal investment in our nation's transportation infrastructure since 2005. The FAST Act established a new freight program to expedite shipping in our growing economy. We must continue our efforts to reduce congestion and streamline the movement of agriculture freight and other goods through our nation's integrated transportation network.

In 2019, I was proud to say the Senate's bipartisan America's Transportation Infrastructure Act of 2019 was reported from committee with many of my priorities included. It would have amended existing freight programs to allow my state of Oklahoma flexibility to modernize our waterways and increased opportunities for states to apply for federal grants focused on projects of regional significance. It would have created meaningful workforce development opportunities to train the next generation of engineers, technicians, and workers desperately needed to build, repair, and maintain our nation's infrastructure. Unfortunately, it expired without further consideration last year, in large part because the House moved forward with a partisan transportation bill instead.

BUILD and INFRA grants empower states to complete major transportation infrastructure projects of national and regional significance, fostering economic growth, supporting accessibility, and providing critical safety advancements for communities across America. In Oklahoma, recent grants have supported a major bridge upgrade, cemented our inland ports as regional hubs for jobs and industry, and improved safety and connectivity in key corridors across major urban centers. We must continue to empower this kind of smart investment throughout America.

Infrastructure improvement is possible, and maybe even probable, with this new administration. My recent meeting at the White House is a good first step. But infrastructure has to be focused on real projects our economy needs—not a liberal wish list.

U.S. Senator Jim Inhofe, Oklahoma Republican, serves as ranking member of the Senate Armed Services Committee. He is also a member of the Senate Environment and Public Works Committee and the Senate Small Business Committee. Sen. Inhofe is an avid pilot and committed supporter of infrastructure for the U.S. to drive the world's economy.

Senator INHOFE. I have a second one, it is a letter submitted by the National Association of Truck Stop Operators stressing the urgency for Senators to protect the ban on commercializing interstate rest areas. It is kind of the old fashioned idea that the private sector does things better than the public sector does. I would ask unanimous consent.

Senator CARPER. Without objection.

[The referenced information follows:]

February 24, 2021

The Honorable Charles Schumer
Majority Leader
U.S. Senate
Washington, DC 20510

The Honorable Mitch McConnell
Minority Leader
U.S. Senate
Washington, DC 20510

The Honorable Thomas Carper
Chairman
Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510

The Honorable Shelley Moore Capito
Ranking Member
Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510

Dear Majority Leader Schumer, Minority Leader McConnell, Chairman Carper, Ranking Member Capito:

The below signed organizations – representing hundreds of thousands of mostly small businesses, as well as American cities and localities and blind entrepreneurs – urge you to protect the longstanding ban on commercializing Interstate rest areas as you consider legislation to incentivize investments in America's infrastructure and reauthorize surface transportation programs.

We are eager to collaborate with you on transportation policies that will facilitate long-term, sustainable investment for infrastructure without harming existing off-highway businesses and that spurs improvement for the transportation sector. We urge you to reject proposals to carve out any exceptions to the commercialization ban that would allow state departments of transportation to compete against the private sector by selling food and fuel, including electric vehicle charging, or other commercial services at Interstate rest areas.

Like many across the nation, America's cities, restaurants, hotels, travel plazas, fuel retailers, convenience stores and blind merchants have been economically harmed by the COVID-19 pandemic. The private sector's ability to operate in a competitive and robust marketplace ensures its ability to provide jobs, generate critical tax revenues and further enhance investments in alternative fuels.

When Congress created the Interstate Highway System in 1956, Congress and community leaders feared that local businesses, jobs, and tax bases would shrink as motorists and truck drivers bypassed their cities and towns. For this reason, Congress prohibited new Interstate System rest areas from offering commercial services, such as food and convenience items. Since then, businesses have clustered near the Interstates at the interchanges to provide these services to Interstate travelers. Given how many businesses are located off of Interstate exits, it is one of the most competitive business environments in the country.

Today, our roads and bridges are in dire need of improvement, and the diverse group of organizations that have signed this letter all strongly support increased investment in our nation's infrastructure. Infrastructure has long been considered an economic driver and a job creator. As the nation continues to grapple with the economic devastation caused by the COVID-19 pandemic, now, more than ever, policies must incentivize such investment while creating jobs and refraining from undercutting important policy priorities that affect various sectors of the economy.

- **Commercialized Rest Areas Will Hurt Private Businesses**

While at first glance rest area commercialization seems like an easy and convenient way to generate revenue, the fact is it will jeopardize private businesses, especially with respect to small businesses, that for the last 60 years have operated under the current law and established locations at the highway exits. Due to their advantageous locations, state-owned commercial rest areas would establish virtual monopolies on the sale of services to highway travelers. Commercial activity will be diverted from off-highway communities to on-Interstate locations, redirecting tax revenue from localities to state capitals.

Commercializing rest areas will not generate "new" revenue. It would simply *transfer* sales away from the current competitive environment off highway exits to the business contractor that pays the largest amount to rent the location on the shoulder of the highway. When the government competes with private business in this way, it results in a monopoly, undermining the free market and raising prices for consumers.

- **Commercialized Rest Areas Threaten Cities and Towns**

U.S. cities are projected to lose $360 billion of revenue through 2022 because of the economic damage caused by the COVID-19 pandemic. This is an un precedented loss that will trigger deep spending cuts and job cuts. In many rural communities located near Interstates, gas stations, restaurants, convenience stores, truckstops, and hotels represent the largest local taxpayers, contributing more than $22.5 billion in state and local taxes. These funds help support schools, police and fire departments and other vital public services.

Commercializing rest areas would further destroy the property tax base of local governments and put out of business many companies that have invested in creating a business model based on access to the Interstate. The damage to thousands of local businesses means the cities and towns that rely on those businesses for tax revenues will be further challenged to make up a substantial budgetary shortfall.

- **Commercialized Rest Areas Hurt Consumers**

Prices are significantly higher at existing state-owned commercial rest areas than off-highway competitors because the state, contractor, and leasing vendor all take a piece of product sales. Additionally, the lack of viable competition will eliminate any downward pressure on prices. This stands in stark contrast to exit-based businesses, which operate in one of the most competitive environments in the United States, often competing with multiple other entities in close proximity to one another.

- **Commercialized Rest Areas Threaten the Livelihood of Blind Merchants**

Businesses that are owned by blind entrepreneurs currently enjoy a priority for installing and operating vending machines at Interstate rest areas. Many blind business owners throughout the country rely on this opportunity to earn a living, support their families, and realize the American dream. If commercial rest areas are allowed, these entrepreneurs would be out of work virtually overnight.

- **Commercialized Rest Areas Discourage Investment in Alternative Fuels**

Our associations support investment in a full range of fueling options for consumers including electricity as well as other alternatives to petroleum-based fuels. We believe the best way to achieve this, however, is to use tax, funding and other policies to incentivize private, off-highway retailers to invest in these technologies. Making available electric vehicle charging stations or other alternative fuels is a commercial service. Congress prohibited states from offering commercial services at Interstate rest areas specifically so that private sector entities would grow and provide those services to travelers. Installing electric vehicle charging infrastructure therefore on the federal Interstate rights-of-way would require overturning the rest area commercialization ban that has been in place for more than 60 years. As with any other product, our position on offering electric vehicle charging or other alternative fuels at Interstate rest areas reflects our desire to facilitate an environment where private businesses that are not located within the right-of-way are encouraged to make these investments. In fact, many off-highway fuel retailers and other businesses have invested significant resources in alternative fuels such as electric vehicle charging infrastructure, biofuels, and natural gas. If such alternative fuels were made available at rest areas on the Interstate right-of-way, it would discourage the private sector and these off-highway businesses from making such investments and ultimately hinder growth in these alternative fuels.

- **Commercial Rest Areas Constrict Truck Parking Capacity**

Commercial rest areas diminish truck parking capacity, threatening a Congressional objective to increase truck parking availability nationwide. Private truckstops and travel plazas located at the Interstate exits provide 90 percent of all truck parking in the United States, mostly free of charge, and need a healthy business climate to operate and expand. When states are permitted to provide commercial services at their rest areas, private businesses either go out of business or, at the least, will not invest in expanded facilities. This will result in a net loss in truck parking capacity.

In conclusion, commercializing Interstate rest areas would create far more problems than it will solve. States and local communities will suffer when exit-based businesses and the jobs they support have to cut workers and potentially close; hard-working business owners will lose out on a significant portion of their customer bases; blind entrepreneurs will be out of work; and truck drivers will have a harder time finding a safe place to rest.

We strongly urge you to oppose efforts to commercialize Interstate rest areas.

Sincerely,

NATSO, Representing America's Travel Centers and Truckstops
Asian American Hotel Owners Association
Energy Marketers of America
Franchise Business Services
International Franchise Association
National Association of Convenience Stores
National Automatic Merchandising Association
National Federation of the Blind
National Franchisee Association
National League of Cities
National Restaurant Association
National Retail Federation
National Tank Truck Carriers
Natural Gas Vehicles for America
Society of Independent Gasoline Marketers of America

Senator INHOFE. All right. The second thing, we have done some really good work on this Committee. In the last Congress, we tackled something that had not been successfully addressed before, and that was on streamlining, not talking about it, but actually streamlining it.

We had a Committee report, a bipartisan highway bill with the needed streamlining provisions, including codifying the One Federal Decision process.

Governor Hogan, you come from a perspective of not just your own personal experience, but also chairing the National Governors Association.

People are talking about it now, some people who are not on this Committee, but individuals, saying that we have already done the streamlining, we did that last year, and we don't need to do any more.

So I would like to ask you, how do you respond to that, and how do project delivery delays affect the investments that are made by the States and the Federal Government?

Governor Hogan.

Mr. HOGAN. Thank you very much, Senator. First of all, let me again agree with you on the importance for reaching a bipartisan solution to this. If we can't reach a bipartisan solution on something like infrastructure that everybody agrees is a priority, then it is going to be difficult to do that on anything else.

But you are right. Enhancing efficiency and eliminating red tape, making the process go smoother, cutting the timeframes down will be very important to continue to make progress on.

There was some progress made, but it is still much too long, much too confusing of a process that adds cost. It adds timeframes. Time is money. We don't get these projects moving forward, we are not solving the infrastructure needs, the transportation problems.

It is also costing taxpayers a lot more money because of the delays, and when we are dealing with private sector investment, which we are doing a lot of, taking some of the risk out of the process by having some certainty about how long it is going to happen, I think is important.

I mentioned earlier about how the One Federal Decision policy should be codified. We should establish a 2 year goal for completion of environmental projects and a 90 day timeline for related project authorizations. At the beginning of the discussion, somebody was talking about the 7 year timeframe that it takes to go through the environmental process.

We all want to make sure that we very carefully ensure the safety of our environment, and we go through, and not skip any steps. But we have to speed up, do things simultaneously, concurrently, and speed the process somehow. It is going to mean a lot to doing more projects, putting more people to work, and making improvements to all these different things.

Senator INHOFE. I appreciate that very much. I think it is significant, too, that we keep in mind, well, first of all, I have never seen a 5 year program that can't be done in 1 year, and we demonstrated that real clearly, I think, in the last two bills that we had, and we are on the right road there.

Also, you brought up this idea of prioritizing. I think that we have done a really good job in Oklahoma. We were prioritizing prior to the last two bills that we had, Oklahoma had been, a lot of people don't know that they rank us in terms of the conditions of our bridges, and we were No. 49 in the country on the condition of our bridges. As a result of the efforts that we did, we now are No. 9. We have gone all the way from 49 to No. 9 in the condition of our bridges. We have some 1,600 bridges in the State of Oklahoma.

So I think that the important thing here, and I would ask you to respond to this also, both Governors, the significance of having the States be the movers of the priorities. A lot of times, people would rather the Federal Government do that, so States should determine the priority of surface transportation within their boundaries. What do you think?

Mr. HOGAN. I agree with you. I agree with you, Senator, and we even do that at the State level. We get input from each of the local governments on what their priorities are, and then as a State, we try to take those priority considerations in as we are putting together our State transportation plan.

But it is the same way. Senator Cardin can tell you, when we meet with our Federal delegation, we lay out, these are the priorities of our State, and we are the ones on the ground that can make those decisions, get more input. Obviously, we want to work together with our Federal partners, but the States can help prioritize. There is no question about that. There is a lot of need, and we can't do everything at the same time. We want to make sure that we all agree on the priorities.

Senator INHOFE. My time has expired, but I will ask, for the record, that you send something to us, Ms. Sheehan, about your work force development thing. We have been very active on this, not just in roads and highways. We have provisions in the FAA bill. If you could, for the record, send us something as to what we could do, Congress, to help in that area of work force development. OK?

Thank you, Mr. Chairman.

Senator CARPER. Thank you, Senator Inhofe.

Another former mayor, not only is Senator Sanders is a former mayor, but he was mayor of Burlington, he was a Congressman, and now a Senator. He ran for President a couple times, and he is in the on deck circle.

He is joining us by Webex today.

Senator Sanders, you are recognized, if you are able to hear us.

Senator SANDERS. Thanks very much, Mr. Chairman, and thanks to all of our panelists who are with us.

I don't know if I have anything profound to offer that hasn't been said already. What I can tell you is that in a rural State like Vermont, we are struggling big time with crumbling roads and bridges. We waste a lot of money just trying to rebuild rather than maintain our roads, which is just throwing good money after bad.

And as everybody has said, we have the potential now as we rebuild our roads and our bridges, our water systems, our wastewater plants, our public transportation. We are behind many other countries around the world in terms of rail, and we are also focusing on climate change, the need to transform our energy system, which means, among other things, a whole lot of charging stations throughout rural America. As we do all of those things, we can create millions of good paying jobs, make our economy far more efficient, save lives, have safer transportation.

Mr. Chairman, all that I wanted to say is count me in. This is a problem impacting urban America, but it is also a problem impacting rural America.

And I do say this in a very divided political climate in this country. I think we can come together, at least on this issue. Whether you are a Republican Governor or a Democratic Governor, you have problems with your infrastructure. So let's go forward together, create the jobs, rebuild our infrastructure, and do the right thing for the American people.

Senator CARPER. Senator Sanders, thank you very, very much for that message, and for joining us today.

Next, Senator Cramer, you are up.

I have to return a phone call; I will be right back.

In the meantime, Senator Capito, you are in charge.

Senator CRAMER. Thank you, Mr. Chairman, and Senator Capito. Thank both of you for your leadership on this important issue, both in the last Congress and now in this one.

I thank all of the witnesses for your expert testimony and your thoughtfulness today, and for being with us today.

Commissioner Sheehan, I don't know if you know North Dakota's commissioner, but we feel really blessed in North Dakota to have lured away from the mountains of Wyoming to the prairies of North Dakota Bill Panos, who is doing a great job. Every discussion I have with Bill, he of course, brings up an issue that has been alluded to a number of times today, and that is, of course, the formula.

But North Dakota, being very rural, much like Wyoming, much like parts of some of these States that we are talking about today, I think every State has some part of it that is rural, but North Dakota is very rural.

Could you elaborate a little bit on the importance, Commissioner, of the formula remaining the way it is, why it is so important for the entire system to maintain this formula?

Ms. SHEEHAN. Thank you for that question, Senator, and yes, I know the head of the DOT in North Dakota, Bill Panos, well. He is one of my colleagues at AASHTO.

The reason that States advocate strongly for formula funding is that it provides predictability into the future. As we advance our projects, we want to have certainty that the commitment that we are making to municipalities and counties, we can truly deliver on.

In rural areas in particular, those formula dollars are being used each and every day to make lasting improvements in infrastructure, whether that is replacing deficient bridges, working to improve pavement condition, making safety improvements, or ensuring that our infrastructure is resilient to an increase in future extreme weather. So we as State DOTs continue to emphasize the need for that traditional funding.

While in addition, you might look at increasing some of the other programs that could benefit communities more directly, we would not want to see those efforts move forward at the expense of the core program.

Senator CRAMER. Thank you for that. So, along the lines of funding, obviously, a lot of the discussion that takes place here deals with the funding, and there is never enough to do all the things we should do.

However, one of the things, I think what the Commissioner of AASHTO has advocated for is a sustainable funding source, so the Highway Trust Fund obviously being the main source for infrastructure development and surface transportation development. You have advocated for the sustainability of that.

Yet Governor Whitmer is understandably and appropriately proud of the work that the manufacturing sector is doing in creating more electric vehicles and hybrid vehicles. Of course, that ambition for that type of a climate response and a sustainable formula or revenue stream obviously intersect and conflict at some point.

Could I ask each of you, Governor Whitmer and Commissioner Sheehan, to talk about what a future funding source would look like in terms of the revenue stream, please?

Maybe Governor Whitmer, first.

Ms. WHITMER. I will start. Thank you, Senator, for that question. I appreciate it.

I knew that, eventually, this conversation would go to this part, and I know that is also the hard, tough job that you all have ahead of you. I know it is a long debated question, and I am talking about the solvency of the Highway Trust Fund and how to pay for needed transportation investments. I am not here to answer the question on the Federal gas tax. I can only speak from what I know.

After decades of under-investment in Michigan, the people of my State elected me. One of my big tasks that I heard all across the State in all 83 counties was to fix the damn roads. My team and I looked at all the options as we came in to improve the funding outlook in Michigan. There is no question: We need a predictable, sustainable, and sufficient solution. That is the best case scenario.

When I took my solution to the legislature, we couldn't find common ground, and so I had to pivot and do bonding. Because we know that doing nothing is not an option.

As you know, festering infrastructure problems get harder to tackle and get more expensive. So I know that you are going to have this debate about how we prioritize this and make this a reality. I look forward to that debate, and I am happy to share any thoughts that we have from the ground of how we can improve the tenor and the substance of that debate.

Senator CRAMER. Thank you.

Commissioner Sheehan, do you have some thoughts?

Ms. SHEEHAN. Senator, thank you for the question.

I, too, don't envy you the challenging work that you have ahead of you to identify a sustainable source of revenue for the Highway Trust Fund. We are having similar conversations at the State level, and our State legislature is hesitant to move toward a new source of revenue without understanding what direction the Federal Government might move in.

But what I do know is that since the last gas tax increase, our cost of doing business has continued to increase, and we have lost buying power over the last 28 years. So we truly appreciate the efforts of the Congress to identify a sustainable solution.

When the Highway Trust Fund receipts have not kept pace with the investments that we need to make, the fact that there has been other sources of revenue needed available so that we can continue our programs, that is extremely important to States, and we appreciate that continued support for transportation investment.

Senator CRAMER. Thank you, Mr. Chairman.

Senator CARPER. Thank you, Senator Cramer.

Senator Whitehouse is joining us by Webex.

Sheldon, if you are out there somewhere, please join us. You are recognized.

Senator WHITEHOUSE. Yes, I am, and thank you. I am delighted to have this terrific panel of witnesses.

I wanted to talk first about coastal infrastructure. Governor Whitmer, Michigan counts, because the way we define coastal includes our Great Lakes. It is estimated that coastal communities are going to need to invest more than $400 billion in the next 20 years. That is based on our present, very conservative, and probably inadequate estimates of the damage that climate change portends through sea level rise and extreme weather.

This is a new and very alarming demand for these local communities. As we look around at the places for support for coastal communities, we look at things, particularly in this Committee, like the Army Corps of Engineers Flood and Coastal Damage Reduction Fund. What we see in the last decade is that in our best year, $19 went inland for every single dollar that went to coasts. That was our best year in the last decade. In our worst year, $120 went inland for every single dollar that went to coasts.

Everybody is familiar with the Land and Water Conservation Fund. That has a less egregious, but similar bias toward inland and upland projects over coastal projects. CoreLogic has done its 2020 storm surge report, and it estimates that over 7 million single family homes are at risk of storm surge in the U.S., and that the cost to rebuild those homes would exceed $1.7 trillion.

So we have a big coastal problem on our hands. It is a coastal problem that we are ignoring. The Chairman comes from a State that is similar in size to Rhode Island and has even lower topography. So Delaware and Rhode Island share a very strong concern about these issues.

We were able to get into the last highway bill that came out of our Committee unanimously some very good work on coastal infrastructure. Because it is not just going to be homes that are flooded; it is also going to be infrastructure. When infrastructure goes, you can also lose homes and access to emergency services to homes. So it is a big problem.

I would like to ask the Governors to comment on what they see as the needs in their States to protect coasts. I think Maryland is more immediately affected, because of the oceans problem. But Michigan and the Great Lakes have their own issues, as well.

Mr. HOGAN. Thank you. Thank you very much, Senator. Thanks for raising the issue.

A lot of the discussion around climate change is about mitigation and about clean air, and not enough, I think, discussion about how we mitigate some of the problems that are going to be caused by flooding, and as you just touched on very eloquently, the coastal flooding issue.

We did touch on this, and a lot of our focus was on transportation infrastructure during the NGA Initiative. But we did talk about resiliency, and trying to address some of these issues in our State, along with what Governor Whitmer said earlier.

But we have made great strides with respect to climate change. We have cleaner air standards than 49 other States, we put tax credits in for electric vehicles and charging stations, and are taking a lot of actions on mass transit to get people off the roads.

But this is one we have invested some dollars in. But you are right, there has been not enough funding. It is something we do have to address as you are looking at infrastructure. Not just coastal flooding, but further upstream, the flooding is going to occur as well.

As a small coastal State adjacent to the Chairman's State of Delaware, it is obviously an issue and a concern for us with the Chesapeake Bay, which is one of America's greatest natural resources. It is an issue that we deal with, and I will pass it on to my colleague to weigh in. But it is an important issue we have to address.

Ms. WHITMER. Yes, thanks, Governor Hogan, and Senator Whitehouse, thank you so much for the question. I think that it is really important.

I am glad that you highlighted the coastline in Michigan. We have 3,200 miles of coastline in Michigan, all fresh water. Twenty-one percent of the world's fresh water is in and around the Great Lakes. So this is something that we take very seriously, and we have seen the impact of climate change.

We need to address this through resilient infrastructure. High water levels have eroded our shoreline and washed away roadways, and we have had devastating flooding in communities that have forced evacuations.

We had to evacuate 10,000 people in Midland, Michigan. That wasn't along the Great Lakes, but it was just another example of the need for resilient infrastructure, because it washed out a number of dams and bridges when that 500 year flooding event happened.

So whether it is in Texas, or it is in the freshwater coastline of Michigan, or along the Nation's borders all across the country, this is something that is of critical importance. When we see high water levels that are eroding our shorelines, they are impacting everything from our drinking water to just our ability to conduct life and be safe in doing that.

So we have a lot of needs in this area. But there is no question that resilient infrastructure along the coastlines is an important part of the overarching problem that we are hopeful that you will help us address.

Senator WHITEHOUSE. Mr. Chairman, I am probably close to out of time, if not completely out of time. So let me just let Governor Whitmer know that, as the fix the damn roads Governor and as the auto Governor with GM having made these commitments to going to all electric vehicles, we have in the bill that we passed significant support for electronic vehicle charging infrastructure. We are eagerly trying to get tax support for electronic vehicle charging infrastructure.

As you know, it is going to be a very bad thing for GM if they commit to electric vehicles and we haven't built the infrastructure to charge those electric vehicles. So we are on the case, but we need your help and the help of our Republican colleagues to make sure that that all gets done aggressively and energetically.

Ms. WHITMER. Thank you.

Senator CARPER. All right.

Senator Whitehouse, something you just said reminds me of a conversation I had with one Senator Stabenow's constituents, Mary Barra, CEO of General Motors. We were talking a year ago about what it was going to take to convince consumers in this country to buy electric powered vehicles and hydrogen powered vehicles.

She said, with respect to EV, she said we need three things to convince our customers to buy them if we are going to build them. She said, the first thing we need is a 300 mile range on a charge; we have that now. The second thing we need is charging stations across the country corridors, both for electric and hydrogen vehicles. The last thing she said that we needed is the technology to enable them to charge batteries in minutes, not hours. Luckily, we are knocking on those doors. The one thing that we really need is No. 2, to your point, Sheldon.

Senator WHITEHOUSE. Mr. Chairman, I am driving one, and anybody who has had the pleasure of driving an electric vehicle knows what a thrilling experience it is.

Senator CARPER. Yes, they are fun. They are a lot of fun.

Our States may be small, Sheldon, but we punch above our weight. There you go.

All right, I think Senator Lummis is next.

Welcome aboard.

Senator LUMMIS. Thank you so much, Mr. Chairman, and Ranking Member.

I really appreciate this topic. It is so important to my State of Wyoming.

My first question is for Mayor Hancock and for Victoria Sheehan. Thank you both for being here.

Greetings, Mayor, I am from your State to the north, Wyoming, and spend a lot of time in your beautiful community.

My question for both of you is related to Senator Cramer's question earlier. He asked about the importance of the formula. My question is about the flexibilities within the formula fund. How important are the flexibilities in formula funds to ensure the very needs of States can be met with Federal dollars, given how very different the needs are of our States and our communities?

Mr. HANCOCK. Senator Lummis, first of all, as we like to say here, between Colorado and Wyoming, we forget the boundaries, so we consider you family. So it is an honor to meet you, at least virtually.

I appreciate your question, because I think you get to the heart of the real opportunity before all of us as we try to think about what the future investments around transportation and infrastructure looks like, how we address the looming challenges of climate and equity going forward. Cities, in particular, have to have flexibility because we better understand the nuances of our communities, and really, the challenges that so many in our community face.

I often say, when I talk about transportation mobility, if you want to know where poverty exists, show me where the least number of options around mobility exist, and I will show you poverty. That is true no matter where you are in this country, rural or urban, suburban, doesn't matter.

The reality is that we have got to be able to adjust to the flexibilities. That is why as mayors, we have proposed utilizing some of the tools within the Federal Government, working with our States and municipalities today, whether they are STBG or the CBG, or even renewal of the Energy Efficiency Block Grant, so that we can be much more facilitative and flexible in addressing the challenges we face.

So many of our communities have been perennially overlooked and underserved. We get a chance to provide those ladders of opportunity, grant multi-modal options to those communities to make sure that we are able to create connectivity and to create affordable housing, good schools, access to good healthcare, and particular transportation corridors and to lift them, give them an opportunity to be lifted out of poverty.

So the flexibility within the formula is critical. And I am glad you landed on that. It shows a great deal of insight, coming from a Wyoming cowboy, or cowgirl.

Senator LUMMIS. Thanks, Mayor, and thank you, Ms. Sheehan.

On behalf of AASHTO, would you make some remarks on that same subject?

Ms. SHEEHAN. Thank you, Senator.

So, as State DOTS, we are advancing projects that fulfill numerous goals, and that is why flexibility is so critical. For example, if we are replacing a bridge that is structurally deficient, we may be replacing that bridge with a longer structure that is more resilient and can handle an increase in storm frequency.

We also may be widening, not to increase capacity, but to provide more amenities for active transportation, whether that is sidewalks or bike lanes or wider shoulders, depending on that unique situation.

So as we advance the project, the flexibility is critical, because none of our projects fit nicely into one category. We are trying to work with communities, understand what their needs are. We talk to them about what a successful project looks like for them and incorporate all of those different aspects into the projects that we do.

Flexibility of the funding allows us to be nimble and make sure that we are not just doing one type of project one way, that we can truly partner with communities and meet their needs, as well as the regional transportation needs that the State is focused on.

Senator LUMMIS. Thank you so much. With the little bit of time remaining, I would just ask our Governors to respond, perhaps, in the context of the next questioner, to the issue of the permitting processes. Are there opportunities to improve the Federal permitting processes to expedite completing infrastructure projects?

You don't have sufficient time within my 5 minutes to respond. So I will just thank you, Governor Whitmer and Governor Hogan, for participating in this hearing and for your work on behalf of your States. Having come out of State government, I am deeply appreciative of the work that Governors do, and thank you very much, all four of you, for participating in this hearing today.

Thank you, Mr. Chairman, I yield back.

Senator CARPER. Senator, thank you.

I would ask our Governors to just respond to Senator Lummis's question for the record, and share that with all of us, please.

Senator Lummis was State treasurer at one time, right?

Senator LUMMIS. Correct.

Senator CARPER. I think you came close to running for Governor, maybe did run for Governor. Didn't you?

Senator LUMMIS. Well, I came close. I did serve as general counsel to our Governor once upon a time, and our current Governor, you know, I suspect, and worked within the National Governors Association. Great guy, and I salute Governors for their hard work, especially during COVID. This has been extremely challenging for all of you. Thank you for your leadership.

Senator CARPER. I will just mention, between all of us, we have got some extraordinary backgrounds in terms of experience, levels of experience in different kinds of jobs that our members have held, and it is something we can take full advantage of.

Next is Senator Merkley, who used to be my seatmate on the Senate floor. He left me about 2 weeks ago, but he is still on our side. He is sitting about 20 feet away now.

Jeff, you are recognized. I think you are on Webex, and I think after you, Senator Markey. And after Senator Markey, it would be Senator Duckworth, Senator Stabenow, and maybe Senator Kelly before Senator Stabenow, I think. We will figure out how to do that, but Senator Merkley, you are up. Thank you.

Senator MERKLEY. Sure, Chair Carper. Thank you very much. It is a pleasure to join you all.

I wanted to start with a question to Mayor Hancock. I know that Denver last year enacted its EV action plan, which addressed in part charging infrastructure. I think part of the strategy was to create more charging infrastructure in underserved communities. Maybe you could just share what the goal was, and what you have learned in the last few months, what challenges you see ahead.

Mr. HANCOCK. Thank you, Senator, and I appreciate your question.

The EV Action Plan was about, exactly as you are alluding to, the proliferation of charging stations around the city, with particular focus on communities to bridge the challenges around equity.

We did a couple things. One, we changed our zoning code so any new buildings and housing units would have charging stations available to them, or at least a charging infrastructure would be available for the creation of that.

But we also, the city started looking at our public facilities, our parks, our recreation centers, that we own and begin the process of funding installation of charging stations. We have it already at our airport, for example.

But these facilities that are much more readily available to underserved communities would be available to them as well, as well as some of our meter stations. Our meter locations around downtown Denver or wherever meters are located, we would also have some charging stations available to that.

So, we began, in the last 18 months to 2 years, began the process of rolling out that infrastructure, making appropriate investments. We are really beginning the process of ramping up more of that, but we are making progress under that. I can get back to you in terms of the actual movement toward the particular goal. We will make sure we get that to you from our staff.

But I am pleased with where we are, and the fact that we have laid the foundations for new builds to make sure that that is available to them.

Senator MERKLEY. Thank you. Thank you very much, Mayor. I see it as one of those plans that advances climate by encouraging movement to electric vehicles, but it also helps address environmental and economic justice. So I look forward to more information.

Speaking of economic justice, I wanted to turn to Biden's pledge to ensure that 40 percent of the benefits from the infrastructure package are put forth to disadvantaged communities, communities that have been disinvested in.

Mayor Hancock, do you support Biden's 40 percent pledge?

Mr. HANCOCK. I do, and I think if you look more closely at a lot of that, on a local level, a lot of the cities are already focused on doing exactly that.

We have in Denver a new equity strategy. I opened up a new Office of Equitable Innovation and Sustainability to make sure that we are advancing the goals of equity in everything that we do, including our contracting. Of course, we must do disparity studies to demonstrate the underserved and the underutilization, but we are absolutely committed, and I think President Biden's goal is right on target.

Senator MERKLEY. Thank you. I wanted to ask the same question of our other colleagues, but to just get a very short response, so I can move forward to another question.

Governor Whitmer, do you also support the 40 percent dedication to disadvantaged communities?

Ms. WHITMER. I do think that it is important that we have equity built into all of these policies. What we have seen in transition is that that hasn't always been the case, and communities have been left behind. So this is something that I think is crucial in our deliberations and should be embedded in the policy work that comes out on this front, and frankly, many others.

Senator MERKLEY. Of course, part of the goal is sometimes it is easy in theory, but it is hard in practice, because those same communities may have less political power, which is why the 40 percent is there. It is not just a commitment to the ideal, but to the, well, let's actually make it happen.

Governor Hogan, do you support that same 40 percent fraction?

Mr. HOGAN. Well, in our State, I think that way more than 50 percent of our transportation investment goes into disadvantaged communities and minority equity types of issues, because we are mostly focused on the urban areas and the areas that immediately surround them.

I haven't seen President Biden's proposal yet, frankly, but tomorrow, both the Secretary of Transportation and the President will be joining all of the Nation's Governors. We look forward to hearing more details about their plans with respect to transportation.

Senator MERKLEY. Governor, one of the reasons I felt this was important to raise is because I was in DC when the Metro system was built. Anacostia was left out because it was the black neighborhood that had little political power. So the Green Line didn't get built for forever.

Then similarly in Maryland, the Red Line has the same national reputation as a line that was planned to connect low income black neighborhoods with few jobs to job centers, and to also develop transit and development in those disinvested black neighborhoods, and to improve the air quality that was bad because of the amount of traffic congestion and associated pollution.

But that is a project you chose to cancel and put the funds instead in predominantly white communities. So would a 40 percent pledge like this help fund projects, make sure projects like the Red Line in Baltimore actually happen to serve such disinvested communities?

Mr. HOGAN. Senator, I would totally disagree with your assertion for a number of reasons, but we don't have time to debate that here this morning.

The Red Line, according to the Washington Post editorial board, never made any economic or transportation sense. Our Transportation Department recommended against it. But we did move forward on the Purple Line, which goes through Prince George's County. It is 16 stops in minority communities and ties into the Metro system, which I came up with a funding stream to try to keep functioning when there wasn't enough Federal investment.

Senator MERKLEY. We are out of time.

Senator CARPER. Thanks for those questions, Senator Merkley, and for the responses as well.

Senator Markey, you are up, my friend.

Senator MARKEY. Thank you, Mr. Chairman, very much, and thank you to our great panel which is joining us today.

We are obviously at a crossroads in terms of our relationship with greenhouse gases and the impact they have upon minority communities, communities of color, historically disadvantaged communities, and the role the United States must play in finding the solutions and exporting those solutions around the rest of the planet.

So that is why this hearing is so important. Obviously, Governors play a huge role, mayors play a huge role in helping to set the course for where we have to go.

We have to think big; we have to act big. We are running out of time to deal with the climate change crisis, and the transportation sector is a central part of the solutions.

I have introduced a bill called the Green Streets Act with Senator Carper and other members of the Committee. That bill would require very strong standards to reduce greenhouse gas emissions in vehicle miles traveled for transportation planning and projects.

I am also introducing today the Freezer Trucks Act to help replace diesel powered refrigerated trucks with cleaner, electric versions in overburdened communities as well.

In Chelsea, Massachusetts, which is our poorest community, we have diesel trucks just idling all day long near the most vulnerable communities that already have the highest levels of asthma and the highest levels of coronavirus because of their obvious preexisting vulnerability, because they are both lung diseases.

So, Governor Whitmer, can you talk about the future, as you see it, of the new announcement by General Motors and other motor companies to move to 100 percent electric vehicles by 2035, what that might mean in terms of this partnership that we can have with the States to ensure that we telescope the timeframe to reach a day where we have a new fleet, jobs are being created by the millions, and at the same time, we are making sure that those who are most vulnerable are being protected?

Ms. WHITMER. Absolutely, Senator Markey. It is good to see you, and I appreciate the question.

I am going to have to pre-apologize, this will have to be my last question. I have to give my press conference on our updates about what is happening in the State. So I am glad for an opportunity to answer this question now.

Last year, I created the Council on Future Mobility and Electrification, and it was intentional to bring diverse stakeholders together to help build a mobility strategy for Michigan and help identify where opportunities for growth and improvement are. With those stakeholders, we are working to build an electric vehicle charging network that connects the entire State by 2030, and hopefully connect with other networks across the Midwest.

I can tell you, I was in a call last night with a number of my colleagues from the Midwest, and we are thinking about ways that we can collaborate. This moment has brought us together in ways we couldn't have imagined, but there are opportunities out of this that we are already talking about. Significant investments in our electric grid, renewable energy, and charging infrastructure to ensure reliability and drive the market for EVs, to address issues like range anxiety, as we talked about earlier in this hearing.

Over the past 2 years, between State and local governments, our utility providers, our auto manufacturers, we have invested millions in electric vehicle charging infrastructure, which is really important, and we have some of the most in the Midwest.

In addition to this though, we have to lead by example and increase the number of electric vehicles in our State and federally controlled fleets. Tax incentives should be reviewed, I believe, to be more useful for commercial fleet owners, as fleets represent the greatest near term commercial opportunity for large scale deployment of electric vehicles.

Then building up a network of publicly available charging stations that are capable of serving medium and heavy duty vehicles. To your idling comment, I think that is particularly important.

My State is looking to take a lead in doing a lot of this here in the Midwest. But certainly, this is something that is important for our entire Nation.

The program that we have developed is looking to take applications for partnerships through the recharging infrastructure grant program. With our new Office of Future Mobility and Electrification, with our Department of Environment, Great Lakes, and Energy, we are working alongside industry partners, and that is, I think, really important.

As we tackle this problem, we have much greater odds of success if we are bringing in partners from all different spaces to solve this problem, and it will be good for the job front, it will be good for the climate problems that we are having, and good for our economy.

Senator MARKEY. Thank you, Governor. I do believe that Michigan, in a lot of ways, is going to be at the center of leadership. Thank you for your great work and your vision on these issues.

We can begin to create millions. We can save all of creation while engaging in massive job creation in the automotive sector and the sectors of our economy. It is just important for us to continue to deliver that message that this is a job creation moment and at the UAW, the auto industry is signing up, and that is something that we have to focus on. We have to focus on the freezer trucks, diesel fuels, others that don't oftentimes get to be a part of this conversation, which necessarily have to be if we are going to solve the whole problem.

Thank you so much, Governor, for your great work.

Ms. WHITMER. Thank you, Senator.

Senator CARPER. Thank you, Senator.

Senator MARKEY. Has my time expired?

Senator CARPER. It is more than expired.

Senator MARKEY. OK. Thank you, sir.

Senator CARPER. Thank you.

Governor Whitmer, thanks so much for being a part of our panel today. This is a terrific panel. We have a couple more of our colleagues who have questions to ask, and we appreciate the other three panelists staying on board.

Governor Whitmer, I would just say that when the baseball team has the worst record in baseball, they get the top draft choices, and hope springs eternal for our Tigers. They have got some great young arms, and I look forward to maybe seeing a game with you and Debbie and Gary someday soon.

Ms. WHITMER. Let's do it.

Senator CARPER. Thanks so much for joining us.

Ms. WHITMER. Thank you.

Senator CARPER. Next, we have Senator Duckworth, and after Senator Duckworth, Senator Stabenow, and then Senator Kelly, and maybe some words from Senator Capito to wrap it up, and we are going to work Lindsey Graham into this, somehow. All right.

Senator DUCKWORTH. Thank you, Chairman Carper. Can you hear me?

Senator CARPER. Yes, you are fine. Just fine.

Senator DUCKWORTH. Wonderful. I appreciate your leadership in making sure our Committee's top priority is passing a comprehensive infrastructure package that rebuilds our roads, rail, and transit systems.

Of course, if we are truly to build back better, in Congress, we need to do a lot more work. We need to also prioritize drinking water and wastewater infrastructure in any proposal. After all, there is one fact of life that ties all of us together, the absolute necessity for safe and reliable water systems.

It is long overdue for Congress to place as much importance on what is built underground as we do on above ground projects that all can see. I also believe in the "dig once," when we are going to fix the roads, might as well fix the sewer systems while you are at it.

Unfortunately, years of neglect have created a crisis that this Congress must solve. EPA estimates that to deliver safe drinking water to every household in America, we would have to invest half a trillion dollars over the next 20 years to maintain or upgrade our pipes, storage, tanks, and treatment facilities. Let that sink in a little bit. Half a trillion dollars, $500 billion over two decades.

I have a two part question, I would like to also send this to Governor Whitmer, but Governor Hogan, I hope that you will be able to address this issue first. Do you agree that water infrastructure should be a centerpiece of our build back better efforts? Second, could you discuss how robust Federal investments in State and local water systems would help create jobs, foster economic growth, and most importantly, protect the health and safety of your constituents?

Governor Hogan.

Senator CARPER. Senator Duckworth, Governor Whitmer had to leave for another event.

Senator DUCKWORTH. I knew, yes. I am just saying, if Governor Hogan could also address it.

Senator CARPER. Oh, that is great, OK.

Governor Hogan. You are batting cleanup here.

[Laughter.]

Senator DUCKWORTH. It was really to both Governors.

Senator CARPER. Governor Hogan, are you there?

Senator DUCKWORTH. I can go to Mayor Hancock, I have a question for Mayor Hancock, as well.

Senator CARPER. All right, let's do that. Thank you.

Senator DUCKWORTH. Mayor Hancock, it is estimated that Chicago drivers lose 138 hours each year due to congestion, a tremendous loss of productivity that I am confident is also experienced in communities across our Nation. That is why one of my top priorities is making sure our forthcoming reauthorization proposal treats reducing roadway congestion as the national priority it is for the millions of Americans who are stuck driving to work every day.

I am confident we can build broad, bipartisan support of these efforts as evidenced by the inclusion of my proposal to establish a competitive congestion relief grant program in the surface transportation bill that our Committee favorably reported last Congress.

Mayor Hancock, can you explain how authorizing a congressional relief grant program would help local governments like Denver advance innovative roadway congestion solutions?

Mr. HANCOCK. Thank you, Senator Duckworth, and I appreciate your question. Yes, I believe that with regard to people taking other modes of transportation, you have to offer just as many or more competitive driving options, or options for them than driving alone. Our single occupancy rate in Denver was over 73 percent. That is just unsustainable in a city that has grown as fast as the city of Denver.

So it is important that we offer options that give them the reliability, the predictability, and of course, cost efficiency as well for them to choose different modes of transportation or to have multi-occupancy within a vehicle or multi-occupancy in a mode. There should be focus on different modes and options for municipalities, whether it is simply building highways or streets. That why we are focused in Denver on things such as bike lanes and transit and other modes that move people, moving people and not just vehicles.

So we actually agree with what you found in Chicago, and recognize that until we get serious about that, in terms of creating options that make sense for people, that are just as competitive as driving alone, we won't be able to break through on this challenge of congestion.

Senator DUCKWORTH. Thank you, Mr. Mayor.

Mr. Chairman, I would like to go ahead and submit my previous question for the record for the two Governors and have them answer in writing. Thank you.

Senator CARPER. Yes, that will be fine. I am happy to do that.

Senator DUCKWORTH. Thank you.

Senator CARPER. Any other comments, questions, Senator?

Senator DUCKWORTH. No, I yield back. Thank you.

Senator CARPER. Thanks so much for joining us today.

We have also been joined by Senator Lindsey Graham, who I know from experience has a real interest in some of the issues that we are talking about here today.

Lindsey, we are happy you have joined us, and welcome. You are recognized, and you will be followed by Senator Stabenow, Senator Kelly, and last but not least, Senator Padilla.

Senator GRAHAM. OK. Well, thank you, Mr. Chairman, I look forward to working with you and Senator Capito.

This should be the most bipartisan committee, because we all need roads and bridges and all that kind of good stuff. So, I will make a comment, and then I will ask a question. I think we have got a Highway Trust Fund shortfall. Increasing gasoline taxes may be a necessary idea.

But what I want to share my thoughts with the Committee is about the future. Our friends in Michigan, they tell me that most cars being made in the future are going to be electric, not gasoline driven. So, General Motors said that by 2035, they will do away with their gasoline operated vehicles. That is a major societal change.

So whatever we do with the trust fund, we need to capture the fact that most cars, by the middle of the century, by 2050, probably won't run on gasoline. That will be good for the environment, but it will certainly require us to put new infrastructure in place and redesign the trust fund.

What I would like to do as we try to reauthorize the current system is to put some money aside to develop the infrastructure of the future. I think drones are going to be more available when it comes to transporting material. I think trucks are probably going to be not just electric, maybe hydrogen vehicles in terms of long haul trucking.

So the bottom line is, if it is true that the gasoline driven car is going to be less plentiful on the road by the middle of the century, and maybe the dominant mode of transportation will be something other than gasoline, we need to start now redesigning the trust fund. We need to start now plowing money into infrastructure consistent with a new way of transportation. And if it is true that most cars in the future are going to have a driverless component, seems to me we should be investing in the technology to make it as safe as possible.

The only thing I want to add to what has been said is the future. Let's take an opportunity in 2021 to start laying the groundwork for a more sustainable trust fund in terms of the way vehicles are going to be changing from gasoline to electric, let's look at the emergence of driverless vehicles and try to make them safer quicker.

If we can own this space in the 21st century as America and develop this technology and sell it around the world it would be one of the biggest things we have ever done as a Nation, I think, since maybe developing the car itself.

I don't know who we have as witnesses left, but here is a question to anybody out there. In your States, do you have a plan to deal with the fact that there is going to be more non-gasoline driven cars on your roads? Have you embraced the idea that the driverless vehicle is coming sooner rather than later? What thoughts do you have about how to accommodate these changes, and what plans do you have to capture money for the trust fund from non-gasoline driven cars in your State or your city?

So whoever is out there, that is my question.

Senator CARPER. I think we still have a mayor, and we still have a commissioner out there, so ladies first, please.

Senator GRAHAM. We will start with the two that we got.

Mayor.

Senator CARPER. Commissioner, go ahead.

Ms. SHEEHAN. Senator Graham, I appreciate your remarks. We as State DOT leaders are very excited about the opportunity of connecting automated vehicles, and we also have been preparing, building out our EV charging infrastructure and planning for the future.

Senator GRAHAM. If you don't mind, what percentage of cars in your State are electric vehicles at this point?

Ms. SHEEHAN. It is a relatively low percentage. It is only approximately 4 percent, I believe, as of this time. However, we are seeing that number increase year over year. So, here in New Hampshire, we established an electric vehicle charging commission. All of the State agencies have been supporting the legislature so much that the programs that were discussed earlier in Michigan and other parts of the country.

We are trying to bring all of the stakeholders to the table to make sure that we understand at what rate things will change, but most importantly, we do want to reassure the consumer that if they were to purchase an electric vehicle, that there is the infrastructure to support them moving freely within the State, especially when it comes to visitors. New Hampshire's economy is really driven by travel and tourism, and so we want to ensure that visitors to our State don't have that anxiety either about what infrastructure is available to them.

You also touched on connected and automated technologies. In 2019, there were over 36,000 individuals lost on our Nation's roads. That statistic is incredibly troubling, and the promise that connecting automated vehicles bring is the opportunity to ensure that, in the future, there are truly zero deaths in our system.

Those are initiatives that State DOTs are excited to work on, and we are preparing for the future. Our State legislatures are asking us to look at our existing State statutes, our administrative rules, our design criteria, and make sure that we are addressing the regulatory aspect of our work, and that is not a barrier to being able to deploy these technologies quickly and effectively.

Senator CARPER. Senator Graham's time has expired. I still want the Mayor to respond briefly to his question, so Mayor, if you could do that, that would be great. Thanks.

Senator GRAHAM. Yes, Mayor, if you could give us 30 seconds, I am sorry to go over here.

Mr. HANCOCK. Sure, Senator Graham, I can respond in 30 seconds. First of all, I appreciate your comments and your thoughts about the future. I want to submit that we are already behind the rest of the world, and all you have to do is leave our coast and go to a different country and find that the technology is advancing in terms of electrification, use of electric vehicles.

The real challenge, of course, is the lack of supply. More auto makers are rolling out more electric vehicles, so that is critical. Second is the cost, and we have got to make sure to get it down so that there is some equity within the system.

Finally, of course, is the infrastructure. We lack infrastructure. Let me submit that we talked about, at least, I suggested that the renewal of the Energy Efficiency Block Grant. That would be critical to help States and cities to proliferate charging stations and the infrastructure around our States.

If I could just add one last thing to your list in terms of looking to the future, that is the urban air travel system. Within urban areas, very soon, we won't be on surfaces. We have technology today that can move people without being on the ground, and we need to begin to prepare for that as well.

Senator CARPER. Senator Graham, your question is prescient. Remember the old movie, Back to the Future? Earlier in the hearing, we talked a little bit about the last bill that we passed out of here unanimously. I think it was 21 to nothing, a 5 year reauthorization.

Included in that reauthorization was a 50 State pilot on vehicle miles traveled. We have so far, done about six or seven State pilots for vehicle miles traveled, and I described it as part of the future for transportation funding, maybe eventually the principal place.

We are still going to have a bunch of cars and trucks and things on the road, because people keep their vehicles, on average, about 10 or 11 years. So they are going to be around for a while.

Thank you, it is great having you on the Committee. Welcome aboard.

Next, Senator Stabenow.

Senator STABENOW. Well, thank you again, Mr. Chairman. When we are talking about electric vehicles, I certainly feel like we are in the Michigan wheelhouse. I appreciate so much Governor Whitmer being with us this morning, as well as Governor Hogan.

Let me just add to the discussion on this. I couldn't agree more that we have to look at our financing around transportation, given where we are going. I would also say this: That our companies are investing tens of billions of dollars on the future right now. They cannot get there without a partnership with us.

China has invested $100 billion to get ahead of us, to not only own the technology, and part of this, to build these new vehicles, the plants that have to be open. We are going to need a number of battery cell plants to be able to deal with the new technology and the parts that are needed.

This is very exciting, because we have all kinds of new, clean energy jobs in manufacturing to give us the supply chain to be able to do it, but China is already doing it. They are already out there trying to own all of this, as well as the charging infrastructure, as well as all of it.

So we really are in a race, a competitive race that we can win. Right now the majority of the expertise and technology is in America, but it won't be unless we are partnering with them to get there.

I would just say not only are charging stations critical, we have got to deal with range anxiety, we have got to deal with how folks feel they can drive across the country in these wonderful new vehicles, not only small vehicles, but your F–150 truck is going to be all electric, Mr. Chairman, coming next year with Ford, as well as all kinds of others. I could do ads for all kinds of vehicles.

But the other thing I would say, until we get to the price point for consumers as well, the consumer tax credit that we have had in place that is now running out needs to be continued for a piece of time until we get the volume up. It is like any other kind of technology. Until there is enough purchasing power, you don't see the price go down. So electric vehicles, the cost points, and having the supply chain to be able to do this.

I just have one question, as we conclude, I appreciate very much all of our witnesses.

I want to ask Ms. Sheehan, from your vantage point as President of the American Association of State Highway and Transportation Officials, if Congress were able to meet the entirety of the investment backlog you have indicated there is, the investment backlog is $836 billion for highways and bridges and $122 billion for transit. If somehow, we could reach all of that or reduce it substantially, what would that mean to economic growth as we come out of the economic crisis and the pandemic?

Ms. SHEEHAN. Thank you, Senator. First and foremost, it would create immediate economic stimulus across the country. Jobs in transportation are good paying jobs. Given the impacts of the COVID-19 pandemic, investing in infrastructure will truly help us build back better.

Further to that, we as State DOTs are in the business of asset management. We want to make the most financially sound investments in our infrastructure, reducing the life cycle cost of operating that infrastructure.

So if we can address the backlog and move forward in a way that we can maintain the existing system in a good state of repair, that will save taxpayers money into the future. When we allow things to fall apart, it can cost four times to ten times as much to build the infrastructure back and have it in a good state of repair.

So as the owners of this infrastructure trying to manage it as effectively as possible, we really want to address that backlog and then move forward in a new day with a much more efficient way to maintain our systems.

But more than that, I talked about the high number of fatalities on our systems. These investments would save lives. We would be making long term safety improvements, we would be improving quality of life for communities, building sidewalks and bicycle and pedestrian facilities, that are fantastic ways to stimulate economic activity in downtown areas. We would be addressing different aspects of quality of life, improving access and opportunity for every American.

Senator STABENOW. Thank you.

Mr. Chairman, I just want to say that one of the reasons I am so pleased to be on this Committee is that I think this Committee has the opportunity to fundamentally change the future for our country and for our citizens, and this is a huge part of it, so thank you.

Senator CARPER. Senator Stabenow, I think you and Senator Kelly, Senator Padilla, and Senator Graham are really smart, because you joined this Committee at a time when we can work on job creation at a time when we very much need it.

We can work on improving the air quality that we breathe; we can work on climate change; we can just do so many good things. We can work on equity issues, and we really make a good Committee better, but this is a great time to be on this Committee. Thank you for joining us.

All right, Mark, my friend, welcome aboard, Captain. You are recognized.

Senator KELLY. Well, thank you, Mr. Chairman, and I am pleased to be on this Committee as well.

This question is for Commissioner Sheehan about NEPA reviews. I frequently hear concerns from transportation planners in Arizona about the limitations of when and how NEPA approvals can be completed.

As you are aware, current guidelines from the Federal Highway Administration prevent States from making NEPA approval decisions on projects that are not included in a statewide or metro transportation plan. In most cases, Federal funding cannot be used to complete the NEPA review of the project, which places an increased burden on State and local planning agencies.

Arizona has a number of large transportation projects, which are preparing for costly tier two environmental impact statement assessments, including a project to expand highway I–10 between Phoenix and Tucson. There is another project called the Sonoran Corridor Project in Tucson. And the I–11 Project which could finally, and this is a big deal, finally connect Phoenix and Las Vegas via an interstate highway.

These projects, and projects like them throughout the country, deserve to have thorough environmental reviews that allow affected communities with the opportunity to provide some feedback. Yet cost constraints and requirements that States and localities fully fund these reviews slows the process of getting these projects off the ground. That delays efforts to make infrastructure upgrades needed in Arizona and across the country.

So, Commissioner Sheehan, as this Committee considers surface transit reauthorization legislation, what steps can we take now to ensure transportation planners have the resources and flexibilities to produce high quality, timely, and accurate environmental reviews while preventing delays to the overall transportation planning process?

Ms. SHEEHAN. First and foremost, providing adequate funding. If these projects have that dedicated stream of funding, then it is much easier to move them forward. So making sure that we have the resources so these projects can be included in our long term transportation plans, and that everyone understands they are truly priorities to our States.

Beyond that, I believe we are up to eight States that currently have taken ownership of NEPA reviews. This provides them the opportunity to significantly streamline the delivery of their projects. As an example, I think California was the first State to pursue this. They are taking on that liability of ensuring their projects are in full compliance with all Federal regulations.

But in return for that, it expedites the advancement of those projects because we are not submitting documents to other agencies for their review and feedback. We are ensuring full compliance internally at our respective State DOTs. So continuing to advocate for those types of changes, where the States who are willing to can step up and take on more responsibility, but in no way circumvent or fail to meet their environmental commitments and obligations.

Senator KELLY. Commissioner, is New Hampshire one of those eight States?

Ms. SHEEHAN. We have not moved in that direction as of yet, but it is certainly something that we are exploring, seeing the tremendous success across the rest of the country.

Senator KELLY. Thank you, that is very helpful.

Mr. Chairman, you were mentioning songs earlier, and I think the appropriate song might be the Rascal Flatts' Life Is a Highway. Appropriate today. I yield back the remainder of my time.

Senator CARPER. All right. It is always great to hear the Rascal Flatts; that is good.

All right, Alex, Senator Padilla, our new member from California. Welcome.

Senator PADILLA. Thank you, Mr. Chairman. Does this make me the clean up hitter?

Senator CARPER. It does, you know.

Senator PADILLA. Thank you for the welcome to the Committee. I am eager. There is a lot of great work to be done this session.

I have two related topics I want to touch on, so if I may, Mr. Chair, I will get through both questions, and acknowledge who they are addressed to, and then sit back and hear the answers for both.

First, on the topic of resiliency and disaster preparedness. It is not just California's recent record wildfire seasons, plural, not in a good way, of course, but severe flooding across various parts of the country, to recent events in Texas. We have seen in recent years how the climate crisis is leading to more dangerous and more numerous natural disasters. As we work to address this reality, we must improve the resiliency of our roads, our bridges, and our infrastructure at large to adapt to and recover from extreme weather events.

I know Governor Whitmer is no longer with us, but she in her written testimony spoke to many of the roads that were washed out due to recent floods in Michigan.

So let me just address this question, then, to Commissioner Sheehan, who also mentioned in her written testimony how the Department uses Federal dollars to carry out a significant number of resiliency projects.

I understand that AASHTO has supported recent efforts by this Committee to improve system resiliency, including by expanding project eligibility for the National Highway Performance Program, the Surface Transportation Block Grant Program, and the Emergency Relief Program.

I would love for the Commissioner to touch on the importance of resiliency projects for planning, and what steps this Committee can take in the upcoming reauthorization bill to support States' efforts to improve resiliency in transportation systems.

The other question, more related than you may think, is for Mayor Hancock. While the National Highway System connects cities and facilitates economic activity across the Nation, its construction historically has been deeply destructive for many communities, particularly lower income communities and communities of color. The construction of highways through some neighborhoods has caused a displacement of predominately minority residents, and in many cases, fosters isolation from opportunity, heightened exposure to pollution, and chronic disinvestment.

Mayor Hancock, in his written testimony spoke to concerns about equity, and equity considerations going into planning efforts, and specific examples of not just Denver's experience in the past, but how Denver is now working in partnership with the State of Colorado to reconnect communities in the reconstruction of Interstate 70, which bisects the city.

So I would love for the mayor to speak to how this can serve as a model for reconnecting communities in other cities across the country, and once again, how the Federal Government can play a bigger role in supporting projects that mitigate the detrimental impact of highways on historically disenfranchised communities.

Thank you both.

Ms. SHEEHAN. Thank you for the question, Senator. As part of the development of our transportation asset management plans, State DOTs are required to do a risk and hazard analysis. Many of us have been working to build out our GIS information.

We have significant storm events in our States. We are mapping exactly which locations on our transportation system are impacted by those events and making sure that in the future, as we are advancing improvements in those locations, we are incorporating resiliency and ensuring that the impacts from prior storms are not allowed to occur in the future.

So we have really integrated resiliency into every aspect of work that we do. From day one when we are scoping a project, we are looking at that history of where we have seen significant impacts, especially from flooding, either in coastal areas or inland, when we have significant rain events, and making sure that we build it back better.

Senator PADILLA. Thank you, Commissioner.

Mr. Mayor.

Mr. HANCOCK. Senator, with regard to your question around the I–70 Project and of course the issues of equity, it was when the city of Denver got involved in this conversation about the I–70 Project that we were able to bring to light the values of equity. This highway was placed, as you pointed out, in a primarily minority, low income community, dividing the community, creating barriers and lack of investment for the foregone future. We had some options available, but none that were, quite frankly, feasible in going forward.

So there were a few things that the city of Denver brought forward as a municipality who understood the challenges that this community faced, as well as the historical actions of environmental injustice. One was community engagement. The FHWA said this was probably the [indiscernible] model effort around community engagement that they have ever seen. We are proud of that. Between engaging the community and hearing the voices of the people who live there, but also understand the history was very important.

Empowering the local government to engage, the State Department of Transportation really helped us by allowing us, opening the door for us to be involved, we can bring forward the issues of equity and opportunity. Connecting roads in that community that would help provide new life and opportunities was also increasingly important as we moved in, as well as amenities. These were underserved communities, they didn't have access to parks. As part of this highway project, we lowered it, and we are capping it with a new park for the community that everyone can enjoy.

We have also built in some remedies to some of the environmental challenges, including pollution, but also flooding, helping to remedy the historic flooding in these neighborhoods in a project called Plot to Park. We merged two very important but very expensive infrastructure programs, including this project, to alleviate the flooding of these neighborhoods that has been happening for hundreds of years and make it more, quite frankly, improve the quality of life for residents in the area.

So the Plot to Park Program was extremely important. Making sure that you are engaging municipalities, we have, again, a better understanding of the residents, the challenges of equity, the environmental injustices that have occurred, and creating opportunities around connectivity and renewed opportunities of investment was critically important on the I–70 Project.

Senator PADILLA. Thank you both.

Thank you, Mr. Chair.

Senator CARPER. Senator Padilla, thank you for some great questions.

I am going to yield now to Senator Capito, and she will give some closing statements, and then hand the gavel back to me.

Senator CAPITO. Thank you, Mr. Chairman. I want to thank our witnesses. I thought they were tremendous and gave us great insight and a broad understanding of how many of these programs impact their communities, their States, and I appreciate it, I know it is been a little bit lengthy for some.

I also would like to call attention to the fact that we had almost unanimous membership here in our Committee asking questions and engaging in this issue. I think if you close your eyes and didn't know who was asking the questions or from what party that person might be from, I think you see that there is a solidarity of interest and a grand desire to really get something done together in the surface transportation infrastructure area.

The variety of questions, whether it is formula funding or electric vehicles or bridge repair, or kind of cuts across every single State, we know that. Every State has more urban areas and lots of rural areas. So I think that the perspectives that all of our members have given us show the great interest that we all have in making sure that our States' needs are addressed.

I said in my beginning statement that flexibility was going to be very important. I think the Governors backed me up on that. One size fits all doesn't work for Denver, it won't work for Maryland, it might not work for West Virginia, and so the flexibility built into the program is really critical.

One of the areas that I think we had good agreement on is the speed to projects, the delivery of the actual project. I talked in my opening statements about the 7 year timeline, and how that is costly and may result in obviously fewer jobs, but also maybe incomplete projects or projects that are only partially able to be completed, and therefore not as useful and not as critical to the infrastructure development of our individual States.

Certainty is something that we have all asked for, and that would be the predictability of a lengthy bill, 5 or 6 year bill, which I think provides the certainty that many folks talked about.

Innovation was a huge topic. We heard a lot about electric vehicles, charging stations, which we had in our bill, we had the first climate chapter ever in a highway bill that we passed 21 to nothing.

We are very much committed to that on a bipartisan basis, and we want to make sure that it is in the best interest of everybody for the environmental reasons as well as the infrastructure development reasons.

I will say that we did hear a lot about—I thought it was interesting to hear from the different topics about electric, and when you are talking about electric vehicle charging stations, how that different municipalities and States are not waiting for the Federal Government to fill the gap.

I am sure that there are ways that we can help, but at the same time, we need to be relying on the resources that are available on the local and State level. They are ready to commit resources, and have. Certainly from the private sector, we don't want to displace that commitment, I don't think, with a Federal commitment. We are going to have enough on our plate without co-opting where our States and municipalities are already willing to go with the private sector.

So I would say with all the electric vehicles that are being projected to be on our roads, the main thing is, we have to have safe highways, we have to have modernized highways, we have to have bridges that are safe. We have to go back to the core function of a surface transportation bill, not to say we are not going to build transportation for the future, because we will.

But we have to have—it is almost like the food and water aspects of our lives. There are basic things that we have to have as we move toward different parts of our society in different ways. Certainly, our job, I see, with all of the great things that we see in our future, we still have that core function. That is where I think you saw a lot of interest from our Committee.

So I think you did a great job, Mr. Chairman, with great witnesses, and I am glad to participate. I want to thank my staff; they got us all prepared, and your staff as well. We are working well together; let's keep it up.

He wants the gavel back, all right. Thank you.

Senator CARPER. Thanks for sharing.

In closing, I want to just follow up, it is been just a great hearing. What a great hearing to start off our new Congress.

I think we have had all but two of our members who were able to participate, which is terrific attendance. I know that everybody has other committees and other hearings that they are trying to get to. So thanks to our colleagues, and a warm welcome to our new colleagues who were here today.

I want to say a special thanks to our staffs. I used to admire the way Max Baucus and Chuck Grassley worked together in the Finance Committee. They initially started by meeting, just the two of them would meet maybe once a week. Then over time, they would have another, like a chief of staff of something like that with them. But eventually, you could walk into a meeting between their two staffs, Max Baucus, a Democrat, Chuck Grassley, a Republican, on the Finance Committee, the two leads, and if you didn't know who was working for who, you wouldn't know.

I think that is a good goal for us, and I am encouraged that we are going to have some terrific collaboration.

I want to thank our witnesses. What a lineup.

Staffs, thank you for bringing together four terrific witnesses.

We are deeply grateful to the Governors, Governor Hogan, our neighbor not far away in Maryland, and Governor Whitmer, who is the Governor of my favorite baseball team, the Tigers, and Mayor Hancock from Denver, and Commissioner Sheehan up in New Hampshire. You all did a wonderful job, and we appreciate your joining us virtually.

I want to just say one thing, maybe one or two things in closing. We are so lucky to be here. We are so lucky to serve on this Committee.

I like to quote Einstein, and Einstein used to say, "In adversity lies opportunity." Plenty of adversity, I talked about it when we began the hearing, but there is also opportunity here. If we are smart about it, and we find ways to collaborate and work together, we are going to rise to the occasion. I am hopeful and encouraged that we will. The American people are counting on us.

I said earlier, at the beginning of the hearing about the train, Union Station, I walked up to the Capitol, the sun was out, it was so beautiful. The skies were blue, the sunshine over the Capitol. It felt like morning in America again. That is a good note for us to close on.

I have a couple of unanimous consent requests. I would ask unanimous consent to submit for the record a number of letters from associations focused on safety, electric charging, construction jobs, technology, and others. They are all eager to see Congress get to work on infrastructure for the benefit of all the American people, and so are we.

One other one, there has been a fair amount of discussion, and rightly so, on delay. We have included streamlining provisions in every reauthorization bill in the last 30 years. I know every one that I had a chance to work on. We also need to recognize the delays that are caused by funding shortfalls; that is something we can do something about, and we need to.

I want to ask unanimous consent to submit for the record a report from AECOM, a consulting firm that looked at 40 major infrastructure projects and found that a major challenge to 39 out of 40 was inadequate funding, not completion of environmental reviews, so let's keep that in mind.

I hope our next bill will encourage innovative project delivery and also address our funding shortfalls. We need to do both.

[The referenced information follows:]

ADVOCATES FOR HIGHWAY & AUTO SAFETY

February 23, 2021

The Honorable Thomas R. Carper, Chair
The Honorable Shelley Moore Capito, Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Chairman Carper and Ranking Member Capito:

Thank you for holding tomorrow's hearing, "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation." Advocates for Highway and Auto Safety (Advocates) appreciates your leadership on these important topics and urges you to prioritize safety as you consider policies and laws investing in infrastructure. The safety of everyone who uses our transportation system should be a cornerstone of these discussions and accomplished in complement with improving environmental concerns, advancing equity, and promoting growth and innovation. We respectfully request this letter be included in the hearing record.

Crashes, deaths, injuries and associated costs remain persistently high. Every year on average, over 36,000 people are killed and 2.74 million more are injured in motor vehicle crashes. Preliminary estimates from the National Highway Traffic Safety Administration (NHTSA) indicate that the fatality rate and total for the first nine months of 2020 increased over the same time period in 2019. This is in line with troubling trends reported across the country, and confirmed by NHTSA, of drivers engaged in riskier driving behaviors including speeding, impairment, and lack of seat belt use during the COVID-19 pandemic. Media and analytics reports note distraction increased as well. Further, in 2019, more than 5,000 people were killed in crashes involving a large truck. Since 2009, the number of fatalities in large truck crashes has increased by 48 percent.[1] In 2019, 159,000 people were injured in crashes involving a large truck, and the number of large truck occupants injured increased by 18 percent. In fatal crashes involving a truck and a passenger vehicle, 96 percent of the fatalities were passenger vehicle occupants, according to the Insurance Institute for Highway Safety (IIHS). The cost to society from crashes involving commercial motor vehicles (CMVs) was estimated to be $143 billion in 2018, the latest year for which data is available. According to the U.S. Department of Labor, truck driving is one of the most dangerous occupations in the United States.

[1] Note, the 48 percent figure represents the overall change in the number of fatalities in large truck involved crashes from 2009 to 2019. However, between 2015 and 2016 there was a change in data collection at U.S. DOT that could affect this calculation. From 2009 to 2015 the number of fatalities in truck involved crashes increased by 21 percent and between 2016 to 2019, it increased by 7 percent.

This substantial crash death and injury toll also comes with a serious financial burden. Based on 2010 data, crashes impose an annual cost of over $800 billion to society, including $242 billion in direct economic costs (NHTSA). When adjusted only for inflation, comprehensive crash costs now near one trillion dollars, with direct economic costs amounting to $292 billion – or an $885 "crash tax" on every American. Additionally, crashes cost employers $47.4 billion in direct crash-related expenses annually, based on 2013 data from the Network of Employers for Traffic Safety (NETS). Similarly adjusted, the cost to employers is now approximately $54 billion annually. Ending the physical, emotional, and economic toll of road crashes is achievable and it is critical that we take swift action to do so. As the Committee begins consideration of an infrastructure package and surface transportation reauthorization, we urge you to take action on vital traffic safety issues including the following recommendations.

Require and expand the use of proven technologies which are demonstrated by data, research and experience to prevent, mitigate or reduce motor vehicle crashes yet are currently deployed inequitably. Advanced vehicle safety technologies, also known as advanced driver assistance systems (ADAS), prevent and lessen the severity of crashes. The National Transportation Safety Board (NTSB) has included increasing implementation of collision avoidance technologies in its *Most Wanted List of Transportation Safety Improvements* since 2016. These technologies should be required in all new vehicles, subject to a minimum performance standard which sets a floor, not a ceiling, from which manufacturers can innovate. This action will also help achieve safety equity by providing benefits to all road users and reducing the base cost of technology due to economies of scale.

However, access to these lifesaving crash avoidance technologies currently is not equitable. They are often sold as part of an additional, expensive trim package coupled with other non-safety features, or included as standard equipment only in high end models or vehicles, which are unaffordable to many families. A report from Consumer Reports found an astounding upcharge of more than $16,000 for AEB with pedestrian detection in the second most popular vehicle sold in the U.S. It is essential that vehicle safety technology be required as standard equipment to make safety equitable and to expedite the benefits to all road users. Individuals who rely on walking or biking for utilitarian purposes, rather than choice, to reach work or school are at the highest risk for injury or death. Mandating safety equipment in all new vehicles and ensuring the protection of vulnerable road users could address this aspect of social inequity. Moreover, as Congress works towards achieving climate goals and supporting American manufacturing through the domestic production of electric vehicles (EVs) and with automakers reconfiguring their production lines to do so, it is an efficient and economical opportunity to concurrently integrate ADAS technologies.

Additionally, connected vehicle technology has the potential to offer added safety benefits. These technologies allow a vehicle to send and receive communications with other vehicles (vehicle-to-vehicle, V2V), the infrastructure (vehicle-to-infrastructure, V2I), and "everything" (vehicle-to-everything, V2X). Specifically, V2X communication can relay signals to the vehicle about upcoming traffic lights and speed limits, among other messaging, further improving the safety of drivers and all road users. Connected vehicle technology can also amplify the benefits of certain vehicle safety technologies and may provide necessary redundancy for future AV operations. Vehicle technologies are already being introduced that provide speed assistance. In fact, the European New Car Assessment Program (Euro NCAP) "promotes the installation of speed assistance systems that support drivers to control their speed." We urge Congress to direct NHTSA to complete the upgrade of U.S. NCAP to include this advancement and update and complete the 2017 Notice of Proposed Rulemaking (NPRM) to require V2V technology, as well as partner with the Federal Highway Administration (FHWA) to study the needs and benefits of V2I with the goal of V2X communications for safety.

Essential protections for pedestrians, bicyclists, and other vulnerable road users (VRUs) must be adopted – in 2019 pedestrian and bicyclist fatalities remained among their highest levels in 30 years. Advances in vehicle safety technology, such as automatic emergency braking (AEB) that can detect and respond to pedestrians, bicyclists, and other VRUs as well as vehicles and objects, will be key to making meaningful reductions in fatalities and injuries. Advocates continues to urge NHTSA to require this technology as standard equipment in all new vehicles. The safety agency should also update the U.S. NCAP to include VRU crashworthiness, crash avoidance, and speed assistance systems. The NTSB has recommended updating NCAP to include these safety improvements for rating and Euro NCAP already evaluates a number of these upgrades. Additionally, Advocates has called on NHTSA to establish standards for the hood and bumper areas of vehicles to reduce the severity of impacts with bicyclists and pedestrians.

Automated enforcement (AE), such as speed and red-light running cameras, is a verified deterrent against frequent crash contributors and has been identified by NHTSA, NTSB, Centers for Disease Control and Prevention (CDC), IIHS and others as an effective means to curb dangerous driving behavior. Moreover, a recent review by the Congressional Research Service (CRS) found that speed camera programs are effective in reducing speeding and/or crashes near cameras. Additionally, for VRUs, such as pedestrians and bicyclists, small changes in speed can have a large impact on survivability. New crash tests performed by IIHS, the AAA Foundation for Traffic Safety, and Humanetics show that modest five to ten miles per hour (mph) increases in speed can have a severe impact on a driver's risk of injury or even death. Expanding the use of this technology is especially important considering in 2019 pedestrian and bicyclist fatalities remained among the highest levels in 30 years.

A systematic plan of proven countermeasures should be required to improve road safety, such as a Safe Systems approach, and implemented during any road maintenance or building projects. Safe Systems incorporates upgrades to infrastructure, such as protected intersections, dedicated, accessible bike lanes and pedestrian pathways, expanded use of AE systems to curb speed and red-light running, leading intervals for signaling, speed curbing measures and other improvements to minimize interactions between VRUs and vehicles. This strategy offers pedestrians and bicyclists better protection to reduce the occurrence and severity of crashes and should be included in infrastructure and surface transportation legislation. Congress should take action to direct the U.S. Department of Transportation (DOT) to offer grant opportunities to incentivize the incorporation of Safe Systems principles in state and local road infrastructure projects. These projects must be extended to all neighborhoods to promote equity of the safety improvements. They should aim to help improve our roads to ensure safety for mixed modal use (i.e., vehicles, pedestrians, bicyclists, people who use wheelchairs or other assistive devices, micromobility and other novel mobility products) and expand the ability for localities to respond to different road use challenges, among other upgrades.

Potential impacts from autonomous vehicles (AVs) to transportation systems, infrastructure, and the environment must be fully studied, safety and societal benefits assured, and detriments effectively mitigated before widespread rollout. Despite the reality that mass deployment of AVs is likely far in the future, significant efforts to fast-track their public sale and use without proper safeguards continue to persist. Proponents have sought mass exemptions from safety standards, often under the misleading claim that the U.S. will fall behind China in the AV race. However, this is not true. In fact, a 2020 report by KPMG shows the U.S. is fourth in readiness for AVs, while China is far behind at number 20.

This urgency has been propagated while major issues with AVs remain unaddressed. Instead, we urge Congress to take a comprehensive approach involving all stakeholders, should AV legislation be considered. Proposals for AV legislation to-date have largely sidestepped ongoing critical conversations about how these vehicles will affect transportation systems, infrastructure, and the environment. They have also lacked requirements to ensure safety and other outcomes such as accessibility, mobility and equity will be improved. While this Committee has rightfully started to examine this issue, including a June 2018 hearing on "Innovation and America's Infrastructure: Examining the Effects of Emerging Autonomous Technologies on America's Roads and Bridges," more work is needed to fully address the known and foreseeable consequences of AVs. We thank Chairman Carper and other members of this Committee for their strong leadership and commitment to ensuring AV safety.

During the June 2018 hearing, Advocates was honored to serve as a witness and provide comprehensive testimony on ways to do so. Since then, we have continued to expand our knowledge on the issue and engaged expert stakeholders. In November 2020, we led a group of 60 diverse organizations to release the "AV Tenets" that must be the foundation for any AV policy that is considered. The core principles of the AV Tenets are: 1) prioritize safety for all road users; 2) guarantee accessibility and equity; 3) preserve consumer and worker rights; and, 4) ensure sustainable transportation and retain local control. Specifically, from the AV Tenets:

> AVs could have direct and indirect negative impacts on safety, congestion, pollution, land use, accessibility, transportation infrastructure capacity and needs, energy consumption, public transit, jobs and job functions, mobility and equity. DOT must be directed to undertake a comprehensive study to inform policymakers and the public about how these vehicles will impact our existing transportation systems and ensure effective mitigation of problems identified. Implementation of infrastructure to support the safe operations of AVs, such as placement of electric vehicle charging stations, visible lane striping, and uniform and unobstructed signage, must be equitable for all communities to ensure equal opportunity for people of all racial and socioeconomic backgrounds.

Overweight trucks disproportionately damage our Nation's crumbling infrastructure and threaten public safety. Federal limits on the weight and size of CMVs are intended to protect truck drivers, the traveling public and America's roads, bridges and other infrastructure components. Yet, provisions allowing larger and heavier trucks that violate or circumvent these federal laws to operate in certain states or for specific industries have often been tucked into must-pass bills to avoid public scrutiny.

According to the 2017 Infrastructure Report Card from the American Society of Civil Engineers, America's roads receive a grade of "D" and our bridges were given a "C+". Nearly 40 percent of the more than 614,000 bridges in the National Bridge Inventory are 50 years or older, and one out of 11 is structurally deficient. The U.S. DOT Comprehensive Truck Size and Weight Study found that introducing double 33-foot trailer trucks, known as "Double 33s," would be projected to result in 2,478 bridges requiring strengthening or replacement at an estimated one-time cost of $1.1 billion. This figure does not account for the additional, subsequent maintenance costs which will result from longer, heavier trucks. In fact, increasing the weight of a heavy truck by only 10 percent increases bridge damage by 33 percent. The FHWA estimates that the investment backlog for bridges, to address all cost-beneficial bridge needs, is $125.4 billion. The U.S. would need to increase annual funding for bridges by 29 percent over current spending levels to eliminate the bridge backlog by 2034.

Raising truck weight or size limits could result in an increased prevalence and severity of crashes. Longer trucks come with operational difficulties such as requiring more time to pass, having larger blind spots, crossing into adjacent lanes, swinging into opposing lanes on curves and turns, and taking a longer distance to adequately brake. In fact, double trailer trucks have an 11 percent higher fatal crash rate than single trailer trucks. Overweight trucks also pose serious safety risks. Not surprisingly, trucks heavier than 80,000 pounds have a greater number of brake violations, which are a major reason for out-of-service violations. According to a North Carolina study by IIHS, trucks with out-of-service violations are 362 percent more likely to be involved in a crash. This is also troubling considering that tractor-trailers moving at 60 mph are required to stop in 310 feet – the length of a football field – once the brakes are applied. Actual stopping distances are often much longer due to driver response time before braking and the common problem that truck brakes are often not in adequate working condition.

There is overwhelming opposition to any increases to truck size and weight limits. The public, local government officials, safety, consumer and public health groups, law enforcement, first responders, truck drivers and labor representatives, families of truck crash victims and survivors, and even Congress on a bipartisan level have all rejected attempts to increase truck size and weight. Also, the technical reports released in June 2015 from the U.S. DOT Comprehensive Truck Size and Weight Study concluded there is a "profound" lack of data from which to quantify the safety impact of larger or heavier trucks and consequently recommended that no changes in the relevant truck size and weight laws and regulations be considered until data limitations are overcome.

It is clear that increasing truck size and weight will exacerbate safety and infrastructure problems, negate potential benefits from investments in roads and bridges, and divert rail traffic from privately owned freight railroads to our already overburdened public highways. Heavy trucks and buses also accounted for 19 percent of our Nation's transportation energy use, based on a 2020 report, and trucks with heavier gross weights require larger engines that decrease fuel economy on a miles-per-gallon basis. Despite claims to the contrary, bigger trucks will not result in fewer trucks. Following every past increase to federal truck size and weight, the number of trucks on our roads has gone up. Since 1982, when Congress last increased the gross vehicle weight limit, truck registrations have more than doubled. The U.S. DOT study also addressed this meritless assertion and found that any potential mileage efficiencies from the use of heavier trucks would be offset in just one year. Any proposals to increase truck size and weight, including state and industry-based exemptions and pilot programs, should be rejected.

Safety, sustainability, equity, economic growth and innovation are all goals that can and should be addressed in unison to improve the lives and well-being of everyone living in America. As this Committee moves forward with an infrastructure package and a surface transportation reauthorization bill, we strongly urge you to include a strong safety title and reject provisions that would further degrade infrastructure and safety. The status quo of persistently high deaths, injuries and costs resulting from crashes is not acceptable, and should not be perpetuated when effective solutions are readily available to save lives now.

Thank you for again for holding this essential hearing and for your consideration of these issues. We look forward to working with you to improve safety on our Nation's roadways.

Sincerely,

Catherine Chase, President

cc: Members of the U.S. Senate Committee on Environment and Public Works

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February 23, 2021

Senator Tom Carper
Chairman
U.S. Senate Committee on Environment and Public Works

Senator Shelley Moore Capito
Ranking Member
U.S. Senate Committee on Environment and Public Works

Dear Chairman Carper and Ranking Member Capito,

Before your hearing on "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation," we highlight here how self-driving technology is improving American lives and advancing our competitiveness.

The Consumer Technology Association (CTA) represents some 2000 of America's most innovative companies. Many of our companies lead in the vehicle transportation ecosystem and are developing automated driving technologies and both assisted and self-driving cars.

Self-driving technology benefits have become clearer over the past year. As our nation struggles with COVID-19, self-driving and contactless vehicles have helped deliver food and medicine to Americans in need. Beep, an autonomous shuttle service provider, joined the Jacksonville Transportation Authority and shuttle maker Navya to transport COVID-19 tests at the Mayo Clinic in Florida. The self-driving truck company TuSimple offers a free service for food banks in Texas and Arizona. Nuro is using self-driving vehicles to provide contactless delivery of medical supplies to hospitals and medical prescriptions directly to consumers.

Use of automated technologies during COVID-19 is just one example of how self-driving vehicles will enhance American lives. Self-driving vehicles will improve productivity and make transportation cleaner and more efficient. They can also cut road congestion. They will provide undreamed-of independence, accessibility and mobility to seniors and people with disabilities. More, they will reduce roadway fatalities, the vast majority of which (94%) are caused by human error.

Americans want these benefits. CTA research illustrates that consumers desire safety improvements, better mobility and less time wasted in traffic. Almost two-thirds of Americans surveyed are interested in replacing their cars with self-driving vehicles.

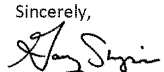
Automated transportation is also key to future American economic success. Self-driving technology is the subject of fierce global competition. China prioritized autonomous transportation in its high-tech infrastructure program. The EU and other nations are also aggressively moving forward. The nation that wins this race will claim the economic benefits and high-skill jobs that self-driving vehicles produce, from the manufacturing of advanced sensors to the development of new artificial intelligence technologies.

Realizing the rewards of self-driving innovation will require thoughtful, forward-thinking and targeted public policies. However, even as self-driving applications advance, American national testing and deployment are thwarted by a maze of conflicting state rules, legacy testing restrictions and federal limitations. That is why CTA worked with the Senate on the AV START Act and other initiatives to promote the safe but robust American rollout of autonomous vehicles.

While we must be deliberate when safety is involved, the Senate can protect the public while building an effective modern transportation framework. Creating rules to capture the benefits of automated transportation will require commitment, vision and flexibility. If it makes innovation and beneficial uses a priority, the Senate can enable cutting-edge transportation technology to flourish.

As this Committee focuses on infrastructure legislation, we encourage you to consider ways to support American innovation, remove unnecessary roadblocks and create a clear and practical regulatory path that allows this next-generation technology to come to fruition in the U.S. CTA offers the Committee its resources and expertise in this effort. Please include CTA in conversations about advancing automated transportation and putting America in the driver's seat for global technology leadership.

Sincerely,



Gary Shapiro
President and CEO
Consumer Technology Association

February 24, 2021

The Honorable Tom Carper
Chairman
U.S. Senate Committee on Environment
& Public Works
Washington, D.C. 20515

The Honorable Shelley Moore Capito
Ranking Member
U.S. Senate Committee on Environment
& Public Works
Washington, D.C. 20510

Dear Chairman Carper and Ranking Member Capito:

On behalf of Associated Builders and Contractors, a national construction industry trade association with 69 chapters representing more than 21,000 members, I write to comment on today's U.S. Senate Committee on Environment & Public Works' hearing "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."

ABC would like to express our continued commitment to building taxpayer-funded projects with the highest standards of safety and quality, and we stand ready for the opportunity to build and maintain America's infrastructure for the benefit of the communities that it will serve.

ABC believes that surface transportation reauthorization is essential and will provide a path forward on the infrastructure investment that is needed to aid the recovering economy. While ABC supports increased funding for critical infrastructure programs, as the committee considers an infrastructure investment, ABC strongly urges that you include several policies that will increase competition, reduce costly and ineffective regulations and address the construction industry's skilled worker shortage. As the American economy continues to recover from the COVID-19 pandemic, ABC believes that these priorities can help modernize and repair infrastructure across the country while improving equity, fostering economic growth and innovation and reducing costs for hardworking taxpayers.

ABC believes that additional investment in residential and commercial infrastructure will accelerate the long-term recovery of the U.S. economy, as every dollar invested in infrastructure creates $3.70 in economic growth over 20 years. This could have a profound economic impact on the communities in which these projects would take place, as it is estimated that every $1 billion in extra overall construction spending generates an average of at least 6,300 well-paying construction jobs.

To create opportunities for all small businesses, skilled construction workers and qualified companies to compete, we must ensure a level playing field for taxpayer-funded contracts financed by any federally funded infrastructure investment.

ABC believes that any potential infrastructure package must not discriminate against our nation's small, minority-, women-, and veteran-owned construction businesses, and instead allow all qualified contractors to compete on a level playing field based on merit, experience, quality and safety. When governments mandate project labor agreements on a federal or federally assisted taxpayer-funded project, these small businesses are disproportionately harmed, as PLAs drive up the cost of construction projects by 12% to 20% and discriminate against the 87.3% of U.S. construction workers who choose not to join a union. To deliver the highest quality projects at the best cost to taxpayers, a critical part of any federal investment in infrastructure should include the entire construction industry.

Over the past year, significant federal funds have been allocated to the COVID-19 pandemic response and recovery, and discussions continue around significant federal investment in our transportation infrastructure to continue to aid in our nation's economic recovery. Many of our nation's small, women-, minority- and veteran-owned businesses are still trying to fully recover from the devastating impact of the pandemic, and

PLAs would exclude these construction businesses from the opportunity to participate in taxpayer-funded projects at a time when we need to invest in these businesses.

Today, the Fair and Open Competition Act was introduced by Sen. Todd Young (R-Ind.) and Rep. Ted Budd (R-N.C.). FOCA encourages more qualified construction companies to compete for federal and federally funded construction projects, providing value for hardworking taxpayers while benefiting the entire construction industry. At a time when the Biden administration is signaling its support for more government-mandated PLAs on our nation's construction projects, this bill prevents federal agencies and recipients of federal funding from requiring contractors to sign controversial PLAs as a condition of winning federal or federally assisted construction contracts. ABC urges Congress to immediately pass this common-sense legislation.

To ensure our infrastructure projects are built on time and on budget, ABC also urges Congress to enhance construction workforce development opportunities. ABC and its members are committed to providing apprenticeship programs for the construction industry that uphold the highest standards of safety and quality. An increase in construction demand generated by significant infrastructure investments would further exacerbate the need for skilled workers in the construction industry. The federal government should commit to supporting and defending an all- of-the-above strategy for skill development and apprenticeships in which workers and employers have the freedom to choose the best way to educate construction employees that maximizes innovation to achieve world-class safety and productivity. ABC is concerned by language in the ABC-opposed National Apprenticeship Act (H.R. 447), passed by the House on Feb. 5, that fails to expand apprenticeship opportunities for millions of Americans and substantially restricts the apprenticeship opportunities currently available.

Additionally, ABC is concerned that legislation like Protecting the Right to Organize Act (H.R. 842) would limit the opportunities for construction industry small businesses to compete and recover from the COVID-19 pandemic. The PRO Act would enact harmful policy changes that would eliminate right-to-work protections in 27 states, violate employees' privacy, upend the business community and devastate the economy at a time when small businesses and the economy are struggling to recover. ABC members urge Congress to reject this bill and its untimely and harmful policies.

We thank you for your leadership and look forward to working with you to address the critical infrastructure needs of our nation during this difficult time.

Sincerely,

Kristen Swearingen
Vice President, Legislative & Political Affairs

440 First St., N.W., Suite 200 | Washington, DC 20001 | (202) 595-1505 | abc.org

DIESEL
TECHNOLOGY FORUM

February 23, 2021

The Hon. Tom Carper
Chairman
Committee on Environment and Public Works
U.S. Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510

The Hon. Shelley Moore Capito
Ranking Member
Committee on Environment and Public Works
U.S. Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

In Re: February 23 Hearing "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."

Dear Chairman Carper and Ranking Member Capito:

Thank you for your leadership on these issues and holding this hearing.

As the nation's leading advocate for diesel technology, we submit these comments in hopes of illuminating an approach that will enable the United States to attack the broad climate change challenge and build back better.

Last week's severe weather in Texas and Oklahoma, and the response to the severe wildfires in California, share both the relationship to climate change, and the unique call and deployment of diesel power to aid in the response.

> *"FEMA has supplied generators to Texas and is preparing to move diesel on to the state to ensure the continued availability of backup power," February 18, 2021 Jen Psaki, White House Press Secretary.*

The U.S. cannot rely on a one-size-fits-all approach to mitigating greenhouse gas (GHG) emissions or planning for a more climate resilient future. All energy sources have value, limitations and unique properties that are particularly suited for different tasks.

- Building back better - the nation's energy systems and infrastructure - will require both transformative technologies as well as proven and available solutions that can be deployed immediately. As we look to the promise of zero-emissions solutions in the longer term, we must leverage the fuels and technologies like diesel technology and renewable low-carbon biofuels that are available today.

- A diverse approach that incorporates conventional and renewable sources has the greatest chance of success to make our communities more resilient to the effects of climate change while doing the most we can now to reduce greenhouse gas emissions.

Building Back Better Recognizes the Time Factor and Immediacy of Reducing Transportation Sources of Greenhouse Gas Emissions

Greenhouse gases emitted today will remain in the atmosphere for centuries, which is why we should not ignore near term and available solutions that are ready today to eliminate these emissions.

Here, the new generation of diesel technology can play an outsized role in immediately reducing emissions from key sectors of the economy -heavy-duty mobile source applications like trucks, construction and agriculture equipment, locomotives, and marine vessels. Commercial vehicles are responsible for about 24 percent of mobile source emissions, and 60 percent of these emissions are generated by the larger Class 8 trucks, according to the latest emissions inventory published by U.S. Environmental Protection Agency (EPA).[1]

As zero-emissions options are planned for the future to meet the demanding duty-cycle of these over-the-road trucks, and as a nationwide network of charging infrastructure is still in development, new more efficient diesel trucks can do quite a lot to reduce emissions today and tomorrow. Consider the following:

- Replacing a single older Class 8 diesel trucks with a new more efficient diesel option can eliminate almost 10 tons of greenhouse gas emissions in a year.
- New more stringent fuel economy and GHG reduction regulations (Phase 2) kick-in this year for commercial vehicles powered by diesel engines and these are expected to reduce emissions by over 1 billion tons between 2021 and 2027. [2] As zero-emissions solutions are slowly introduced into the fleet, diesel is expected to continue to be the dominant powertrain and deliver the majority of these benefits.

Leverage the Opportunity for Low-Carbon Advanced Biofuels

Even greater immediate term GHG reduction benefits from the diesel platform are expected using advanced biofuels including biodiesel and renewable diesel fuel. These are very low carbon fuels capable of reducing GHG emissions by at least 50 percent, and in the case of renewable diesel fuel, nearly 80 percent.

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[1] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

[2] https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks

In California, these low carbon fuels have eliminated the most greenhouse gas emissions of all transportation fuels and technologies beating the benefits generated by electrified of cars, trucks and buses by nearly 4:1, according to the California Air Resources Board.[3] These are low-cost immediate term benefits provided by fuels derived from waste products and do not require the purchase of new trucks or engines or investments in a nationwide charging network.

Accelerating the uptake of more efficient diesel commercial vehicles that are much more fuel efficient, coupled with the use of advanced biofuels can deliver significant and immediate GHG reductions helping to meet the immediacy of the climate challenge.

Clean Air Benefits of New Diesel Technology

Replacing the relatively large population of older trucks and equipment with these widely available new near-zero emissions diesel solutions can go a long way to improve air quality for residents in communities that have been promised cleaner air. The latest diesel innovations reduce emissions of fine particles (PM) and oxides of nitrogen (NOx) to near zero levels providing significant public health benefits for environmental justice communities located near large freight facilities like ports and railyards. Relative to previous generations of older diesel technologies, new trucks, and bigger engines that power locomotives and marine vessels are over 90 percent cleaner.

As an example of the benefits of new diesel trucks, the Ports of Long Beach and Los Angeles require that all the estimated 16,000 trucks entering and exiting marine facilities each day and transiting through dense communities meet the latest near-zero tailpipe emissions standard for fine particles. Fine particle emissions from trucks fell 90 percent and trucks are now one of the smallest contributors to all emissions generated in the port, according to the most recent emissions inventory published by the Port of Long Beach.[4] These are immediate term public health benefits delivered directly to near-port communities thanks largely to new diesel technology.

All Fuels and Technologies Have a Role in Designing a Climate Resilient Future

As the recent events of last summer's high heat and wildfire season in California, and more recently, unseasonal severe weather in Texas and Oklahoma have demonstrated, we cannot rely on a one-size-fits-all approach to planning for a more climate resilient future. All energy sources have value, limitations and unique properties that make them better suited for different tasks. We need to rely on multiple technologies and fuel types to better plan for a more resilient future.

Consider first responders in Texas last week, called upon to perform mission critical services fighting fires and providing emergency electrical power. In this scenario, an all-electric world

[3] https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm

[4] https://www.polb.com/environment/air/#air-program-details

would have limitations in times of crisis when access to electricity is unavailable. These are instances where fuel diversification is of extreme value and must play a role to meet the practical needs of more resilient communities.

Today, there are more clean transportation fuel options that ever before and these should all be considered an integral component of climate resiliency planning to deliver mission critical services in the face of future extreme weather events.

Diesel is the most efficient internal combustion engine coupled with near zero emissions and ability to use renewable low carbon renewable biofuels, all which make it a desirable part of the climate solutions. Diesel-powered machines and equipment are vital to delivering the net zero carbon future we all envision.

- We see diesel-powered construction machines completing utility grade solar arrays, grid hardening infrastructure and onshore wind farms.
- We see diesel-powered marine vessels facilitating the construction of offshore windfarms.
- We see diesel emergency backup generators being staged to provide electric power generation or water pumping capabilities to build climate resilient infrastructure.

Diesel is part of the solution for tackling climate change, growing the economy and delivering cleaner air now.

We thank you for the opportunity to provide these comments. Please contact me with any questions.

Thank you,

Allen R. Schaeffer

Allen Schaeffer
Executive Director
Diesel Technology Forum
aschaeffer@dieselforum.org
301-514-9046

The Diesel Technology Forum is a Maryland based educational not for profit association that represents manufacturers of diesel engines, vehicles and equipment including mobile and stationary generators, along with component manufacturers and fuel and biofuel producers. The Forum collects and commissions research that attests to the environmental and economic importance of diesel technology and serves to advocate these benefits broadly.

February 23, 2021

The Honorable Thomas R. Carper (D-DE), Chair
The Honorable Shelly Moore Capito (R-WV), Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, DC, 20510

Dear Chairman Carper and Ranking Member Capito:

We are writing to commend you for scheduling Wednesday's hearing on the topic of, "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation". As truck safety advocates, survivors and families of loved ones needlessly killed and injured in preventable truck crashes, we are writing to urge the Committee to reject any attempts in infrastructure legislation to increase truck size and weights or to repeal the freeze on longer combination vehicles (LCVs) enacted with strong bipartisan support in the 1991 ISTEA law.

Countless studies show that bigger, heavier trucks are gas guzzlers, threaten the safety of all road users and impose significant financial burdens on society due to the steep economic cost of crashes as well as excessive road and bridge damage.

The growing carnage on our roads and highways due to truck crashes is unacceptable and alarming. According to the National Highway Traffic Safety Administration (NHTSA), in 2019, 5,005 people were killed in crashes involving large trucks and 159,000 more were injured. The cost to society from crashes involving commercial motor vehicles was estimated to be $143 billion in 2018, the latest year for which data is available. Since 2009 there has been a 48 percent increase in truck crash fatalities and a total of over 40,000 people have died.

In fatal two-vehicle crashes between a large truck and a passenger motor vehicle, 96 percent of the fatalities were occupants of the passenger vehicle, according to the Insurance Institute for Highway Safety. This, of course, is due to the considerable difference in the size and weight of large trucks compared to smaller passenger vehicles. Bigger trucks come with operational difficulties such as requiring more time to pass and taking a substantially longer distance to adequately brake.

Also, studies conclusively show that overweight trucks disproportionately damage our badly deteriorated roads and bridges. An 18,000-pound truck axle does over 3,000 times more damage to pavement than a typical passenger vehicle axle. Furthermore, increasing the weight of a heavy truck by only 10 percent increases bridge damage by 33 percent. The Federal Highway Administration (FHWA) estimated that the investment backlog for bridges, to address all cost-beneficial bridge needs, is $125.4 billion.

Trucks with heavier gross weights require larger engines that decrease fuel economy on a miles-per-gallon basis. And, despite bogus claims by special industry interests, trucks carrying heavier loads do not result in fewer trucks. It never has happened and never will happen. Typically, increasing truck weights diverts freight from privately owned freight railroads to our already overburdened public highways.

The public shares our views and overwhelmingly opposes any increases in truck size and weight limits because of the dangers and destruction. Countless opinion polls show strong opposition by respondents to bigger and heavier trucks no matter the age, gender, income level or state of residence.

In the coming weeks, we look forward to working with you to advance a balanced and safe infrastructure bill that achieves urgent and critical goals to protect the environment, to ensure the safety of all road users equitably, and to achieve economic prosperity.

Sincerely,

Dawn King, President, Truck Safety Coalition (TSC), (*Michigan*)
(Father, Bill Badger, was killed in a truck crash, in 2004.)

Joan Claybrook, Co-founder, and Chair, Citizens for Reliable and Safe Highways (CRASH) & Former Administrator, National Highway Traffic Safety Administration (NHTSA).

Daphne & Steve Izer, Co-Chair, Parents Against Tired Truckers (P.A.T.T.) (*Maine)*
(Son, Jeff, and three friends were killed in a truck crash, in 1993.)

Tami Trakh, Board Member, CRASH, (*California)*
(Sister, Kris, brother-in-law, Alan, and two of their children, Brandie and Anthony, were killed in a truck crash, in 1989).

Jennifer Tierney, Board Member, CRASH, (*North Carolina)*
(Father, James Mooney, was killed in a truck crash, in 1983.)

Russell Swift, Co-Chair, P.A.T.T., & Aaron Swift, (*Maine)* & (*South Carolina)*
(Son & Brother, Jasen, was killed instantly when an 18-year-old truck driver became stuck across 2 lanes, causing the car to drive into and under the side of the trailer, in 1993.)

Jane Mathis, Vice President, TSC, (*Florida)*
(Son, David, and daughter-in-law, Mary Kathryn, were killed returning from their honeymoon when hit from behind by a semi whose driver fell asleep at the wheel, in 2004.)

Nikki Weingartner, Board Member P.A.T.T., (*Hawaii)*
(Husband, Virgil Hensley, was killed instantly when a truck driver ran a stop sign at an intersection, in 1997.)

Linda Wilburn, Board Member, P.A.T.T., *(Oklahoma)*
(Son, Orbie, was killed when a tired truck driver slammed into his car, in 2004).

Larry Liberatore, (*Maryland)*
(Son, Nick, was killed instantly by a truck driver who drove his semi over Nick's vehicle, in 1997.)

Ed Slattery, *(Maryland)*
(Wife, Susan, was killed, and sons, Peter & Matthew, were severely injured when they were rear-ended by a truck driver who fell asleep, in 2010.)

Eileen Kosc, *(Delaware)*
(Son, Bryan, was killed, and she and her other son, Brandon, were injured when her car was struck from behind by a semi, in 2013.)

Kate Brown, *(Illinois)*
(Son, Graham, was severely injured after he was hit by a drunk, drugged, and fatigued semi driver, in 2005.)

Jeff Burns, Board Member, Citizens for Reliable and Safe Highways (CRASH) (*Missouri*)

The Truck Safety Coalition (TSC) is a partnership between the Citizens for Reliable and Safe Highways (CRASH) Foundation, and Parents Against Tired Truckers (P.A.T.T.). The coalition is dedicated to reducing the number of deaths and injuries caused by truck-related crashes, providing compassionate support to truck crash survivors and families of truck crash victims, and educating the public, policymakers and media about truck safety issues.

ITS AMERICA

February 24, 2021

The Honorable Thomas R. Carper
Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

The Honorable Shelley Moore Capito
Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

Dear Chairman Carper and Ranking Member Capito:

In anticipation of the Committee on Environment and Public Works hearing entitled "Build Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation," the Intelligent Transportation Society of America (ITS America) writes to express our strong belief that the integration of technology is key as we build for the future.

Our nation is on the cusp of great opportunity in how we define our 21st-century transportation system, one that can provide greener communities, increased opportunity and equity, and safer streets for all Americans. Technologies including connected, automated, shared, on-demand, and electrified transportation and infrastructure will define the way people, goods, services, and information move, reduce greenhouse gas emissions from the transportation sector, and ensure that the United States continues its leadership in the technology-driven global economy.

Over the years since Congress passed the Fixing America's Surface Transportation (FAST) Act, automated and connected vehicle technologies have advanced, the collection and use of big data have become an increasingly valuable tool for decision-makers, electrification of vehicles of every type from human scale to large scale continues, Mobility on Demand services are transforming how we get around, and technology is increasingly crucial to addressing inequities in access to transportation.

To lead the 21st-century technology-driven global economy, Congress will need to invest in digital infrastructure and rebuild and modernize our existing physical infrastructure. For these reasons, ITS America supports reauthorization of the FAST Act that provides funding for the rapid integration of advanced technologies, including predictive analytics, into transportation infrastructure, operations, and vehicles to reduce greenhouse gas emissions in the transportation sector and extend the life of aging infrastructure assets; creates safer roadways for vehicles, pedestrians, and cyclists using Vehicle-to-Everything (V2X) technologies; safeguards critical transportation systems from cybersecurity threats; establishes a Mobility on Demand program so everyone gains access to mobility and opportunity; maintains congestion pricing strategies to improve mobility and the environment; and invest in broadband infrastructure to support the 21st-century surface transportation system.

ITS America also supports increased funding for research, development, and demonstration of intelligent transportation technologies, including alternative fuel, connected, automated, and urban air mobility surface infrastructure.

ITS AMERICA

By investing in intelligent transportation infrastructure in the reauthorization of the FAST Act, Congress can help put people back to work when so many have lost their jobs due to COVID-19.

In these unprecedented times, ITS America's FAST Act reauthorization platform *Moving People, Data, and Freight: Safer. Greener. Smarter.* serves as a blueprint for economic recovery. It supports policies that will ensure our nation builds smart infrastructure while creating good paying jobs in the transportation sector and delivering a more equitable transportation system.

As the trade association representing stakeholders across the transportation sector, including state, city, and county departments of transportation, metropolitan planning organizations, automotive manufacturers and suppliers, technology companies, engineering firms, and research universities, ITS America expresses our strong support for the actions taken by Congress to minimize the impact of COVID-19 on the American economy, the transportation system, the traveling public, and transportation workers.

We look forward to working with this Committee on a reauthorization of the FAST Act that will led to a safer, greener, smarter, and more equitable transportation future.

Sincerely,

Shailen Bhatt
President and CEO
Intelligent Transportation Society of America

The Honorable Benjamin L. Cardin
The Honorable Bernard Sanders
The Honorable Sheldon Whitehouse
The Honorable Jeff Merkley
The Honorable Edward Markey
The Honorable Tammy Duckworth
The Honorable Debbie Stabenow
The Honorable Mark Kelly
The Honorable Alex Padilla
The Honorable James M. Inhofe
The Honorable Kevin Cramer
The Honorable Cynthia Lummis
The Honorable Richard Shelby
The Honorable John Boozman
The Honorable Roger F. Wicker
The Honorable Dan Sullivan
The Honorable Joni Ernst
The Honorable Lindsey Graham
Ron Thaniel, Vice President, Public Policy and Legislative Affairs, ITS America, rthaniel@itsa.org

February 24, 2020

The Honorable Thomas Carper
Chairman
Environment & Public Works Committee
U.S. Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Shelley Moore Capito
Ranking Member
Environment & Public Works Committee
U.S. Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Carper and Ranking Member Capito,

On behalf of the National Marine Manufacturers Association (NMMA) I thank you for convening the "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation" hearing. The Administration and 117th Congress face perhaps the most daunting challenges of our generation: rebuilding our country from the health and economic crisis brought on by the COVID-19 pandemic and addressing the global climate crisis. As the committee looks to bolster the economy and address climate change through infrastructure legislation, we urge the inclusion of recreation-specific proposals that collectively will serve as a key lever for building more resilient public recreation access, protecting vulnerable communities, and rebuilding local economies.

Led by the recreational boating industry, the outdoor recreation economy is a major contribute to the U.S. economy, accounting for 2.1% of GDP, $788 billion in economic output, and 5.2 million American jobs. The role of recreational boating in our economy has only grown more significant as Americans flocked to new outdoor activities amidst the COVID-19 pandemic, with the industry selling more boats in 2020 than in the past 13 years combined. Over 44,000 new boat buyers entered the market between March and June 2020, representing 10% year-over-year growth.

While this rise has showcased the popularity of such activities as a safe and fun way to spend time with loved ones, it has also illuminated one of the most pressing issues facing the industry: the need for adequate, sound, and up-to-date infrastructure that meets demand. Given that a majority of public recreation access infrastructure is already in need of significant maintenance and modernizations, our aging access points and facilities are particularly vulnerable to the effects of climate change. From rapidly changing water levels to increased frequency and intensity of flooding events and natural disasters in coastal and inland waterway areas, public waterways and outdoor recreation infrastructure need bolstered resilience.

Without robust investment in our country's outdoor recreation infrastructure, these economic contributions – along with pastimes enjoyed by the vast majority of Americans – will be in jeopardy. We urge consideration of the following policy recommendations listed below to address the industry's most pressing recreation access and climate infrastructure challenges.

On behalf of our members, we thank you for your leadership in developing a robust infrastructure package and appreciate the opportunity to provide comments on how recreation infrastructure can play an important role in economic recovery and developing climate adaptation solutions. NMMA stands ready to work with you to develop policies that will improve recreation access resiliency, and better enable the thriving outdoor sector to get Americans back to work and revive local economies across the country.

Sincerely,

T. Nicole Vasilaros

T. Nicole Vasilaros, Esq.

Senior Vice President, Government and Legal Affairs

National Marine Manufacturers Association

NMMA 2021 Recreation Infrastructure Policy Recommendations

Prioritized Access Projects and Streamlined Regulations
There's a growing need to modernize our Eisenhower-era recreation infrastructure to make sure recreators are safe and secure, as well as expand access points like parking around nearby boat ramps. To prepare our outdoor recreation infrastructure for the future, we must increase access opportunities and address growing maintenance needs that have been exacerbated by an increase in visits and traffic over the past few decades.

Recommendations:

1. **Amend U.S. Army Corps of Engineers (USACE) Challenge Cost Sharing Cooperative Management Authority** (CCSCMAs) authority granted under the Water Resources Development Act (WRDA) 2016 to allow USACE to handle partner collected fees and return to the partner after processing the contract fees. Additionally, expand the authority to the private sector to facilitate opportunities for businesses and nonprofit organizations to supplement investments in USACE recreation infrastructure
2. **Streamline lengthy permitting process** for permits, parking passing, and fees can deter visitors from engaging in outdoor recreation activities, and can also result in limited boat slip spaces and complications for construction of public and private access points. Establishing consistent permitting processes that optimize efficiency and effectiveness of regulatory review for projects is critical to ensuring restoration and recreation access in coastal and inland waterway communities across the nation.
    a. Require Department of Commerce and NOAA Fisheries to rescind the West Coast Region's 2018 Guidance on Assessing the Effects of Structures in Endangered Species

Act (ESA) Section 7 Consultation and direct the West Coast Region to return to informal consultation maintenance projects.
   b. Improve interagency coordination to expedite projects in a transparent, timely, and environmentally responsible manner.
   c. Pass the Recreation Not Red Tape (RNR) Act to make it easier for Americans to experience recreation opportunities.
3. **Direct Government Accountability Office (GAO) to conduct a public boating access survey** to provide an inventory of all federally managed recreational boating access points and facilities, an assessment of annual operation and maintenance needs associated with these sites; deferred operation and maintenance needs for such infrastructure and facilities to operate safely at full capacity, opportunities to expand capacity at existing access points, and the economic impact of recreation on regional economies and benefits of sustaining and improving public access.
4. **Bring federal recreation data management into the 21st century** through harmonizing and streamlining collection of visitation and economic impact data across the federal land and water management agencies, and requiring land and water management agencies to digitize recreational access information and make it available to the public.

Resiliency and Restoration

Our waterways and outdoor recreation infrastructure need bolstered resilience to the effects of climate change to alleviate the damage that has already been done. Recreational boaters and marine businesses in coastal and inland waterway communities feel the impacts of climate change – including rising sea levels, erosion, and ocean acidification, and more. As a result, our recreational boating access points and facilities are especially at risk. Additionally, the ongoing impacts of climate change have created a growing need in key waterways, such as the Chesapeake Bay, Great Lakes region, and the Everglades. These restoration efforts are not only important to maintain the ecosystems, but also to sustain the economic impact of the businesses that they support.

Recommendations:

1. **Expand and improve coastal restoration efforts** through amending the Gulf of Mexico Security Act of 2006 (GOMESA) through the COASTAL Act to dedicate more existing offshore energy production revenue from the Gulf towards coastal restoration and resiliency.
2. **Diversify conservation revenue** through the OFFSHORE Act to dedicate a portion of offshore wind revenue to coastal resiliency investments such as wetlands restoration, hurricane protection, and infrastructure improvement.
3. **Modernize boating infrastructure and access projects** by amending Tier 2 (nationally competitive) Boating Infrastructure Grant (BIG) project applications to require statement on effective climate adaptation solutions in proposed construction plans.
4. **Grow electric boat charging network** by developing a grant program to determine where electric recreational vessel charging stations are needed and establish a program to support electric and solar charging installation at private and public docks and marinas.
5. **Increase investments in dredging of coastal and inland waterways** to protect recreation activity and businesses in communities vulnerable to the impacts of climate change.

6. **Provide pre-disaster mitigation relief** through the PREPARE Act to authorize a Small Business Administration loan program to provide small businesses with low-interest, fixed rate loans up to $500,000 to invest in mitigation projects.

Increased Investments in Recreation and Restoration

Spanning infrastructure access and restoration efforts, we must ensure proper funding for the agencies that maintain our public lands and outdoor recreation facilities. For example, the U.S. Army Corps of Engineers (USACE) has over 5,000 sites in 43 states, generating over $10 billion in economic impact and supporting 189,000 total jobs, yet a majority of access infrastructure managed by USACE is in poor condition. Increasing revenues and finding new and sufficient funding streams for these groups will go a long way towards preserving our waterways and the economic impact of outdoor recreation.

Recommendations:

1. **Reauthorize and modernize the Sport Fish Restoration and Boating Trust Fund** to ensure funding for critical conservation, boating infrastructure, and aquatic education projects across the country.
2. **Establish a Federal Lands Transportation Program (FLTP) dedicated USACE set-aside** to ensure critical infrastructure needs are met.
3. **Invest $45 billion to repair aging, yet critical, high-hazard potential dams** to minimize risk to many boating access points and marine businesses located downstream.

NSSGA
NATIONAL STONE, SAND & GRAVEL ASSOCIATION

www.nssga.org

February 24th, 2021

The Honorable Thomas Carper
Chairman of the Senate Committee on
Environment and Public Works
513 Hart Senate Office Building
Washington, DC 20510

The Honorable Shelley Moore Capito
Ranking Member on the Senate Committee on
Environment and Public Works
172 Russell Senate Office Building
Washington, DC 20510

Dear Chairman Carper and Ranking Member Capito,

On behalf of the over 400-member companies of the National Stone, Sand & Gravel Association (NSSGA), I welcome today's hearing, titled *"Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."* As your committee understands well, a robust, multi-year surface transportation reauthorization is the most effective legislative tool to combat the economic impacts of the COVID-19 pandemic by putting tens of thousands of Americans back to work and recapturing our national economic competitiveness. Today's hearing will underscore these benefits and spur productive debate regarding the best paths forward for meaningful infrastructure investment.

NSSGA is the leading advocate and resource for the aggregates industry, who provides the critical raw materials found in virtually every surface transportation project - roads, highways, bridges, runways, pipelines and much more. Our membership represents more than 90 percent of the crushed stone and 70 percent of the sand and gravel produced annually in the United States. We are eager that your committee is beginning work to address our overutilized and underfunded infrastructure network by passing long-term surface transportation reauthorization before the current FAST Act one-year extension expires on September 30th.

As you know well, short-term extensions only serve to delay timely projects; increase over project costs; and eliminate any hopes of long-term planning and certainty for all local, state and federal partners. Congress needs to deliver a robust, multi-year bill that eliminate these obstacles and invests in the infrastructure networks millions of Americans depend upon every day. Echoing the hearing's title, NSSGA loudly supports "Building Back Better" via a surface transportation reauthorization bill that will address the over $800 billion backlog of vital public works projects, which must be addressed in order to provide the motoring public safe and efficient roads, bridges and highways[1]. Our national economy is already handicapped due the COVID-19 pandemic and investing in our crumbling infrastructure network will improve our local and national economy.

The need for federal infrastructure investment is even more critical when you consider that state Department of Transportation agencies (DOTs) have had to absorb significant revenue declines due to the pandemic. Many of these agencies lost upwards of 40 percent of their projected 2020 revenues at the onset of the pandemic, and it is projected State DOTs will still need roughly $18B in federal relief over the next four fiscal years. Thankfully, many on this committee supported a bi-partisan Dear Colleague letter last summer that ultimately resulted in $10B for State DOTs in the end-of-year package

[1] https://www.infrastructurereportcard.org/cat-item/roads/

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in December but continuing this support will leverage whatever highway reauthorization Congress passes. Ignoring the call to support state DOTs will blunt any infrastructure recovery package or highway reauthorization bill - no matter its size and scope - and will set back our country's infrastructure needs significantly. Despite these immense challenges, your committee is well positioned to tackle such obstacles with pragmaticism and compromise.

Last Congress, this Committee achieved a rare feat, advancing major bills unanimously like *America's Transportation and Infrastructure Act* (ATIA), and while ATIA did not pass the Senate before the FAST Act expired, that bill establishes strong, bi-partisan cooperation for your colleagues in the 117th. We look forward to the priorities and direction each of you will take as a new bill emerges this spring, and NSSGA is available as a resource in whatever capacity to help reach that goal.

Lastly, aggregate sustainability must be a critical component of any surface transportation reauthorization package. The more planning and focus on maintaining locally sourced aggregate material, the more we can improve on project delivery, cost efficiency and mitigate environmental impacts. NSSGA supports including text of the recently reintroduced ROCKS Act – HR 611, which would establish a working group of various partners at the federal, state and local level who would examine aggregate availability and future needs as infrastructure planning develops in the coming years.

America's economic recovery is synonymous with infrastructure investment, and NSSGA is here to advance that message throughout Congress. I appreciate your committee's leadership, advancing sound infrastructure policies and thank you for your consideration. As you continue to examine a reauthorization bill and other matters relevant to the aggregates industry, please consider NSSGA as a resource. Thank you again for your time and interest on this critical issue.

Sincerely,

Michael W. Johnson
President and CEO
National Stone, Sand and Gravel Association

cc: Members of the Senate Committee on Environment and Public Works

PCA Since 1916
America's Cement Manufacturers™

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February 25, 2021

The Honorable Thomas Carper
Chairman
Environment and Public Works Committee
456 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Shelley Moore Capito
Ranking Member
Economic and Public Works Committee
410 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Carper and Ranking Member Capito:

The Portland Cement Association (PCA), which represents cement manufactures across the country, appreciates the opportunity to submit comments for the Environment & Public Works Committee's "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation" hearing. We believe investment in the nation's infrastructure is critical to our nation's economic recovery and important to taking steps to address climate change.

As you may know, PCA is the premier policy, research, education, and market intelligence organization serving America's cement manufacturers. PCA's members represent 93 percent of the U.S. cement production capacity and have facilities in all 50 states. Our members manufacture portland cement, the primary ingredient in concrete, an essential construction material and a basic component of our nation's transportation infrastructure. Portland cement is used in the construction of highways, bridges, tunnels, mass transit systems, airports, runways, and sidewalks. Cement and concrete product manufacturing, directly and indirectly, employs approximately 600,000 people across the United States, and our collective industries contribute over $100 billion to our economy.

Annually, the United States uses approximately 260 million cubic yards of concrete to build and repair a variety of types of transportation and infrastructure. Last year, cement consumption nationwide decreased slightly compared to 2019, a trend that is likely to continue in 2021. Increased investment in transportation infrastructure is critical to not only helping the cement industry recover from the economic downturn caused in part by the coronavirus pandemic but the larger construction industry as well.

An efficient and well-functioning transportation network is essential to positioning the U.S. economy for a robust economic recovery. Fundamentally, we can no longer afford to defer investment in the nation's transportation infrastructure. The cement industry looks forward to working with Congress to pass a long-term reauthorization of the Federal surface transportation programs that significantly increases investment while maintaining our existing transportation infrastructure and meeting our nation's growing needs. Ensuring long-term, stable funding for the nation's surface transportation programs will help states and metropolitan planning organizations continue to plan and build a range of much needed road, bridge, and transit projects. Additionally, increased funding for the transportation program should be targeted to major reconstruction and capacity expansion projects to address freight bottlenecks and fix structurally deficient bridges. A long-term reauthorization of the surface transportation program must also address the long-term solvency of the Highway Trust Fund. The certainty that comes with a well-funded and multi-year reauthorization is critical to the entire construction supply chain, including cement manufacturers.

The cement industry commends the attention being placed on combatting climate change as it relates to transportation. PCA recently announced our ambition to reach carbon neutrality across the cement and concrete value chain by 2050. Critical to combatting the transportation sector's impact on climate change is designing and building assets with elements to address the impacts of climate change. It is important to recognize that from an infrastructure perspective, this means not only building projects that will reduce transportation-related emissions but also improving the resiliency of our nation's transportation infrastructure. Concrete construction plays an important role in both reducing transportation related emissions and improving the resiliency and sustainability of transportation assets.

The need to build resilient infrastructure is supported by the fact that according to the National Oceanic and Atmospheric Administration (NOAA), last year, there were 22 separate billion-dollar weather and climate-related disasters across the country, ranging from wildfires to floods to hurricanes, that have devastated communities. The costs associated with the recovery and rebuilding from these disasters demonstrate the importance of investing in resilient transportation infrastructure that can better withstand these disasters to reduce the recovery costs. Investment in transportation infrastructure should prioritize investment in projects to increase the resiliency of transportation infrastructure.

PCA appreciates the opportunity to share our perspective on the importance of transportation infrastructure investment to the nation's economic recovery and how the cement industry can help reduce transportation related greenhouse gas emissions. If you have any further questions, please do not hesitate to reach out to me at soneill@cement.org.

Sincerely,

Sean O'Neill

Sean O'Neill
Senior Vice President
Government Affairs

SMARTERSAFER.ORG
Americans for Smart Natural Catastrophe Policy

February 23, 2021

The Honorable Tom Carper
Chairman
U.S. Senate Committee on Environment and Public Works
513 Hart Senate Office Building
Washington, D.C. 20510

The Honorable Shelley Moore Capito
Ranking Member
U.S. Senate Committee on Environment and Public Works
172 Russell Senate Office Building
Washington, D.C. 20510

Dear Chairman Carper and Ranking Member Capito:

The SmarterSafer Coalition (SmarterSafer) is a diverse coalition of conservation and environmental groups, taxpayer-focused organizations, insurance and reinsurance interests, and housing advocates. As Congress turns its attention to comprehensive infrastructure legislation, SmarterSafer writes to express our priorities on the matter. We appreciate the opportunity to submit this letter into the record for tomorrow's hearing entitled "Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation."

There is an important nexus between infrastructure funding, disaster preparedness, and "Building Back Better." American infrastructure, including roads, bridges, and stormwater systems, was not designed to account for a changing climate and is ill-equipped to withstand natural catastrophic risks. Roads and bridges are buckling under higher temperatures, increased snowfall, wildfires, and disastrous flooding. Stormwater management systems are overwhelmed by natural catastrophes.

SmarterSafer members remain united in our support for fiscally sound, environmentally responsible approaches to natural catastrophe and infrastructure policy. As such, we encourage you and your colleagues to address the nation's failing infrastructure in a manner that balances environmental protection and better stewardship of taxpayer dollars.

Pre-Disaster Mitigation
The federal government currently spends more on post-disaster cleanup and reconstruction than on pre-disaster mitigation. That equation must change if we want to better protect our communities from future natural catastrophes. Pre-disaster mitigation efforts protect individuals and protect taxpayer dollars. Every $1 invested in mitigation is estimated to save $6 on post-disaster spending. These investments are particularly appropriate as many communities across the country anticipate another year of devastating natural disasters, which will increase their vulnerability at the same time they continue to grapple with the COVID-19 crisis. SmarterSafer supports many elements of H.R. 2, the *Moving Forward Act*, that were not enacted in the 116th Congress including greater funding for pre-disaster flood mitigation efforts and investments in natural infrastructure and deployment of climate-resilient technologies, the importance of which are outlined below.

Natural Infrastructure
Natural infrastructure—including healthy wetlands, forests, mangroves, and dunes—provides effective solutions to guard against flooding and erosion. NOAA estimates that U.S. coastal wetlands alone provide $23.2 billion in storm protection each year. During Hurricane Sandy, for example, wetlands

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reduced damages by more than 22 percent in more than half of the areas directly affected by the storm. Increased funding and incentives to protect and restore watersheds or forests will strengthen our communities and ecosystems. These natural features also provide important wildlife habitat and will assist in creating outdoor recreation opportunities and restoring tourism activity.

As we look to invest in climate-resilient and cost-effective infrastructure, greater emphasis should be placed on natural infrastructure that can absorb floodwaters and buffer and protect communities from increased catastrophic risk. Nature-based approaches should be used in combination with or as an alternative to gray infrastructure where feasible.

Climate-Resilient Infrastructure
From devastating wildfires in the Western United States to flooding in Houston to dam failures in Michigan, it's clear that our approach to infrastructure is failing. Climate resilient infrastructure is necessary to ensure that our families and communities are protected, as well as our future investments. Federal funds—whether provided through disaster assistance, Community Development Block Grants, or other programs—should be directed to outcome-driven projects that strengthen communities and reduce long-term risk. Federal infrastructure investments should require stronger minimum design standards and incorporate forecasts of future conditions for the lifespan of a structure.

In addition, high-quality information and data is necessary to inform strategic infrastructure investments and development decisions. SmarterSafer supports increased scientific climate data sharing within the government and between the public and private sectors. Bipartisan legislation like the *Built to Last Act*, introduced in the 116th Congress by Sens. Tammy Baldwin (D-WI) and Marco Rubio (R-FL), would ensure that standards-developing organizations that issue building codes have access to forward-looking meteorological information, including data on wildfires and other environmental trends.

Infrastructure in America's Floodplains
America's public infrastructure remains threatened by more frequent and severe flooding. SmarterSafer members are very supportive of President Biden's recent executive order restoring the federal flood protection standard as an important step in protecting lives, communities, properties, and taxpayer investments. SmarterSafer has long championed Senate efforts to reinstate such a standard, including through the *Federal Flood Risk Management Act of 2020*, introduced in the 116th Congress by Senators Chris Van Hollen (D-MD), Cory Booker (D-NJ), and Brian Schatz (D-HI), which would reinstate the federal flood risk management standard. While recent progress has been made, Congress should act to require government-funded agencies involved in floodplain construction to follow certain mitigation strategies to ensure that funds are used for projects that can withstand disasters. Along those lines, SmarterSafer also supports the *Repeatedly Flooded Communities Preparation Act*, also introduced in the 116th Congress by Senators Tim Scott (R-SC) and Brian Schatz (D-HI), that would require repeatedly flooded communities to assess continuing risks and develop and implement plans for flood mitigation.

We have consistently supported and will continue to ask Congress to consider preservation of green space and the elevation of structures above base-flood levels. Finally, Congress should also consider the racial inequities inherent in federal buyout programs that reflect and perpetuate discriminatory practices and historic redlining. According to numerous studies, buyouts disproportionately benefit white and wealthy communities. Low-income and minority homeowners and communities should be given priority

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and additional assistance to address and balance the history of placing low-income and minority housing in areas of higher risk.

Risk Transfer
The United States has an infrastructure funding gap of more than $2 trillion and the public sector alone cannot close it. Policymakers at all levels of government must find ways to make every dollar go further, and should consider enhanced public-private partnerships and risk-transfer opportunities. The private sector, particularly the insurance industry, has both the willingness and capacity to take on additional risk associated with natural disasters. By leveraging private financing and insurance and reinsurance availability, policymakers can shift some financial burdens associated with climate change from the government's balance sheet to willing private sector participants.

The Role of Climate Research in Infrastructure Investment
We encourage you to consider our nation's research infrastructure especially as it pertains to climate risk, ocean science, disaster resilient engineering, and green infrastructure. COVID-19 further demonstrates the need for more resilient, comprehensive, and efficient research infrastructure, and is revealing unmet needs that are hampering the fight against the coronavirus pandemic. Congress should consider new investments in research infrastructure that are important to enhancing our nation's overall capabilities and competitiveness for years to come, including American-organized or staffed not-for-profits conducting vital research abroad, whether at sea, in biodiverse habitats or other in situ locations important to furthering U.S. research objectives. Additionally, we would encourage the Senate to advance any forthcoming measure that aims to improve the sharing of climate information.

Thoughtful infrastructure spending can and should simultaneously provide economic growth, security for communities, and long-term savings for taxpayers. We greatly appreciate your efforts and consideration of the aforementioned suggestions to promote fiscally and environmentally responsible infrastructure. Our coalition stands ready to be a resource to you and your colleagues as legislation to forward your infrastructure platform takes shape.

Respectfully,

SmarterSafer Coalition

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MEMBERS

Environmental Organizations

American Rivers
Center for Climate and Energy Solutions (C2ES)
ConservAmerica
Defenders of Wildlife
National Wildlife Federation
Natural Resources Defense Council (NRDC)
Surfrider Foundation

Consumer and Taxpayer Advocates

Coalition to Reduce Spending
National Taxpayers Union
R Street Institute
Taxpayers for Common Sense
Taxpayers Protection Alliance

Insurer and Reinsurer Interests

Association of Bermuda Insurers and Reinsurers (ABIR)
The Chubb Corporation
Liberty Mutual Group
National Association of Mutual Insurance Companies (NAMIC)
National Flood Association
Reinsurance Association of America
Swiss Re
USAA

Mitigation Interests

Natural Hazard Mitigation Association

Housing

Habitat for Humanity
National Housing Conference
National Leased Housing Association

ALLIED ORGANIZATIONS

Allianz of America
American Consumer Institute
American Property Casualty Insurance Association (APCIA)
Center for Clean Air Policy
Friends of the Earth
Institute for Liberty
Zurich Insurance

CALSTART

Clean Transportation Technologies and Solutions

www.calstart.org

The Honorable Tom Carper
Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

The Honorable John Barrasso
Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

March 2, 2021

Chairman Carper, Ranking Member Barrasso:

Thank you for the opportunity to submit a statement for the record for today's hearing entitled *Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation*.

As one of the nation's leading electric vehicle technology non-profits, CALSTART strongly supports the Committee's commitment to reduce domestic carbon emissions through robust investment in zero emission vehicle technology and corridor buildout. We thank Chairman Carper for his leadership on behalf of the electric vehicle industry and look forward to working together toward a more sustainable transportation sector in the 117th Congress.

The global automotive industry, from passenger cars to heavy-duty tractor trailers, is in a period of rapid and transformational change. This fundamental shift represents an enormous opportunity for U.S. global leadership to combat climate change, reinvent the domestic automotive industry, and for Congress to build back better.

We are now at a critical moment to enact transformative policies that revolutionize the transportation sector and improve public health. The transportation sector is a major contributor to greenhouse gas emissions and the largest source of carbon pollution, with commercial vehicle emissions, while representing a small share of all vehicles on the road, contributing to a disproportionate fraction of fuel consumption, greenhouse gas emissions, and air pollution. The rapid transformation of vehicle fleets to zero-emission vehicles has the potential to accelerate the adoption of electric vehicles across sectors and will provide clean air benefits in the communities where these vehicles operate or are domiciled.

Federal Highway Administration: Alternative Fuel Corridors
The next surface transportation reauthorization considered by the Senate Committee on the Environment and Public Works should include strong provisions to incentivize the buildout of electric and fuel cell charging stations. The FAST Act (P.L. 114-94) established the Alternative Fuels Corridor program in the Federal Highway Administration, through which states and regions have sought designation as alternative fuel corridors for their roadways. The Corridor program has significant potential to improve access for zero-emission or near-zero passenger vehicles and address harmful emissions from goods movement and help the Administration achieve its emission reduction goals. Congress must authorize at least $300 million per year over the next five years in alternative fuel infrastructure competitive grants under FHWA to build out infrastructure along designated clean highway corridors. Investment in this program will help ensure vital infrastructure projects are sustainable for vehicle electrification and clean goods movement is viable.

As the Committee continue to work on the next surface transportation reauthorization, CALSTART offers the following recommendations to help guide these important investments:

- **Authorize a $300 million/year, five-year program to provide robust funding for the Alternative Fuel Corridor Program competitive grant.** In working with industry and public partners through the WCC AFICC, initial analysis on investment needed to build out the nation's clean fueling trucking infrastructure showed capital expenditures could range up to $100 billion over the next decade. A March 2020 voluntary study by CALSTART of medium- and heavy-duty alternative fuel vehicle infrastructure needs – including electric, hydrogen, and natural gas infrastructure – in California, Oregon, and Washington alone identified an estimated needed capital expenditure of nearly $374 million. This figure only represents a small fraction of the total need for MHDV alternative fuel infrastructure in the three west coast states. Corridor infrastructure buildout represents a significant economic opportunity, with a projected investment of $3 billion creating up to 8,400 project direct jobs and significant indirect employment throughout the EVSE supply chain alone. As a down payment on critically needed investment nationwide, we support an investment of $300 million per year over five years for a total of $1.5 billion, or $500 million more total over the amount proposed in S. 2302, be made in upcoming surface transportation reauthorization legislation. Moreover, the Coalition recognizes that Alternative Fuel Corridors are not the only the only mechanism for building out alternative fuel infrastructure for medium- and heavy-duty nationwide, though as envisioned the program could help serve to fill critical gaps along our highways.

- **Provide fair and equitable consideration of MHDV infrastructure for all types of alternative fuel commercial vehicles, including electric vehicle charging and hydrogen fuel cell recharging infrastructure.** To support federal investment that leverages these technologies for the unique demands of MHDV charging and refueling, a competitive grant program should be structured such that it offers fair consideration to grantees across fuel types and charging or refueling infrastructure.

- **Support alternative fuel infrastructure fairly across the nation's highway system while allowing for regional diversity.** Through the Federal Highway Administration's Alternative Fuel Corridor Designation Program, 46 states including the District of Columbia have submitted nominations for corridors for 100 interstates and 76 highways and state roads spanning 135,000 miles. Though the Program demonstrates the growing expansion and need of alternative fuel corridors, significant infrastructure gaps remain across fuels that require significant federal investment. There is also geographic diversity in fuel needs (including electric, hydrogen, natural gas) in the corridor nominations put forth by local jurisdictions. The Clean Corridor Campaign Coalition recommends that an Alternative Fuel Corridor Program competitive grant strike the right balance between making infrastructure investments across the United States' highway corridors while allowing for consideration in grantmaking decisions for regional alternative fuel vehicle needs. This could include allowing regional applications under the competitive grant, to the extent that such an approach will also allow for a fair nationwide investment approach consistent with Corridor program goals that are national in scope. One such example may include corridors overlapping with established freight corridors, such as freight hubs or common regional-haul goods movement systems.

- **Encourage public agencies to engage stakeholders, including nonprofits and industry members, during grant design and execution.** The Alternative Fuel Corridor competitive grant is a new mechanism that will require a new way of thinking at both the federal and state levels about how to effectively build out a wide range of infrastructure for all types of vehicles, including commercial trucks, along our nation's highways. Industry stakeholders including nonprofit entities have experience soliciting and assimilating diverse stakeholder feedback on the design and administration of alternative fuel infrastructure programs at the federal and state levels. These entities can both help form stakeholder consensus around effective programmatic grant design and execution, and partner with grantees to help facilitate effective and efficient use of taxpayer resources. As such, these stakeholders must be at the table with the eligible state entity and FHWA regional divisional office early on to help build consensus around a fair competitive grant process, should such a grant program become law. After funds are disbursed to grantees, nonprofit entities with experience administering state and local EVSE and alternative fuel infrastructure programs should be allowed to partner with grantees to promote more efficient and effective administration of taxpayer resources for shovel-ready projects, and to share best practices or partner to provide technical assistance to aid in administration of these funds with grantees.

Federal Highway Administration: Point-of-Sale Incentives for Zero-Emission Medium- and Heavy-Duty Vehicles.

Medium- and heavy-duty (MHD) zero-emission vehicles (ZEVs) are in development or early production right now. The relatively significant cost difference between a conventionally fueled vehicle and an MHD ZEV is cited by fleet purchasers as the primary barrier preventing purchase of these clean vehicles. There is currently no MHD ZEV tax incentive, rebate, or other direct incentive at the federal level. Purchase incentives for MHD ZEVs are needed to help alleviate the upfront costs of clean truck and bus technologies, provide fleets with confidence in these advanced vehicles in goods and people movement, and accelerate equitable transportation solutions in U.S. communities.

The Federal Highway Administration has the ability to support point-of-sale mechanisms for public and/or private commercial vehicle fleets through existing programs, such as the Congestion Mitigation and Air Quality (CMAQ) program or other Surface Transportation Block Grant-funded efforts. With that context, some attributes of an impactful point-of-sale program including the following:

- **Provide robust, consistent funding at the federal level to cover the incremental costs of zero-emission trucks, at the time of sale.** Point-of-sale incentives where fleets see a lower purchase cost upfront, and where dealers receive full price for the vehicles as voucher funds cover the incremental cost of the new vehicle, have been shown to be particularly effective in deploying zero- and near-zero MHDVs in California, New York, and Chicago. There is a clear need to expand these voucher programs to new states to introduce additional clean vehicles into those markets through a federal standard.
- **Make point-of-sale incentives transparent and technology neutral.** Point-of-sale vouchers have succeeded in states and cities when they provide clear, highly

structured program design. This allows manufacturers, vendors, and fleets, in addition to state and/or local sponsors, to operate under agreed upon parameters regarding availability of funds and voucher administration. A clearly articulated program design also establishes program rules and processes, publicizes the amount of available and remaining funding, and provides those funds on an open, first-come, first-served basis. In addition, program design can be optimized by utilizing an inclusive, multi-fuel and multi-technology approach to allow the market to decide clean vehicle outcomes. Technology neutrality allows fleets to choose the best option for their unique needs and thus provides the best chance of success and of these fleets becoming ambassadors for clean vehicle technologies.

- **Meet Buy America and scrappage requirements in a way that incentivizes U.S. assembly and production and does not deter fleets from going zero-emission.**
  - **a)** *Require manufacturers to meet a U.S. final assembly threshold to comply with FHWA Buy America requirements.* To incentivize U.S. production and support domestic manufacturing without penalizing manufacturers who rely upon global supply chains, Congress should address Buy America waivers under FHWA for zero-emission vehicles. FHWA CMAQ funds are subject to a Buy America requirement, which specifies that projects must use domestic steel, iron, and manufactured products to receive funding. These requirements are simply out of step with U.S. MHDV supply chains, often resulting in a waiver being sought from the blanket FHWA requirement. For example, through 2018, state and local MHDV point-of-sale voucher programs received a Buy America waiver from FHWA requiring only that a manufacturer complete final assembly of incentive-eligible vehicles in the United States. However, new waivers for the Buy America requirement have not been issued for clean vehicle programs since projects proposed in 2016 were approved in April 2018. Until waivers for clean vehicle programs are renewed, or Buy America standards are modified, this uncertainty means that CMAQ funding may be inaccessible for new point-of-sale funding or other clean vehicle deployment programs. To provide certainty for existing and new federal proposed programs, FHWA should require domestic final assembly of ZETs and other eligible MHDVs. Moving forward, FHWA should consider a long-term process, involving manufacturers and the domestic supply chain, in how to fix Buy America to better document domestic content and/or location of final assembly when making policy determinations for vehicle eligibility – and thereby put an end to the start-and-stop cycle of apply for and granting of Buy America waivers.
  - **b)** *Provide flexibility in any scrappage requirements to ensure voucher programs incentivize and do not hamstring zero-emission truck fleets.* While scrappage can help verifiably remove diesel vehicles from the roads, it may not be necessary for every point-of-sale voucher program. Under one scenario, scrappage can administered by states and localities through an orderly process that is meant to assure that when vouchers are provided to new, clean technologies, they are actually replacing dirtier diesel vehicles rather than adding to the total vehicle population. In a second scenario, in which a fleet would like to take advantage of available incentives to upgrade from, for example, an older model of all-electric, hybrid, or alternative fuel vehicle, these fleets are less likely to want to scrap a zero-emission or lower emission vehicle. In such cases, scrappage could be waived if the existing vehicle is demonstrated to be sufficiently

comparable to the new clean vehicle, or the existing vehicle may be better transferred to another fleet to replace an older vehicle eligible for scrappage, allowing the voucher recipient to comply with the scrappage requirement while upgrading the overall environmental performance of multiple vehicle fleets. Thus, flexibility may be required in designing scrappage policies to allow fleets to continue to decarbonize and electrify without the disincentive of losing a vehicle powered by technology that is comparatively significantly cleaner than a diesel engine.

CALSTART looks forward to continuing to work with the Committee to make these important infrastructure investments a reality, and to ensure that it provides broad benefits to stakeholders in the alternative fuel vehicle infrastructure supply chain, infrastructure operators and communities across the U.S.

Sincerely,

John Boesel
President & CEO
CALSTART

Statement for the Hearing Record of

The American Trucking Associations

Before the

Committee on Environment and Public Works
United States Senate

Hearing on

Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation

February 24, 2021

Chairman Carper, Ranking Member Capito, and members of the Committee, thank you for providing the American Trucking Associations (ATA) with the opportunity to provide testimony for the hearing record. ATA is an 87-year old federation and the largest national trade organization representing the trucking industry, with affiliates in all 50 states. ATA's membership encompasses over 34,000 motor carriers and suppliers directly and through affiliated organizations. Our association represents every sector of the industry, from less-than-truckload to truckload, agriculture and livestock to auto haulers, and from the large motor carriers to the owner-operator and mom-and-pop one truck operations. In fact, 80 percent of our membership is comprised of small-sized carriers, and only two percent of ATA's membership would be classified as large carriers.

In 2019 the trucking industry moved 73 percent of the nation's freight tonnage, and over the next decade will be tasked with moving 2.4 billion more tons of freight than it does today, while continuing to deliver the vast majority of goods.[1] Trucks will continue to be the dominant freight transportation mode for the foreseeable future. The highway system is the trucking industry's workplace, and a failure to adequately fund highway infrastructure will inevitably increase the cost of living for all Americans and make U.S. businesses less competitive.

The trucking industry is also a major source of employment, with nearly eight million people employed in trucking-related activities, including 3.6 million truck drivers[2]. Furthermore, the trucking industry is a lynchpin of the United States' economy; in 2017 trucks moved $10.4 trillion worth of goods, representing more than half of U.S. gross domestic product[3].

A well-maintained, reliable and efficient network of highways is crucial to the delivery of the nation's freight and vital to our country's economic and social well-being. However, the road system is rapidly deteriorating, and costs the average motorist nearly $1,600 a year in higher maintenance and congestion expenses.[4] Highway congestion also adds nearly $75 billion to the cost of freight transportation each year.[5] In 2016, truck drivers sat in traffic for nearly 1.2 billion hours, equivalent to more than 425,000 drivers sitting idle for a year.[6] This caused the trucking industry to consume an additional 6.87 billion gallons of fuel in 2016, representing approximately 13% of the industry's fuel consumption, and resulting in 67.3 million metric tons of excess carbon dioxide (CO_2) emissions.[7] Furthermore, congestion serves as a brake on economic growth and job creation nationwide. Mr. Chairman, a first-world economy cannot survive a third-world infrastructure system. As such, the federal government has a Constitutional responsibility to ensure that the resources are available to address this self-imposed and completely solvable situation.

While Congress last year injected revenue into the Highway Trust Fund (HTF) to prevent its collapse, this was just a temporary patch, and by next year additional revenue will be required to

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[1] *Freight Transportation Forecast 2020 to 2031.* American Trucking Associations, 2020.
[2] American Trucking Associations, *American Trucking Trends 2020.*
[3] U.S. Census Bureau Commodity Flow Survey, 2017.
[4] *Bumpy Road Ahead: America's Roughest Rides and Strategies to make our Roads Smoother,* The Road Information Program, Oct. 2018; *2015 Urban Mobility Scorecard.* Texas Transportation Institute, Aug. 2015.
[5] *Cost of Congestion to the Trucking Industry: 2018 Update*. American Transportation Research Institute, Oct. 2018.
[6] *Ibid.*
[7] *Fixing the 12% Case Study: Atlanta, GA.* American Transportation Research Institute, Feb. 2019.

prevent its insolvency. The recent pattern of shoring up the HTF without providing the long-term stability that transportation planners need is troubling, and very inefficient. ATA's proposed solution to the highway funding crisis is the Build America Fund. The BAF would be supported with a new 20 cent per gallon fee built into the price of transportation fuels collected at the terminal rack, to be phased in over four years. The fee will be indexed to both inflation and improvements in fuel efficiency, with a five percent annual cap.

While ATA considers an increase in the fuel tax to be the best and most immediate means for improving our nation's roads and bridges, we also recognize that due to improvements in fuel efficiency and the development of new technologies that avoid the need to purchase fossil fuel altogether, the fuel tax is likely to be a diminishing source of revenue for surface transportation improvements over the long term. We therefore encourage Congress, in consultation with the Executive Branch, state and local partners and the private sector, to continue to work toward identifying future revenue sources.

ATA is open to consider any user fee that is fair and efficient, and that provides long-term, sustainable revenue for highway improvement. We are strongly opposed to any fees that single out the trucking industry; all who benefit from highway investment should pay their fair share. We are also troubled by the growing tendency toward the imposition of tolls on existing Interstates. Tolling is highly inefficient, and it causes traffic diversion onto less safe, less well constructed surface streets. ATA has proposed a number of reforms to protect the public from tolling abuses and we hope the committee will consider adopting them.

Mr. Chairman, ATA recognizes that sustainability will be a significant focus as the committee crafts its reauthorization legislation. While we recognize the importance of these efforts, we hope that a balanced approach can be found, one that does not risk upending the supply chain. The trucking industry has made large investments over the last three decades to significantly reduce emissions, to the point that today's trucks emit up to 60 times fewer emissions than trucks manufactured in the 1980s. However, a lack of public sector commitment to build the infrastructure capacity necessary to accommodate growing traffic puts this progress at risk. Today, and for the foreseeable future, the vast majority of people and freight rely on the highway system. Shifting revenue from highway maintenance and improvement to non-highway projects will reduce safety, and increase congestion, emissions and motorist costs. It will also raise supply chain expenses as trucking costs go up due to the increasing unreliability of the highway system. In addition, while we recognize the need to prepare transportation infrastructure for the effects of climate change, we are concerned that building resiliency into traditional highway infrastructure improvements could hasten the draining of the HTF of resources necessary to address critical safety, maintenance and capacity needs.

We strongly encourage Congress to ensure that strategic investments are made in the highway system. The National Highway System, which has just five percent of system mileage, but carries 55 percent of vehicle miles traveled, should be prioritized.[8] Furthermore, we support a setaside of funding for major highway bottlenecks, which cause a disproportionate amount of congestion. A new freight bottleneck analysis just released by the American Transportation Research Institute is attached.

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[8] Federal Highway Administration, *Highway Statistics 2019*.

The trucking industry has made major investments in safety equipment and training, and ATA has advocated for many regulations that will further improve truck safety. However, a major impediment to this progress is a severe shortage of truck parking spaces. According to a recent Federal Highway Administration study, 98 percent of truck drivers reported problems finding a safe parking space.[9] This forces drivers to either keep going when they are fatigued and possibly in violation of their federal hours of service requirements, or park in unsafe, sometimes illegal location such as a roadside shoulder. We encourage the committee to dedicate funding toward addressing this critical safety problem.

ATA looks forward to working with the committee to develop a long-term, well-funded surface transportation reauthorization bill that addresses highway safety, maintenance and mobility needs. Thank you once more for the opportunity to submit testimony.

[9] https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/workinggroups/2020/mtg/mtg12012020.htm

ATRI American Transportation Research Institute

THE NATION'S TOP TRUCK BOTTLENECKS 2021

2021 TOP 100 TRUCK BOTTLENECKS

1 **Fort Lee, NJ:** I-95 at SR 4
2 **Cincinnati, OH:** I-71 at I-75
3 **Atlanta, GA:** I-285 at I-85 (North)
4 **Atlanta, GA:** I-20 at I-285 (West)
5 **Houston, TX:** I-45 at I-69/US 59
6 **Chicago, IL:** I-290 at I-90/I-94
7 **Chattanooga, TN:** I-75 at I-24
8 **St. Louis, MO:** I-64/I-55 at I-44
9 **Rye, NY:** I-95 at I-287
10 **San Bernardino, CA:** I-10 at I-15
11 **Los Angeles, CA:** SR 60 at SR 57
12 **Dallas, TX:** I-45 at I-30
13 **Nashville, TN:** I-24/I-40 at I-440 (East)
14 **Brooklyn, NY:** I-278 at Belt Parkway
15 **Austin, TX:** I-35
16 **Atlanta, GA:** I-75 at I-285 (North)
17 **Houston, TX:** I-45 at I-610 (North)
18 **Baton Rouge, LA:** I-10 at I-110
19 **Chicago, IL:** I-90 at I-94 (South)
20 **Denver, CO:** I-70 at I-25
21 **Los Angeles, CA:** I-710 at I-105
22 **Houston, TX:** I-10 at I-45
23 **Vancouver, WA:** I-5 at Columbia River
24 **Cincinnati, OH:** I-75/I-71 at I-275
25 **Atlanta, GA:** I-20 at I-285 (East)
26 **Philadelphia, PA:** I-76 at I-676
27 **Denver, CO:** I-70 at I-270
28 **Portland, OR:** I-5 at I-84
29 **Queens, NY:** I-495
30 **Hartford, CT:** I-84 at I-91
31 **McDonough, GA:** I-75
32 **Corona, CA:** I-15 at SR 91
33 **Providence, RI:** I-95 at I-195
34 **Stamford, CT:** I-95
35 **Nashville, TN:** I-40 at I-65 (East)
36 **Indianapolis, IN:** I-65 at I-70 (North)
37 **Seattle, WA:** I-5 at I-90
38 **Houston, TX:** I-10 at I-610 (West)
39 **Tacoma, WA:** I-5 at I-705/SR 16
40 **Norwalk, CT:** I-95
41 **Waterbury, CT:** I-84 at SR 8
42 **Chicago, IL:** I-80 at I-94
43 **Dallas, TX:** US 75 at I-635
44 **Los Angeles, CA:** I-110 at I-105
45 **Houston, TX:** I-610 at I-69/US 59 (West)
46 **Bronx, NY:** I-678
47 **Philadelphia, PA:** I-76 at US 1
48 **Gary, IN:** I-65 at I-80
49 **Chicago, IL:** I-90 at I-94 (North)
50 **Houston, TX:** I-610 at US 290
51 **Richland, MS:** US 49
52 **Atlanta, GA:** I-20 at I-75/I-85
53 **Chattanooga, TN:** I-24 at US 27
54 **Kansas City, MO:** I-70 at I-670 at US 71
55 **Oakland, CA:** I-880 at I-238
56 **Detroit, MI:** I-94 at I-75
57 **Minneapolis - St. Paul, MN:** I-35E at I-94
58 **Houston, TX:** I-10 at I-610 (East)
59 **Charleston, SC:** I-26 at I-526
60 **Federal Way, WA:** SR 18 at I-5
61 **Manhasset, NY:** I-495 at Shelter Rock Road
62 **Auburn, WA:** SR 18 at SR 167
63 **Minneapolis - St. Paul, MN:** I-94 at US 52
64 **Tampa, FL:** I-4 at I-275
65 **Oakland, CA:** I-80 at I-580/I-880
66 **Denver, CO:** I-25 at I-76
67 **Columbus, OH:** I-71 at I-70
68 **Atlanta, GA:** I-75 at I-85
69 **Ft. Worth, TX:** I-35W at I-30
70 **Camden, NJ:** I-76 at I-676
71 **Phoenix, AZ:** I-17 at I-10
72 **Philadelphia, PA:** I-476 at I-95
73 **Seattle, WA:** I-90 at I-405
74 **Pittsburgh, PA:** I-70 at I-79 (East)
75 **Hartford, CT:** I-91 at US 5
76 **Philadelphia, PA:** I-76 at I-476
77 **Nashville, TN:** I-65 at I-24
78 **Los Angeles, CA:** SR 91 at SR 55
79 **Minneapolis - St. Paul, MN:** I-35W at I-494
80 **Houston, TX:** I-45 at I-610 (South)
81 **Cincinnati, OH:** I-75 at I-74
82 **Charlotte, NC:** I-85 at I-485 (West)
83 **Milwaukee, WI:** I-94/I-794 at I-43
84 **Tacoma, WA:** I-5 at SR 512
85 **Tiger Mountain Summit, WA:** SR 18
86 **Buffalo-Niagara Falls, NY:** I-90 at I-290
87 **New Haven, CT:** I-95 at I-91
88 **Nashville, TN:** I-65 at SR 386
89 **Portland, OR:** I-5 at I-205 (South)
90 **Bridgeport, CT:** I-95 at SR 8/SR 25
91 **Baltimore, MD:** I-695 at I-70
92 **Boston, MA:** I-93 at SR 3
93 **Harrisburg, PA:** SR 581 at I-83
94 **Pittsburgh, PA:** I-376
95 **Jacksonville, FL:** I-10 at I-95
96 **Indianapolis, IN:** I-465 at I-69
97 **Fairfax, VA:** I-495 at I-66
98 **Boston, MA:** I-95 at I-93 (North)
99 **Indianapolis, IN:** I-65 at I-70 (South)
100 **Las Vegas, NV:** I-15 at I-515

ATRI TOP TRUCK BOTTLENECK ANALYSIS DELIVERS VALUE TO STAKEHOLDERS NATIONWIDE:

- **Transportation planners** use the data to target infrastructure investments.
- **Trucking fleets** use the data to select routes and dispatch to avoid congestion.
- **Professional drivers** use the data to plan Hours-of-Service breaks.

ATRI is the trucking industry's not-for-profit research organization whose primary mission is to conduct transportation research, with an emphasis on the trucking industry's essential role in a safe, efficient and viable transportation system.

For more information on ATRI's Top Truck Bottleneck analysis, including a detailed description of the methodology, visit www.TruckingResearch.org.

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Statement for the Record of

The American Society of Civil Engineers

on

"Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation"

United States Senate

Committee on Environment and Public Works

February 24, 2021

Introduction

The American Society of Civil Engineers (ASCE) appreciates the opportunity to submit a statement on today's hearing about the Build Back Better Plan and the importance of long-term, strategic investment in our nation's transportation infrastructure. ASCE is eager to continue to work with the Committee in the 117th Congress and beyond to find ways to further improve our nation's vital surface transportation infrastructure systems and to address the economic impacts felt during the COVID-19 pandemic.

As the pandemic continues to have sweeping economic consequences across all sectors in the United States, many American families and businesses are looking to Congress and the Administration to provide both short-term relief and long-term economic recovery. While the Coronavirus Aid, Relief, and Economic Security (CARES) Act (Pub.L. 116–136) and the Consolidated Appropriations Act of 2021 (Pub.L. 116-260) provided much needed relief to our nation's infrastructure system amid the pandemic, more needs to be done. ASCE urges policymakers to prioritize our nation's infrastructure and get people back to work, using the current economic slowdown to make strategic and sorely needed investments to strengthen the networks that are the foundation of our economy.

Presently, many of our infrastructure assets have reached the end of their design life. Coupled with long underinvestment and inadequate support, a large and growing investment gap of $2.6 trillion over the next ten years has emerged. This gap must be closed if we hope to both repair and modernize our infrastructure systems to be competitive in the 21st century.

Failure to Act: Closing the Infrastructure Investment Gap for America's Economic Future

As our infrastructure continues to age, and investments do not keep pace with needs, the gap between identified investments and the public commitments to meet those needs widens every year. Last month, ASCE released our most recent report, *Failure to Act: Economic Impacts of Status Quo Investment Across Infrastructure Systems*[1]. By examining our nation's airports, bridges, drinking water systems, energy networks, inland waterways, ports, railways, roads, stormwater systems, transit networks, and wastewater infrastructure; the report found that infrastructure inadequacies will significantly stifle U.S. economic growth. In fact, the report found that failing to invest in our vital infrastructure systems will cost each American household $3,300 a year, or $63 a week, over the next two decades. Furthermore, our lack of investment will also cause the loss of $10 trillion in GDP and 3 million jobs over the next 20 years. The good news is that if the U.S. closes the growing gap in the investments needed for bridges, roads, airports, power grid, water supplies and more that we can mitigate these staggering economic impacts.

For these reasons alone, now is the time to invest in our nation's infrastructure. Compounded by the current crisis, infrastructure investments can provide both an immediate and long-term boost to the struggling American economy, and ensure we remain globally competitive in trade and commerce.

ASCE's *Infrastructure Report Card*

Infrastructure is the foundation that connects the nation's businesses, communities, and people, serves as the backbone to the U.S. economy, and is vital to the nation's public health and welfare. Every four years, ASCE publishes the *Infrastructure Report Card,* which grades 16 major infrastructure categories using a

[1] https://www.asce.org/failuretoact/

simple "A" to "F" school report card format. ASCE released its *2017 Infrastructure Report Card*[2] giving the nation's overall infrastructure a grade of "D+," with an investment gap of $2 trillion.

The release of the *2021 Infrastructure Report Card* on Wednesday, March 3rd will provide a comprehensive assessment of the nation's infrastructure across 17 sectors, with stormwater a new addition in the upcoming report.

<u>Solutions</u>

ASCE recommends the inclusion of key investments to maintain and modernize our nation's infrastructure, create jobs, support economic growth, and increase the resilience of our systems. This includes a large and comprehensive infrastructure investment package, as well as a timely reauthorization of our water resources and surface transportation networks. As the Committee continues to develop legislation that addresses our concerns, ASCE asks that you take the following key priorities under consideration:

Prepare for a Sustainable, Resilient Future. ASCE supports federal initiatives that increase resilience of infrastructure against man-made and natural hazards. ASCE urges the development of performance criteria and uniform national standards that establish minimum performance goals for infrastructure, as well as the inclusion of comprehensive risk assessments that encourage mitigation strategies and address recovery and return to service. Furthermore, ASCE supports the development, adoption, and enforcement of a national model building code as a key to creating disaster resilience in communities. The following ASCE documents offer a sound basis upon which such a model code can be developed:

- ASCE 7, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-16)*, currently an integral part of U.S. building codes, describes the means for determining soil, flood, tsunami, snow, rain, atmospheric ice, earthquake, and wind loads, and their combinations for resilient structural design;
- ASCE 24, *Flood Resistant Design and Construction*, prescribes a standard for cost effectively increasing resiliency by reducing and eliminating risks to property from flood hazards and their effects;
- ASCE 41, *Seismic Evaluation and Retrofit of Existing Buildings*, standardizes methods for the retrofit of existing buildings to increase resiliency in communities after a seismic event; and
- ASCE Manual of Practice 140, *Climate-Resilient Infrastructure: Adaptive Design and Risk Management*, provides guidance for and contributes to infrastructure analysis/design in a world in which risk profiles are changing due to climate change per the Fourth National Climate Assessment.

Prioritize Asset Management and Operations and Maintenance (O&M) Needs. ASCE supports prioritizing investments that increase safety and resilience, as well as focusing on state of good repair and the operations and maintenance of the current systems. The use of performance-based ownership of infrastructure, which encourages the use of sustainable engineering practices and life-cycle performance, will be critical to the long-term use of our infrastructure systems. Therefore, ASCE supports:

- Making federal grant or loan funding contingent on the development of an asset management plan and annual reporting to the appropriate federal agency, such as EPA for water utilities, MARAD for ports, FTA for transit authorities, FHWA for DOTs;

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2 https://www.infrastructurereportcard.org/

- Requiring continuous oversight and accountability for completed plans to ensure that they meet stated goals and can be implemented, and do not become a "check the box" exercise;
- The creation of a new grant or low interest loan program to assist localities or states with setting up a comprehensive asset management inventory as well as education and training programs;
- Consolidating best standards that are currently developed for different infrastructure assets across agencies into one center for best practices; and
- Encourage communities to move beyond paper reports and implement innovative asset management solutions.

Restore a Strong Federal Partner in Infrastructure Investment. To close the estimated investment gap, meet future needs, and restore our global competitive advantage, we must increase investment in our infrastructure across all levels of government and the private sector and authorize programs to improve specific categories of deficient infrastructure by fully funding them. Failing to close this investment gap is not only a public safety issue, but has a cascading impact on our economy, impacting business productivity, gross domestic product (GDP), employment, personal income, and international competitiveness. The first step Congress should take to address major infrastructure priorities is to fix the Highway Trust Fund (HTF) and increase funding for the Clean Water State Revolving Fund (CWSRF) and the Drinking Water State Revolving Fund (DWSRF).

The HTF, which pays for improvements and construction of roads, bridges, and transit systems, is funded by the federal gasoline tax, currently 18.4 cents a gallon. The tax has not been raised since 1993, and the revenues have not kept pace with system needs. If Congress does not act and find a long-term revenue solution, the Highway Trust Fund will have a total revenue deficit of $92 billion between FY2021-2025, or a yearly average of $18.6 billion. This comes at a time when we are already face a backlog of maintenance needs for our nation's roads, bridges, and transit systems, which has only been worsened by the COVID-19 pandemic.

The next iteration of a federal surface transportation bill should continue to support the proven user-fee system by raising the gas tax to ensure it is sustainable over the upcoming years. Furthermore, Congress and the Administration should also explore alternative user fees such as vehicle miles traveled to identify a long-term user fee solution for the HTF, as well as a tax on electric vehicles that would account for their presence on our nation's roads. Furthermore, other methods of revenue generation, including state, regional, and/or local sales taxes, dynamic pricing, container fees, and transit ticket fees should be considered for surface transportation maintenance and improvement.

In the past 30 years, the federal government has loaned $42 billion to all 50 states, the District of Columbia, and Puerto Rico through the CWSRF, which has given states the ability to fund over $126 billion in wastewater infrastructure system improvements – all through low-interest financing. Every dollar provided by the federal government is matched at 20 percent by the state.

Likewise, the DWSRF program provides low-interest loans to state and local infrastructure projects. The EPA provides an allotment of funding for each state, and like the CWSRF, each state provides a 20 percent match. Since the program's inception, $35.4 billion of low-interest loans have been allocated. ASCE was pleased that the DWSRF was reauthorized at increasing funding levels in the America's Water Infrastructure Act of 2018 (P.L. 115 – 270, Sec. 2023) and urges Congress to reauthorize the CWSRF at increasing funding levels, as well.

Conclusion

Across the nation, our future recovery depends on reliable, modern infrastructure to provide a good quality of life for Americans and to support economic growth. There is a unique opportunity during these challenging times, while traffic is minimal and people stay home, to maintain and modernize these critical assets and jump-start job growth.

ASCE looks forward to working with the Committee as it develops legislation that provides much-needed investments in our nation's vital infrastructure systems. Continuing to underinvest in our infrastructure is already costing American families and businesses in wasted time, increased congestion, leaky pipes, and ongoing repair work. Therefore, investing in our infrastructure now, will not only create jobs and help our economy, but these investments will act as a down payment for future infrastructure projects.

Statement

of

The Design-Build Institute of America

before

The United States Senate Committee on Environment and Public Works

Regarding

Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation

February 24, 2021

Contact:
Louis J. Jenny
Design-Build Institute of America

The Design-Build Institute of America
February 24, 2021

Chairman Carper, Senator Capito and Members of the Committee, thank you for holding this hearing titled *Building Back Better: Investing in Transportation while Addressing Climate Change, Improving Equity, and Fostering Economic Growth and Innovation* and thank you for the opportunity to submit this statement for the record.

The Design-Build Institute of America (DBIA) supports a comprehensive infrastructure stimulus package that includes investment in transportation projects with a focus on sustainability and innovation.

Infrastructure can and should be an essential part of our nation's recovery from the economic distress resulting from the pandemic. Further, as you well know, infrastructure investment is one of the few broad national issue areas which garners wide support across parties, regions and states. Americans in cities and rural areas, no matter their political persuasion, understand that our nation's bridges and roads, airports and public transit are in desperate need of improvement. Study after study has shown that much of our nation's infrastructure is either structurally deficient, functionally obsolete or both.

Further, investment in infrastructure, when done properly, can provide meaningful economic stimulus and get people back to work, while putting in place the necessary tools to grow our economy for years to come. Our nation has also learned the hard way that investing in our infrastructure sooner rather than later can help us avoid catastrophic events that often cost us lives, and delay is more costly to our nation than focusing on our needs proactively.

When design-build is utilized properly, sustainability and innovation can be at the very heart of an infrastructure project. Design-build is a method of project delivery in which one entity – the design-build team – works under a single contract with the project Owner to provide design and construction services. Early collaboration, and design-build's inherent ability to innovate and adapt, has shown time and again that design-build delivers timely, cost-efficient projects that also focus on design excellence, sustainability and life-cycle costs. In fact, research shows that design-build out-performs other delivery systems on schedule, construction and delivery speed, as well as cost.

The Design-Build Institute of America is the nation's authority on Design-Build Done Right®. DBIA's membership includes professionals from across the project delivery arena, including architects, engineers, contractors and, of note, public sector officials who use design-build to better assure successful projects. Together we collaborate and innovate to deliver some of America's most successful infrastructure projects.

Design-build has a proven track record of producing exceptional outcomes on projects of all types and sizes and efficiently contributing to economic recovery and expansion. During the economic downturn of 2007-2009, when it was a priority to get projects started and completed as quickly as possible, the advantages of design-build were demonstrated in all types of projects and its use across the nation expanded exponentially.

Some key transportation examples of design-build:

- **The I-26/Volvo Interchange**: The modern facility provides improved mobility, safety and connectivity between I-26 and Volvo's first North American plant in Berkeley County, South Carolina. It is a textbook example of what can happen when innovation is encouraged in design-build. By working with an environmentally sensitive design approach, a five-acre wetland impact reduction was achieved and U.S. Army Corps of Engineers permit obtained in just 13 days.

- **I-35W Bridge in Minneapolis:** Following the tragic collapse of the I-35W bridge, a key transportation artery, the state's goal was to get this bridge rebuilt as quickly as possible. Initial goals called for having the bridge fully operational within 14 months. Using exemplary design-build methods, the team beat that goal by three months while, of course, meeting the state's safety, quality and innovation goals.

- **The Gov. Mario M. Cuomo Bridge:** One of the largest infrastructure projects to ever utilize design-build, the new bridge replaced the old Tappan Zee Bridge crossing the Hudson River in New York. Plans for a new bridge were first brought up in 1999. After more than a decade, the project was not moving forward; new design-build legislation in 2011 allowed this magnificent bridge to take its first step. The project was completed on time and, using design-build, saved an estimated $1 billion.

While design-build can and does offer innovation, a focus on sustainability features and greater cost reliability, to achieve these design-build requires a different mindset and approach than traditional project delivery. Without a thorough understanding of design-build by the entire project team, its advantages may not be fully realized.

Therefore, DBIA does not seek to mandate the use of design-build. DBIA, however, does want to encourage officials tasked with delivering infrastructure projects to have design-build as a tool in their toolbox and to make an informed decision about the project delivery method best suited to achieve the goals of each project. We are confident that, with the right information and authority, officials will continue to turn to design-build.

DBIA would like to work with the Committee to find methods and language that would encourage funding recipients to consider ***all*** project delivery methods, including design-build, to ensure taxpayer dollars are maximized, Americans get back to work and, using the latest innovations, assuring our nation's infrastructure needs are met in a sustainable manner.

Thank you again for holding this hearing and for the opportunity to submit these comments. The Design-Build Institute of America stands ready to work with the Committee on passing infrastructure legislation and putting in place the tools to get America back to work when the time is right.

Conference of Minority Transportation Officials
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CONFERENCE OF MINORITY TRANSPORTATION OFFICIALS (COMTO)
STATEMENT FOR THE
Committee on Environment and Public Works
of the United States Senate
Building Back Better: Investing in Transportation
While Addressing
Climate Change, Improving Equity and Fostering Economic Growth & Innovation -
February 24, 2021
The Hon. Ben Carper - Chair

Senator Carper and Members of the Committee on Environment and Public Works, the Conference of Minority Transportation Officials (COMTO) appreciates the opportunity to submit a statement for the record for this most important hearing to Build Back Better and invest in transportation, particularly while addressing issues important to COMTO's constituency including climate change, and economic and social equality. We thank the Senator for his leadership and look forward to a robust and productive agenda under his tenure as Chair.

COMTO was established in 1971 – we are marking the 50th anniversary of our founding this very year – and was established with the to ensure opportunities and maximum participation in the transportation industry for minority individuals, veterans, people with disabilities and certified M/W/DBE businesses through leadership training, professional development, scholarship and internship funding, political advocacy, partnership building and networking opportunities.

We believe that diversity moves the nation. We believe that the leadership of a massive industry that has the responsibility of transporting all people and goods all the time should reflect the complex mosaic of those they serve. We believe that commitment to inclusion across race, gender, age, religion, identity, and experience moves us forward every day.

The Senate EPW Chair, in a recent statement, made it clear that passing the Reauthorization of the Surface Transportation Act and investing in our infrastructure are top priorities: "The American people desperately want us to bring our roads, trains and bridges out of the last century and into the future. And President Biden and I know that we need to do that in a way that builds back better, putting our transportation sector on a path to zero emissions and creating millions of good-paying jobs in the process." COMTO strongly supports the Senator's and the Committee's efforts, and we believe our missions and visions are intertwined and on a parallel trajectory.

Likewise, to quote President Joe Biden's Infrastructure Plan, we support the Administration's goal to "... provide every American city with 100,000 or more residents with high-quality, zero-emissions public transportation options through flexible federal investments with strong labor protections that create good, union jobs and meet the needs of these cities – ranging from light rail networks to improving existing transit and bus lines to installing infrastructure for pedestrians and bicyclists."

COMTO is looking forward enthusiastically to the opportunity to work closely and collaboratively with the Senate Public Works Committee and the Biden Administration to advance a common transportation infrastructure agenda that reflects the current culture of democracy, environment, and inclusion and equality. COMTO is looking forward to the details of an infrastructure program to "Create millions of good, union jobs rebuilding America's crumbling infrastructure...to lay a new foundation for sustainable growth, compete in the global economy, withstand the impacts of climate change, and improve public health, including access to clean air and clean water." COMTO National and its thousands of members throughout 34 chapters across the country, offers its support and service to assist the Committee and the Administration in seeing this vision to fruition.

We ask that the Committee, by virtue of entering this statement into the hearing record, will give weight to COMTO's perspective and legislative priorities during any consideration of reauthorization of the Surface Transportation Act or any upcoming infrastructure legislation.

COMTO Legislative Program/Initiatives/Priorities

- U.S. Department of Transportation (USDOT) Disadvantaged Business Enterprise (DBE) Program Changes/Efficiencies/Goals Increase – Revitalization of the USDOT Office of Small and Disadvantaged Business Utilization (OSDBU) and the USDOT Departmental Office of Civil Rights

  - Improvements and Efficiencies – COMTO would like to see closer oversight by DBE officers to avoid fraudulent front companies, through more vigorous training programs for certification and compliance officers. We would like to include a stronger, clearer definition of "good faith efforts" and fewer opportunities to seek waivers from DBE goals by majority-owned firms. We recommend improved electronic application submission and allow information sharing between agencies to expand reciprocity between those agencies. The Surface Transportation Act of 1982 set DBE participation goals on federally-funded projects at 10%. That has not changed in almost 40 years. Although local transit jurisdictions do have flexibility to adjust that goal depending on the demographics of the region, COMTO would recommend a change in the regulation to increase DBE/MBE/WBE participation goals to 40%. We believe it is also important to apply not just project goals but also to implement specific goals in under-utilized trades and businesses.

  - Small Disadvantaged Business Size Standards – COMTO supports action that would conform the Department of Transportation's DBE

Size Standard with the Small Business Administration Standards. Since the Federal Aviation Administration (FAA) Reauthorization of 2018 already included language that applied SBA size standards to FAA funded projects, a simple and straightforward amendment to the CFR would correct the anomaly in current law that discriminates against Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) DBEs. This is a simple fix to a big problem: in the interest of fairness and consistency and the survival of small minority owned businesses, the USDOT should use the FAA's model and use SBA's size standards when making determinations with regard to small business status. We believe the three-year average revenue ceiling for USDOT small business – now at $26.29 million -- should sync with the ceiling of SBA -- $39.5 million, with increases and inflationary adjustments accordingly.

- Increase DBE Personal Net Worth (PNW) Ceiling – Like the DBE/SBE ceiling, current PNW levels discourage DBE growth, quashes successful graduation rates and limits bonding and insurance opportunities. DBE firms are caught in a Catch-22: at the PNW ceiling of $1.32 million currently in effect and unchanged for several years, owners cannot obtain the bonding necessary to respond competitively to bids on large transportation construction projects. And if they do obtain the net worth to secure the requisite bonding, those firms' owners immediately become ineligible for the DBE program. It is just common sense to set a PNW grounded in reality and adjusted for inflation, and in recognition of the challenges small and minority businesses face in the bonding and sureties' market.

- Federal Railroad Administration (FRA) DBE Program – COMTO respectfully requests implementation, via legislative or executive order, that FRA immediately implement a DBE program using the FHWA/FTA/FAA model. We advocate for consistency within the USDOT and the establishment of DBE participation goals on projects funded through the FRA and on monies funneled by FRA to state rail agencies – including High Speed Rail projects. When the DBE program was established as part of the Surface Transportation Act of 1982, the FRA funds were not made subject to DBE goals. The legislative history of this decision may be murky, but the consequences of this unfair policy are crystal clear. For the past 40 years, the FRA has dispensed taxpayer funds – including government-guaranteed loans -- to public and private rail projects, with recipients having little accountability to minority communities and no consideration given to small and minority businesses. Again, this would appear to be a simple fix to a serious problem. An FRA DBE program would provide opportunities for new DBE start-ups, would mean millions of dollars for minority businesses, and would provide thousands of jobs for minority communities.

- DBE/SBE Mentor Protégé Program – COMTO supports an incentivized USDOT program that would provide quantifiable benefits – rather than simply good-will -- majority-owned firms to mentor small minority companies, e.g., tax credits and/or "points/credits" on bid evaluations if a mentor-protégé program is in place.

- Local Hiring Initiatives -- COMTO strongly supports language that would immediately restore the Local Hire Pilot Program established by the USDOT under President Obama; and canceled early in the Trump administration. We would like to see expansion of the program, based on data from the Pilot Program that empirically shows that projects using a local hire preference did not lower competition or increase bid prices. To the contrary, they strengthened local communities by helping to create good local jobs, increasing opportunities and greater equity for people of color, women, veterans, and others facing barriers to employment. COMTO is pleased to know that rebuilding America through racial and economic equity and incentivizing job creation through local hiring and job creation, particularly through infrastructure, is a priority for the Biden Administration.

- Workplace Drug Policy – COMTO has taken a neutral position on the federal legalization of recreational marijuana consumption. However, we would encourage a USDOT study on current drug testing policies to reflect changing state and local marijuana laws and public attitudes toward medical and recreational cannabis use. Current employer, legally-supported penalties disparately impact minority and younger, entry-level members of the workforce.

- Safety Protocols for Front Line Transportation Workers and Public Transit Users -- One of the Nation's biggest and most immediate priorities is our response to COVID-19 particularly on how we measure racial equity. Many transit-dependent residents and commuters in the service sector and other lower salaried jobs, who are disproportionately minority and women, are forced to continue to use public transit throughout the pandemic. Similarly, front-line transit and transportation workers come from similar demographics and are disparately impacted by dangers of contact with COVID-19. We believe safeguards and protocols should be in place to protect these workers who ensure continued operation of the transportation systems and represent the communities and ridership served by public transit.

Thank you for your attention and consideration in these important matters, and we appreciate the opportunity to provide comment.

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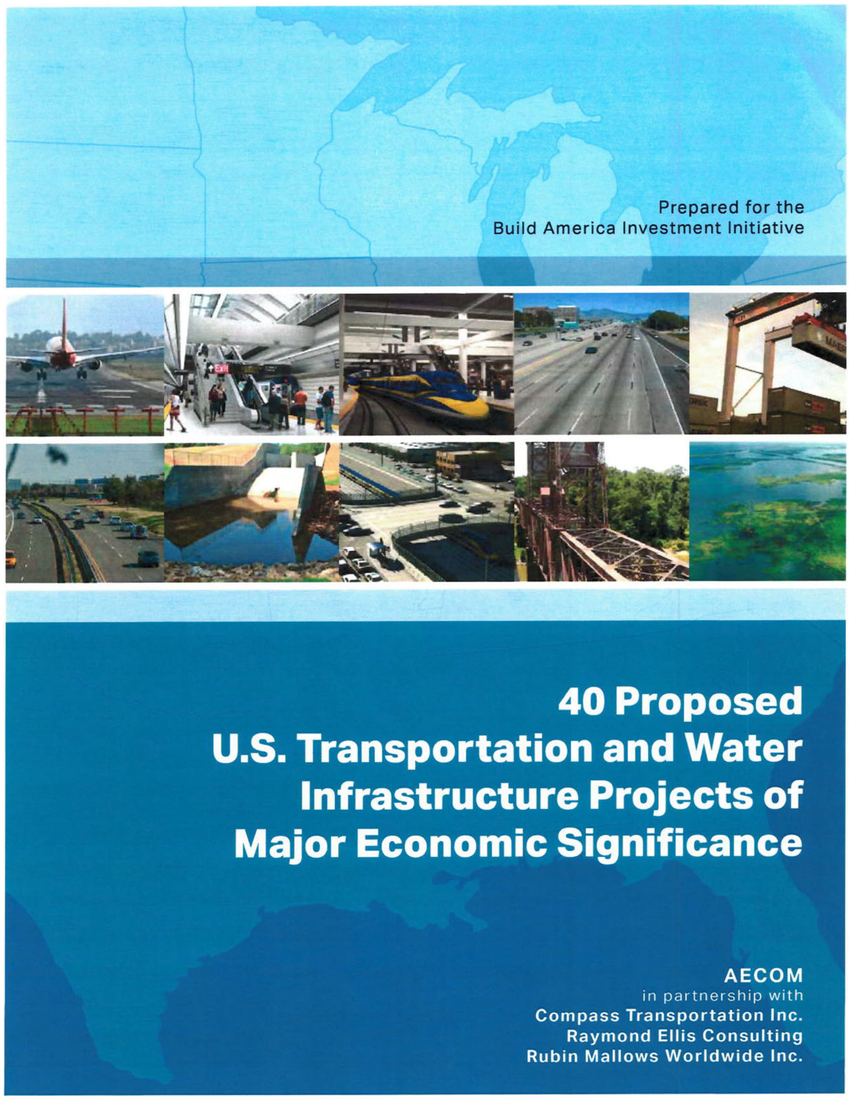

Prepared for the
Build America Investment Initiative

40 Proposed U.S. Transportation and Water Infrastructure Projects of Major Economic Significance

AECOM
in partnership with
Compass Transportation Inc.
Raymond Ellis Consulting
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This report was prepared by a team led by AECOM under contract TOS-15-F-0014 for the U.S. Department of the Treasury on behalf of the Build America Investment Initiative.

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Disclaimer

All project costs and benefits are based on assumptions and methodologies established by the authors. All findings, conclusions, and recommendations set forth in this study are those of the authors, and may not reflect those of the U.S. Department of the Treasury or the Build America Investment Initiative. The inclusion of a project in this study is not itself evidence that the project is suitable for federal funding.

AECOM is among the largest architectural and engineering consulting firms in the world and has a market share over 25 percent, as compared to the total market share of the 10 largest firms in the sectors considered in this study. AECOM has been involved in about half of the projects identified in this study. The authors' methodology for identifying these projects is described beginning on page 9.

Contents

List of Exhibits

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Executive Summary

In recognition of the important role that public works infrastructure plays in supporting national economic growth, the U.S. Department of the Treasury (Treasury), on behalf of the Build America Investment Initiative, commissioned this study. Its objective is to identify 40 proposed transportation and water infrastructure projects in the United States of major economic significance, but whose completion has slowed or is in jeopardy.[1] This study provides the public with a picture of how, if completed, these proposed infrastructure projects would have a positive impact on national and regional economic activity, such as reducing congestion, improving safety and reliability, decreasing flood hazard, and other benefits.[2]

This study also identifies the primary challenges facing each project, including funding shortfalls, regulatory considerations, and lack of consensus, in an effort to inform federal, state, and local debates over infrastructure policy. This project-focused approach allows the reader to more easily grasp how infrastructure investment can create real and substantial value for businesses, consumers, travelers, and community residents, and helps put a "face" to our nation's infrastructure challenge in various regions of the country.

We were asked to focus on transportation and water projects because such projects are primarily funded by the public sector, and have experienced problems with moving forward. Projects are divided into two groups: 1) those where planning activities are underway and 2) those where planning activities are still underway and some funds have been obligated to permit limited implementation but delivery of the complete project remains pending. Other important infrastructure investments, such as those in the energy and telecommunications sectors, were not considered. These investments are typically funded directly by private investors, and have not experienced the same degree of completion uncertainty.

Different projects offer different types of benefits, and our analytical approach was sufficiently flexible to accommodate this diversity of outcomes. This is important because project sponsors develop these projects to address specific problems in their communities. For example, some projects may deliver substantial travel time savings, but not much savings in users' travel costs. Others improve safety, but do not add capacity. Where studies already had assessed a project, our team evaluated the inputs and methodology, and adjusted the values so that net benefits would be comparable across projects. Where data was available but a study was not completed, our team made an estimate of each project's benefits and costs consistent with federal assessment guidance for that type of asset.

Total Net Economic Benefits

The 40 projects identified in this study would generate an estimated $800 billion (midpoint) of net economic benefits across the nation if they were completed and available for use. This represents a range of $700 billion to $1.3 trillion in total benefits less capital costs over $200 billion in net present value terms.

Our team analyzed individual proposed projects having capital costs greater than $300 million that could be commenced (and, for many, completed) within the next five to ten years if major obstacles to completion – most often a lack of funding – are addressed.[3] This minimum capital cost threshold allowed us to focus on those projects that would generate the largest absolute net economic benefits.

This study highlights a broad, representative sample of projects from across the country covering all the major types of transportation and water infrastructure such as highways, rail, waterway navigation, and dams. Traditional projects, as well as a few that emphasize new technology or the use of pricing to manage capacity, are featured. Several projects are, in fact, part of broader programs, since they include multiple, individual projects. Many promising, early-stage projects were not included because reliable data needed to estimate net economic benefits were unavailable. **Undoubtedly, this study omits many good projects.**

Our team also chose to highlight two important initiatives that represent large-scale programs rather than projects. The enormous size and transformative nature of these programs warrant a deeper discussion around them, separate from that of the 40 projects of major economic significance.

An annex to this report provides in-depth profiles for all 40 projects and the two large-scale programs. Each profile is a two-page illustrated summary that describes the project, why it is an important investment, the market that would use it, considerations in its delivery, and the primary challenges to its completion, while also providing estimates of the project's net economic benefits, capital costs, and benefit-cost ratio.

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1 We characterize projects as being "economically significant" if they have the potential to generate net economic benefits (benefits in excess of costs) that are large in magnitude.
2 Certain social welfare benefits, such as quality-of-life improvements, are difficult to measure, and were not assessed.
3 Environmental elements of project costs, such as mitigation of environmental impacts or creation of environmental amenities such as wetlands or shoreline protection were included in project costs to the extent that project planning documents included them. In some cases, environmental costs (e.g. some externalities) were not measured by project sponsors, in which case they were not included as project costs.

Exhibit 1: Distribution of Projects by Region and Mode

Region	Highways	Water Resources	Railways	Ports-Waterways	Air	TOTAL
South	4	4	5	4	0	**17**
West	4	3	1	0	0	**8**
Midwest	4	1	1	1	0	**7**
Northeast	0	0	2	1	0	**3**
National	2	1	1	0	1	**5**
TOTAL	**14**	**9**	**10**	**6**	**1**	**40**

Note: Some projects span more than one region; in those instances the project has been assigned to the region with the greatest share of the project.

The first of two major findings from this analysis is the relative scarcity of projects that are truly national in scale, or even cover multiple states. Most projects have a state or metropolitan-area focus. While national projects frequently generate the greatest economic returns because of their larger geographic scope, they are a comparatively small percentage of the 40 projects of major economic significance. This is logical since, with few exceptions, federal programs distribute funds to regional, state, or local infrastructure agencies that make investment decisions on projects that generate benefits at the regional, state, or local levels. However, it also reflects a fragmented national vision for infrastructure. With a few exceptions, our national process for project delivery does not yield a national or regionally coordinated outcome (the Next Generation Air Transportation System, a project that would modernize the air traffic control system nationwide, stands out as a notable exception).

Total Benefit-Cost Ratio

The 40 projects identified for this study vary widely in their size and the magnitude of the net benefits generated. The total benefit-cost ratio across all 40 projects falls between 3.5 and 7.0. This means that if all the projects on the list were constructed, the nation would gain benefits in the range of $3.50 to $7.00 for every $1.00 spent on capital costs.

The second major finding is that a lack of funds is by far the most common challenge to completing these projects (including those that have commenced but since been delayed). Thirty-nine of the 40 projects require increased funding, whether from taxes, user fees, or other sources.

The completion of these projects would deliver significant economic benefits to every region of the nation. In some cases, completing these projects could be transformative, potentially offering businesses and travelers large savings in time or cost that allow them to access larger markets or travel more frequently. The investments encompass freight and passenger modes with the result that the benefits generated by these projects would span the consumer, manufacturing, and service sectors of the national economy. And, as noted earlier, this list is not exhaustive. There are many good projects that have not been included – primarily due to data constraints – which would still benefit the nation's economic performance if they were undertaken. In short, overcoming the barriers to the completion of these projects represents a large economic opportunity for the United States.

1.0 Introduction

1.1 Purpose and Overview

Treasury, on behalf of the Build America Investment Initiative, commissioned our team to develop this study in order to address three basic questions:

- *What is a representative list of significant transportation and water infrastructure projects that have been proposed but face challenges to completion?*
- *What would be the economic gains to various regions and the nation if these projects were to be completed?*
- *What are the primary challenges to completing these projects?*

At the national level, the value of infrastructure investment has historically been demonstrated by "needs" studies that sum engineering estimates of the capital costs required to meet broad service delivery and/or regulatory objectives. The first such study was published in 1983, and its title made its message clear – "America in Ruins."[4] Since that pioneering work, numerous updates have been published by federal agencies and trade associations, including the American Society of Civil Engineers (ASCE). ASCE's 2012 report, *A Failure to Act*, took this approach one step further by estimating the loss of value associated with system deterioration in the aggregate.

This study takes a different approach. Because the focus is on projects, the team was able to 1) screen for the most economically productive individual projects; 2) capture the benefit of technology or changing operating practices that would make existing assets more efficient; and 3) capture detail about why there is a gap between needed and actual investment levels other than a lack of adequate funding.

Working through the questions outlined above, our team compiled a list of projects that have begun development, and in some cases are moving forward, but for which there exist barriers to completion. Projects are divided into two groups: 1) those where planning activities are underway and 2) those where planning activities are still underway and some funds have been obligated to permit limited implementation but delivery of the project remains in jeopardy. We describe each project and its major attributes, such as location, type of infrastructure, cost, expected net economic benefits (benefits less costs) for the region and the nation – and critically – the primary challenges they face. By identifying specific projects, this report allows readers to assess concretely how infrastructure impacts their daily lives, both personally and commercially.

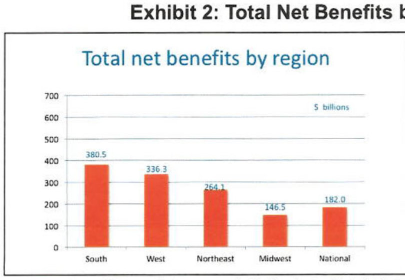
The study's project-based approach extends a practice – frequently used at a particular locality – to a nationwide application to help justify and motivate investment, and complements existing national needs-based studies. By building from a base of vetted and assessed projects, there is an opportunity to identify actions in addition to funding that could move these projects forward to the benefit of communities and businesses across the nation.

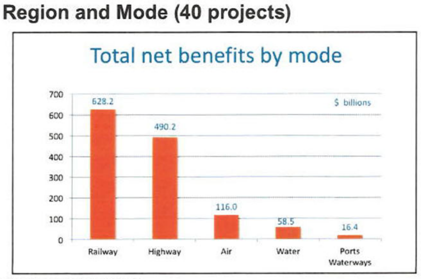
2.0 Projects and Programs of Major Economic Significance

2.1 The 40 Projects

The 40 identified projects would generate an estimated $500 billion to $1.1 trillion of net economic benefits across the nation if they were completed and available for use. This represents about $700 billion to $1.3 trillion in total benefits less capital costs over $200 billion in net present value terms. The benefits for many of these 40 projects at the regional or metropolitan level would be pronounced. Economic benefits that would be seen from the completion of these projects include, but are not limited to: safer passenger travel, more reliable freight shipments, less congestion on highways, and less risk of and fewer adverse consequences from flooding. A more detailed description of how infrastructure may positively affect the economy can be found in Section 4.0. The exhibits below illustrate that these benefits would be distributed across every region of the United States.

Exhibit 2: Total Net Benefits by Region and Mode (40 projects)





Note: One multi-state highway project runs across the South region, leading to the large allocation of benefits in that region.

[4] Choato, Pat, and Susan Walter. 1983. *America in Ruins: The Decaying Infrastructure*, NC: Duke University Press.

Exhibit 3: 40 Proposed U.S. Transportation and Water Infrastructure Projects of Major Economic Significance

#	Project	Type	Region	Analysis Period (years)	Net Economic Benefits[1] $M	Benefit-Cost Ratio
			Planning/ Implementation Underway			
1	I-10 Program	Highway	South	25	> $236,000	> 10.0
2	National Traffic Signal Coordination	Highway	National	35	> $3,900	> 10.0
3	California High Speed Rail	Railway	West	50	$195,450	4.0 – 7.0
4	Next Generation Air Traffic Control System	Air	National	18	$87,000	4.0 – 7.0
5	Positive Train Control	Railway	National	20	$40,600	4.0 – 7.0
6	Hampton Roads Crossing	Highway	South	35	$28,500	4.0 – 7.0
7	Chicago CREATE	Railway	Midwest	30	$16,800	4.0 – 7.0
8	Rural Water Supply Program	Water	West	40	$8,350	4.0 – 7.0
9	Northeast Corridor Improvements	Railway	Northeast	35	$150,000	2.0 – 4.0
10	Southeast High Speed Rail	Railway	South	30	$8,550	2.0 – 4.0
11	I-70 Missouri	Highway	Midwest	30	$7,750	2.0 – 4.0
			Planning Underway			
1	I-70 East	Highway	West	35	> $15,700	> 10.0
2	Texas Freight Shuttle System	Railway	South	20	> $9,400	> 10.0
3	New Orleans Rail Gateway	Railway	South	20	> $5,500	> 10.0
4	Mississippi River Crossing	Highway	South	35	> $5,000	> 10.0
5	Medium Diversion at White Ditch	Water	South	50	> $3,500	> 10.0
6	Medium Diversion at Myrtle Grove	Water	South	50	> $2,500	> 10.0
7	Brent Spence Bridge	Highway	Midwest	20	$18,600	7.0 – 10.0
8	Savannah Harbor Expansion	Ports-IW	South	50	$4,750	7.0 – 10.0
9	Houston-Galveston Grade Crossing Improvements	Railway	South	20	$3,000	7.0 – 10.0
10	Atchafalaya River/Navigation	Water	South	50	$2,250	7.0 – 10.0
11	Boston Harbor Dredging	Ports-IW	Northeast	50	$2,200	7.0 – 10.0
12	I-35 Trade Corridor	Highway	Midwest	35	$61,650	4.0 – 7.0
13	MTC Managed Lanes	Highway	West	35	$7,200	4.0 – 7.0
14	2nd Avenue Subway - Phase 2	Railway	Northeast	35	$22,150	2.0 – 4.0
15	I-11 Corridor	Highway	West	30	$19,400	2.0 – 4.0
16	Morganza to the Gulf	Water	South	50	$18,350	2.0 – 4.0
17	I-69 Extension	Highway	South	30	$13,550	2.0 – 4.0
18	Puget Sound Gateway - Phase 2	Highway	West	30	$5,250	2.0 – 4.0
19	I-5 Columbia River Crossing	Highway	West	33	$5,000	2.0 – 4.0
20	Fargo-Moorhead Metro	Water	Midwest	50	$3,350	2.0 – 4.0
21	Sabine Neches Waterway	Ports-IW	South	50	$2,350	2.0 – 4.0
22	Watershed Rehabilitation Program	Water	National	100	$2,200	2.0 – 4.0
23	Sutter Basin	Water	West	50	$1,250	2.0 – 4.0
24	Jacksonville Harbor Dredging	Ports-IW	South	50	$1,200	2.0 – 4.0
25	Soo Locks Modernization	Ports-IW	Midwest	50	$1,150	2.0 – 4.0
26	Long Bridge	Railway	South	20	$1,000	2.0 – 4.0
27	Heartland Expressway	Highway	Midwest	40	$800	2.0 – 4.0
28	Corpus Christi Ship Channel Implementation	Ports-IW	South	50	$650	2.0 – 4.0
29	Truckee River	Water	West	50	$610	2.0 – 4.0

(1) To recognize the natural uncertainty in any estimate of economic benefits and costs, a range of net benefits was generated. The net economic benefits were estimated as the midpoint of the range of (1) the product of the discounted project costs and the upper bound of the benefit-cost ratio range less the value of discounted costs and (2) the product of the discounted project costs and the lower bound of the benefit-cost ratio range less the value of discounted costs, except where there is no upper bound (i.e. > 10), in which case only the lower bound figure is reported.

Notes:

- Net economic benefits are total benefits less total capital costs on a net present value basis. All benefits expressed in millions of 2015 dollars discounted at a three percent rate.
- All selected projects have a capital cost of $300 million or more.
- IW is the abbreviation for Inland Waterway.
- One of the largest differences across project assessments was the length of the analysis period—the time over which benefits were accrued to the project. As this is an important difference across assessments and one that the project team could not adjust, we included the length of the assessment period in the table for the reader's use in reviewing the list.

While railways and highways make up the largest share of potential benefits, there are projects across all modes/ project types that would benefit the U.S. economy if they could be advanced.

Exhibit 3 on the previous page presents the list of 40 projects, noting each project's type, region, net economic benefits, and ratio of net economic benefits to capital cost (benefit-cost ratio). Reflecting underlying uncertainties, a project's net economic benefits represents the midpoint of the estimated range. The list is divided into two groups: 1) those where planning activities are underway and 2) those where planning activities are underway and some funds have been obligated to permit limited implementation but delivery of the complete project lags.

See the annex for in-depth profiles of each project.

Multiple transportation modes and types of water projects are represented on the list; challenges to project delivery are not restricted to particular types of projects. Among those with the largest benefit-cost ratio are projects that relieve a bottleneck in the system or otherwise improve the performance of existing assets. Examples of these projects include Texas Freight Shuttle, National Traffic Signal Coordination, New Orleans Rail Gateway, NextGen, and Chicago CREATE.

Several highway capacity or improvement projects (different from bringing the system into a state of good repair) generate large economic benefits because of the size of the population served and their role connecting to marine, rail and air facilities. The list also contains transit projects. Though transit typically supports local mobility needs, these should be understood to deliver national economic benefits, because the projects included on the list unlock additional capacity in the heart of large established urban transit networks and thereby support the continued labor market growth of these large urban markets.

2.2 *Two Large-Scale Programs*

The two programs highlighted here encompass multiple projects, and are national in scale: 1) recapitalization of the entire Interstate Highway system and 2) investments to accommodate the shift to connected and automated vehicles.

The first program, the rebuilding of the Interstate Highway system, is one of the most important infrastructure challenges facing the nation. In an environment characterized by periods of uncertain and constrained funds and eroding purchasing power, state DOTs are necessarily scaling their annual capital programs to available resources. While the reconstruction of relatively short interstate segments (which does not include projects included in Exhibit 3) is part of a national program to reconstruct the entire interstate system, individual project segments would not by themselves yield substantial net economic benefits.[5] Recapitalization of the entire interstate highway system has projected net economic benefits of over $1.6 trillion.

The second program, accommodating the shift to connected and automated vehicles, or simply, "autonomous vehicles," is no less challenging and arguably even more important to the future of the U.S. economy. There are many unknowns that make it difficult to develop an estimate in the same way that the 40 projects are assessed. These include the rate of adoption and the evolution of regulation among others. Over approximately the next 30 years, this new technology could generate between $5.0 and $7.5 trillion in net economic benefits. While not a traditional infrastructure project, the public sector has several vital roles in ensuring that adoption not be hindered. Most important of these involves regulation, both at the state and federal level. There also are infrastructure-related investments that would help speed deployment, ranging from infrastructure-based sensors to exchanging data with moving vehicles to improved and consistent pavement markings and road signs.

2.3 *Why Are Some Types of Infrastructure Missing?*

The list of infrastructure projects was not generated with the goal of finding an equal distribution of projects across all categories of infrastructure. Indeed, the list does not include examples of airports, toll roads, or large water and wastewater treatment facilities. These categories are similar in that the majority of them are managed by independent quasi-public regional and state authorities or by enterprise funds of a local jurisdiction and financed by revenue bonds secured by direct fees paid by facility users and concessionaires.

Federal capital grants for large airports are limited to airside facilities. Federal loans and loan guarantees via the U.S. Department of Transportation's Transportation Infrastructure Finance and Innovation Act (TIFIA) program are frequently important in the financing of new or expanded toll roads, but these are provided late in the process after most project barriers have been overcome. In sum, despite the regional and national importance of many airport and toll road projects, they do not face the same set of funding and financing hurdles that many other infrastructure projects must overcome. Thus, they did not meet one of the key

[5] The search for projects identified many interstate projects on state DOT capital improvement plans. These projects typically represent incremental investments (mile marker 25 to 75 for example) to improve a larger corridor that by themselves do not yield benefits on a national scale but collectively represent a much larger effort that does support national economic outcomes.

criteria for selecting projects to be included in our list of projects.

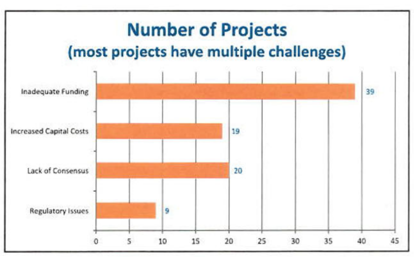
One important class of projects – municipal water supply and wastewater management – do not meet our criteria to appear on the list because they are driven by regulations and compliance timetables, not explicit benefit-cost economics. That does not mean that there is no benefit to accelerating this class of projects. Clearly, failures to meet regulations for environmental, public health, or service level standards exact costs on families and businesses that rely on clean and safe water. But by and large, these investments follow agreed timeframes for compliance with environmental and public health regulations and in the case of service level standards, norms for quantity and reliability consistent with rates and revenues agreed through either formal regulatory or governing board policy decisions.

3.0 Primary Challenges to Completion

3.1 *What Are the Challenges to Completing Each Project?*

A review of the 40 transportation and water infrastructure projects described in Exhibit 3 suggests that they face four major challenges to completion: (a) limited public resources, (b) significantly increased capital costs, (c) extended program and project review and permitting processes, and (d) lack of consensus among multiple public and private sector entities. A lack of public funding is by far the most common factor hindering the completion of transportation and water infrastructure projects.

Exhibit 4:
Primary Challenges Across the 40 Projects



Limited Public Sector Resources. With a few exceptions, constrained public budgets, tight fiscal policies, and a general reluctance to raise taxes or user fees limit available funding—the primary challenge to advancing the projects identified in this study. Conditions are perhaps most striking at the federal level, where, for example, the 18.3 cents per gallon federal gas tax that capitalizes the federal Highway Trust Fund (HTF) has not been raised since 1993 and annual HTF revenues have shown limited growth as a result of increased vehicle fuel efficiency and reduced growth in vehicle miles traveled. Some observers believe that greater funding for the Army Corps of Engineers' direct investment program in water resources projects are needed to maintain current services at the Army Corps' existing flood control, navigation, hydropower, and multi-purpose projects.[6]

Funding at the local level – where the investment rubber meets the road – has been more responsive to demand, and fewer projects seem to be challenged by shortfalls in local funding roadblocks, especially for the most worthwhile of projects. Approximately half of the states (23) have increased their transportation user fees (e.g., gas tax, vehicle registration fee) since 2012 and other states are considering increases but a larger proportion of their expenditures have been devoted to operations and maintenance rather than capital investment. Also, many local jurisdictions, for example, have increased both revenues and expenditures for urban transit.

In response to growing regulations, replacement of old and failing infrastructure, and expansion of systems to meet growth, urban water and wastewater utilities have had to raise water and sewer rates by three percent above inflation, on average, every year for more than the last decade.[7] Affordability concerns related to constructing expensive, but mandated, solutions to sewer overflows during rain events have resulted in 20- and 30-year construction programs to solve these multi-billion dollar challenges. In some cases – The Fargo-Moorhead Flood Diversion Project for example – local sponsors of Corps of Engineers' projects are stepping forward with innovative public-private partnership (PPP) proposals and advance funding from local sources to accelerate construction of critical water projects. Airports and maritime ports are organized primarily as enterprise funds under local and state governments; most are funded by the fees paid by users of their respective facilities or services. As a result, fees more closely reflect services that users demand, so raising fees to finance the construction of needed capital facilities tends to be somewhat less complicated.

6 Edward E. Belk, Jr P.E., "ASCE COPRI: Corps Infrastructure Strategy Overview and P3/P4 Review," presented to the ASCE COPRI P3 Subcommittee Symposium on Alternative Project Finance, New Orleans District of the US Army Corps of Engineers, September 10, 2015.

7 National Association of Clean Water Agencies, 2014 Cost of Clean Water Index, Washington DC, 2015.

Significantly Increased Capital Costs. Capital costs of transportation and water infrastructure have increased much faster than the general rate of inflation over the past 20 years — at the same time that the financial resources available for transportation and water capital investment have declined (in real dollar terms). When projects fail to make progress, financing costs may increase faster than the ability and sometimes willingness of users to pay, further complicating the delivery of good projects until users are willing to accept higher taxes or fees. Some projects are eventually downsized or eliminated entirely. Increased capital costs are also a product of enhanced design standards and regulatory requirements related to performance, safety, environmental protection, reliability, and resiliency. Recent decreases in energy prices may ameliorate the rate of capital cost inflation.

Extended Review & Permitting Processes. Successful completion of the review and permitting processes required by the National Environmental Policy Act of 1969 (NEPA), which requires federal agencies to assess the environmental effects of their proposed actions, is an important part of project development. NEPA helps promote efforts to prevent or eliminate damage to the environment, but has also extended the schedule and generally increased the cost of implementing major infrastructure projects. This is a long-standing challenge that has spanned the last 20 to 30 years. Studies conducted for the Federal Highway Administration concluded that the average time to complete a NEPA study increased from 2.2 years in the 1970s, to 4.4 years in the 1980s, to 5.1 years in the1995 to 2001 period, to 6.6 years in 2011.[8] In recent legislation and executive actions, policymakers have recognized the growing length of time needed for environmental review and permitting, and its impact on project delivery times and development costs, and have implemented process reforms.[9] Effectively implementing these reforms going forward will be crucial to addressing this challenge.

Lack of Consensus Among Multiple Public and Private Sector Entities. Projects that cross jurisdictions often take longer than those within a single jurisdiction. We found evidence of this for several large multi-jurisdictional projects where proponents disagreed on project components, alignments and rights of way, allocation of project costs and benefits, or voting structure in governing and/or management boards. Examples include bridges that connect two states (the I-5 Columbia River Crossing and the Brent Spence Bridge), rail projects across state boundaries (the NY-NJ Gateway Project included as part of the NEC Corridor Reliability Improvements), or programs of national scale where state and local coordination is complicated (National Traffic Signal Coordination Program). Large national programs often experience this same phenomenon in the program development stage. Key differences of views with regard to the program design are often settled through compromises during the legislative debate. The same is true for some regional programs where federal intervention can avoid state confrontations, such as federal and interstate compacts that govern water resource allocation and management rules across multiple states.

3.2 How Could Challenges to Completion Be Addressed?

Limitations on public sector resources are identified in this study as the single most common factor contributing to project completion uncertainty — particularly for highway, railway, inland waterway, and water resource projects, which rely primarily on public funding. There has been significant discussion over the past decade about increasing federal taxes or fees to fund critical infrastructure programs. In the absence of such action, however, states and local jurisdictions have stepped up to fund an increasing share of the infrastructure they consider important. This process contributes to a loss of network benefits on a broader, more coordinated scale.

Since most challenges to project completion are related to funding, and there is clear evidence that a lack of funding results in loss of economic output, it is fair to examine ways in which funding might be enhanced to create positive returns to the U.S. economy. While full consideration of funding alternatives and public finance options are beyond the scope of this study, it may be useful to examine broadly several principles around which funding solutions might be based.

Market-Based User Fees. Where infrastructure services can be allocated unambiguously to users (beneficiaries) according to their use and users can access infrastructure services only by paying for them (e.g. no "free riders"), the infrastructure finance literature maintains that the most efficient form of project finance is user payments that ideally reflect full (marginal) costs of providing (building, operating, and maintaining) service flows.[10] Resurgence in the development of tolled highways, bridges, and tunnels over the last 30 years, particularly in rapidly growing states such as Florida and Texas illustrates this approach. The introduction of reliable and enforceable electronic toll collection coupled with open road tolling (i.e., toll collection with no toll booths to impede traffic flow) has further

[8] Transportation For America, "State Transportation Funding: States Successfully Raising New Transportation Revenue," 2015. Accessed January 2016. http://t4america.org/maps-tools/state-transportation-funding/

[9] National Association of Clean Water Agencies, 2014 Cost of Clean Water Index, Washington DC, 2015.

[10] Congressional Budget Office (CBO), "Approaches to Making Federal Highway Spending More Productive," Washington, D.C., 2016.

accelerated growth in toll facilities. These new technologies provide significant savings in toll collection costs and reduced congestion through congestion-based or time-of-day pricing.

Federal Intervention for Projects of National Significance. Strict marginal cost-based user fees may prove inadequate for some new investments in infrastructure technology or economic development that will generate benefits over long periods of time. In these cases, there may be few immediate or easily identifiable beneficiaries. Such projects represent long-term commitments to the future with benefits that accrue to the nation as a whole. When this is the case, it may be more efficient from a national economic perspective to finance such projects out of general funds or a user-fee base that includes both present and future beneficiaries. Road improvements to enable autonomous vehicles may be the prime example of such a national scale program.

Government Funding to Protect Public Goods and Correct Market Failures. Efficiency is not the only criterion on which to base infrastructure financing decisions. In some cases, the outcome of infrastructure investment is so important for the welfare of the nation as a whole that fairness considerations require that all people receive at least some minimal benefit, regardless of their ability to pay. This is the rationale underlying many environmental programs that the federal and state governments help fund, such as federal grants to help capitalize State Revolving Funds that finance water and wastewater infrastructure. Environmental restoration projects, especially those that generate benefits broadly available to individuals and businesses in multiple geographies, also are examples for which additional federal and/or state general funding may be warranted.

Efficient, Alternative Project Delivery. For some types of projects, alternative project delivery methods can accelerate project delivery times and deliver more infrastructure services or less risk for every public dollar invested. In effect, more efficient project delivery substitutes in part for more investment. Innovative project delivery methods include Design-Build (DB), Design-Build-Finance (DBF), Design-Build-Operate-Maintain (DBOM), and Design-Build-Finance-Operate-Maintain (DBFOM). Innovative procurement methods generally allow competitors to propose "alternative technical concepts" (ATCs) which are reviewed and approved in advance by the customer and remain proprietary to the competitor proposing the ATC. The use of ATCs encourages competitors to introduce innovative solutions that meet client requirements but at a reduced cost.

Leveraging Limited Government Financial Resources. Leveraging limited federal dollars can stimulate state and local investment as well as private investment (or operating efficiencies) through PPPs. Virtually all surface transportation PPP projects rely in part on a TIFIA loan to finance about a third of their project costs. The 2015 Fixing America's Surface Transportation (FAST) Act provides sufficient funding for the USDOT to make about \$36 billion in TIFIA loans — or about \$7.5 billion annually. The Railroad Rehabilitation and Infrastructure Financing (RRIF) program administered by the Federal Railroad Administration has \$35 billion to finance the development of railroad infrastructure. The 2014 Water Resources Reform and Development Act (WRRDA) authorized two other infrastructure funds designed around a leveraging concept — one to support EPA's water and wastewater grant program and a second for the Army Corps of Engineers. The President's 2017 budget calls for funding EPA's water infrastructure fund (WIFIA) but little progress has been made regarding the program authorized for the Corps of Engineers.

4.0 Infrastructure's Contribution to the Economy

Infrastructure of all types, but especially transportation and water, is the one asset that is used every day by every business and household. Most analysis of the economic impact of infrastructure focuses on direct benefits to travelers and consumers and indirect benefits from people and industries that depend on these changes.

More important, however, are changes as individuals and businesses divert from business as usual to adjust their practices in response to improved infrastructure. As the transportation network is improved, either through new assets or improvements to existing ones, travelers reap a variety of benefits. Improvements to safety translate into lives saved and injuries avoided. Improvements to bottlenecks translate into time saved. New connections allow existing trips to be made by a shorter route, translating into reduced travel costs. And collectively, less vehicle miles traveled and less idling to accomplish the nation's travel needs translates into cleaner air. When flooding is avoided or cleaner water delivered, resources are not spent recovering from damage and health is not compromised. When these things happen, the economy typically becomes more efficient, which supports long-term economic competitiveness. These types of changes are not relevant for projects with a local impact (say, adding a lane to an existing highway) but there is a long history of private industry change in response to investments with a national or regional scale impact. This response can occur in several ways:

- **Productivity Effects.** An improved transportation system or an expanded water resource (either larger in size or higher in the quality of service that it provides) allows industry to either produce the same amount of goods and services for less or more goods and services with no added cost.

Ex: Investments to reduce travel congestion allow a national retailer's distribution network to make the same volume of deliveries in less time, saving driver and fleet costs.

- **Factor Demand Effects.** An improved transport system also allows firms and industries to change how much they use of other economic inputs — labor, intermediate goods, and private capital. These changes may result in greater efficiencies as the investment allows firms to substitute for one or more of their traditional economic inputs.

  Ex: Investments to improve connectivity and travel times allow a manufacturer to reduce inventories of production inputs and to consolidate its supply network, reducing production costs overall.

- **Output Expansion Effects.** The cost reductions or increases in output caused by the first two changes will, in turn, stimulate increased overall demand.

  Ex: As production or distribution becomes less costly, firms may pass along some portion of the savings to consumers, who may purchase more as the price falls.

Our nation's history includes a series of examples of infrastructure investments that have generated national economic gains on a large scale. Examples range from the earliest decades of the republic when the Army Corps of Engineers was tasked with opening up the Ohio and Mississippi Rivers to the transcontinental railroads, funded in large part by federal and state land grants (these totaled eight to ten percent of the Continental United States). More recently, the Interstate Highway System was a prime mover for the nation's economy for at least two decades, accounting for fully one fourth of the nation's overall gains in productivity when it was first built.

Transportation

Today, transportation is in the midst of a quiet but profound revolution. Urban travelers now have choices that go beyond the classic dichotomy of private cars versus bus and rail transit. Many of these changes take advantage of new technology, with some of the most dramatic changes yet to come, including self-driving vehicles. New transportation services are now available, including many stimulated by private entrepreneurs. These changes also respond to market forces, including a world where mobile communications provide near real-time access to information for businesses and individuals. The specific impact of these changes on demand for traditional modes, such as private cars, transit, walking, biking, and taxis, as well as telecommuting is unknown but will have important implications for how we plan, fund, and operate urban and regional transportation.

Water and Wastewater

Similarly, today's wastewater management utilities, having largely made key investments to comply with government clean water mandates are transforming themselves into "Utilities of the Future" where instead of managing waste, they take actions to manage valuable resources such as water, nutrients, biosolids, heat, and latent energy. When clean water utilities reuse wastewater and offset demand for fresh water resources, generate all the energy they need to operate from their own digested methane, or substitute natural green infrastructure for concrete and steel structures, they not only reduce costs of service to residential and business customers, they produce fewer environmental residuals and cleaner waterways as well as more urban green spaces for all to enjoy. These benefits, in turn, create communities in which more people and businesses choose to locate, helping to stimulate economic productivity often associated with urban areas.

Environmental Restoration Projects

Environmental restoration projects bring the nation's natural capital into a state of good repair. Such projects can benefit communities in a variety of ways such as by buffering shore communities from hurricanes and shoreline erosion, by mitigating flooding and damage to homes and roads, and by providing wildlife habitat and recreational areas for residents.

5.0 How Was the List Developed?

The development of any list requires judgment about which projects to include and which to exclude. This process involved both developing criteria to identify eligible candidates but also pragmatic compromises — information needed to estimate net economic benefits was simply unavailable for some candidate projects. Identifying candidate projects required a set of operational definitions. Chiefly, these were:

- *How do we define infrastructure?*
- *How do we define a project?*
- *How do we define a challenge to completion?*

5.1 How Do We Define Infrastructure?

For the purposes of this study, infrastructure is taken to mean traditional public works:

- Highways
- Railways
- Airports
- Maritime Ports and Inland Waterways
- Water Resources
- Water Supply/Wastewater Management

All share common characteristics in that they are delivered largely through long-standing intergovernmental programs that require legislative, executive, and sometimes judicial action at the federal, state, and local levels. They generally require federal or state authorization at the program or project scale, state or local program administration and management, a state or local government "sponsor" or advocate, interaction with public and sometimes private capital markets, user willingness to pay taxes or fees in exchange for services, and environmental and/or economic regulatory approvals — generally at an early stage of project delivery.

5.2 How Do We Define a Project?

Like all long-lived capital investments, infrastructure projects in these categories typically share a common value chain from planning to preliminary engineering, environmental review and permitting, final engineering, funding and finance, construction, operations, and reconstruction or decommissioning. For purposes of this study, a project had to be sufficiently advanced in its delivery process that a basis for estimating its capital and operating costs had been established as had a basis for projecting its economic benefits. Typically, this meant that a project had to have progressed at least through planning and about half of preliminary engineering (e.g., about 15 percent of the design work needed to prepare a project for construction) and for some types of infrastructure, through a portion of the environmental review stage. A project also had to demonstrate that it could be delivered in whole or in part within a 10-year period. This was interpreted as requiring that the project has applicable legislative authorization; that funding requirements were roughly understood (even if funding sources had not as yet been identified), and that a local sponsor or advocate had been identified. In sum, projects on a wish list did not qualify.

5.3 How Do We Define a Challenge to Completion?

Some projects, particularly large complex projects or those using new and untested technology, may take a decade or more to begin to deliver benefits to the economy. A project was considered to face a challenge to completion if it was halted at some stage in its normal delivery process, as identified by federal, state, local, or private proponents of the project, and supported by reasonable evidence.
Even if a project is moving forward in some capacity, these barriers can exist. Complex projects can face multiple challenges, including insufficient funding and/or financing, regulatory/permitting/legal issues, or a lack of consensus among project stakeholders.

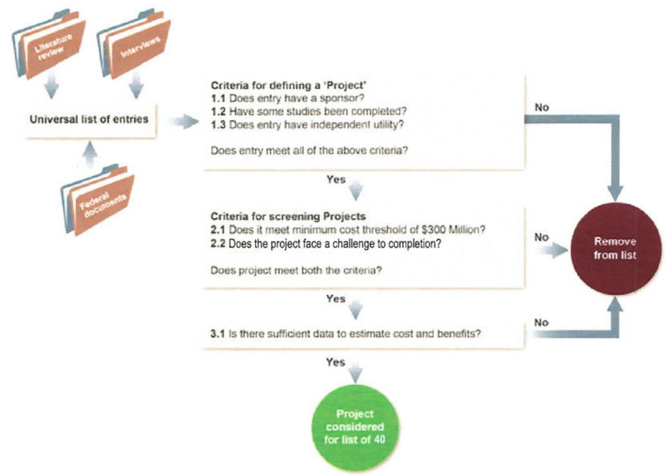
Municipal water supply and wastewater management projects are not included on our list of 40 economically important projects. Most such projects are driven by regulatory or service level requirements and not by economics. Many are costly – in the hundreds of millions to billions in total project costs – and most deliver significant public health, environmental, social, and economic benefits well in excess of these costs. These large and economically important projects can take 20-30 years to complete, which is allowable without penalty under applicable environmental and public health regulations. So, while project completion can exceed our standard for challenged projects and might otherwise be considered here, long completion times are planned and expected, so these projects do not meet our criteria for challenged projects.

5.4 Outline of the Approach

An overview of the study approach is provided in Exhibit 5. The study team first identified a "long-list" of significant and challenged infrastructure projects in the planning or planning/implementation stage of development. These were then screened to select the 40 or so projects (the "short-list") that would deliver strong positive national or regional net economic benefits if they could be accelerated. The estimated costs and benefits of projects on the short-list were then reviewed and for some projects, created from project outputs, and then normalized around a common benefit-cost calculus. The primary challenges facing the project were then confirmed. Finally, the study team created two-page project profiles for each of the 40 identified infrastructure projects (which are presented as an Annex to this document).

Key statistics characterizing projects reviewed for the long- and the short-list were catalogued for future reference. Projects are grouped by infrastructure category for ease of access.

Exhibit 5: Development Process for the Short List of Projects



5.5 Creating the Initial List

An initial list of potential projects was developed based on news articles, published documents, and interviews with federal and state agency representatives, regional planning associations, and trade and professional organizations.

The criteria for inclusion on the initial universal list were broad, with most candidate entries being included. Entries included everything from well-defined and advanced projects, to comprehensive plans, to well-defined visions. The study team selected a broad range of entries for consideration from the universal list of entries.

Initial entries were categorized by infrastructure type:

- Airports
- Highways
- Ports/ Inland Waterways – entries related to seaports and inland waterway ports and to inland waterways
- Railways – entries related to rail transportation for both passengers and freight and both intercity and urban
- Water – entries related to water resources, environmental restoration, water supply, and wastewater management

Initial entries were also grouped into one of four national regions: Midwest, Northeast, South, and West. Several projects covered more than one region or were national in scope.

Initial entries were reviewed to identify which should be considered a project for the purposes of this study using the following criteria:

- Criterion 1.1 – Does the project have a sponsor? The entry needed to have support from a viable sponsor to have a reasonable probability of being implemented.
- Criterion 1.2 – Have some studies been completed? The entry must have had some studies (e.g. technical, environmental, or financial) completed to show it is reasonably well defined.
- Criterion 1.3 – Does the project have independent utility? The entry must be able to stand alone and not rely on other components or predecessor (but as yet unbuilt) projects to achieve individual benefits.

Entries meeting all of the above criteria were considered a project and retained for further evaluation. Those that did not were removed from the list. About 200 candidate projects were identified.

5.6 Creating the Long-List

Projects were then screened to identify those qualifying for inclusion on the long-list of projects – projects that were capable of providing strong positive net economic benefits on a national or regional scale – using the following criteria:

- Criterion 2.1 – Does the project have an implementation cost (undiscounted and not adjusted for inflation) of at least $300 million? Projects costing less than this amount would be unlikely to deliver significant national or regional net economic benefits.
- Criterion 2.2 – Does the project face challenges to completion? Projects facing such challenges are those that are not being implemented according to expected schedules because of insufficient funding, lack consensus among the major stakeholders, or regulatory or permitting challenges, among others.

Projects that met both these criteria were retained on the long list of projects for further analysis. Those which did not meet these criteria or for which sufficient data were not available to permit evaluation did not advance for further study. The selection of the $300 million threshold was a judgment and reflects a tradeoff between expanding the project search to the maximum possible scope and considering every project regardless of its size and the pragmatic need to have a workable number of projects and the expectation that projects below that threshold were unlikely to have major regional or national impacts. The $300 million value was chosen as the study team felt it was still on the low side for a project likely to have a regional or national impact, thus ensuring that the maximum number of likely projects were considered in subsequent evaluation. About 200 projects were identified for the long list, of which about 75 were retained for the short list.

5.7 Creating the Short-List and Final List

Some of the projects were elements of larger programs and were therefore grouped and evaluated at the program scale. This was done for programs whose projects would not have gone forward on a stand-alone basis because the real value to the nation would be delivered only if the entire program or a large portion thereof was completed. These are clearly identified on all study materials and in this Final Study. Examples include the Northeast Corridor Intercity Rail Rehabilitation Program between Washington DC, New York City, and Boston and the California High Speed Intercity Rail Program.

The study team selected those projects for the final list which had significant net national or regional economic benefits based either on estimates of costs and benefits that had already been calculated using acceptable methods or on interim project outputs that could be converted to estimates of costs and benefits. Projects in the final list were chosen based on their net economic benefits, making sure that they were broadly representative of various regions of the country, as well as the major transportation modes and types of water projects.

Because the projects on the list are in different phases of implementation, the full list was divided into two sections to highlight this distinction (see Exhibit 3). Projects where the implementation is underway but not advancing at the pace initially anticipated are listed at the top of the table. Those in the planning stage where implementation has not yet begun are listed in the second section of the table.

5.8 Establishing a Common Benefit-Cost Calculus

Projects were examined to estimate their net economic benefit to the national economy and their benefit cost ratio. This process relied on existing benefit-cost results, or where an existing assessment was not available, project data necessary to permit the project team to perform an assessment. The project team evaluated projects as presented by project sponsors and did not develop independent estimates of costs, ridership, traffic volumes, service plans, or other inputs to support the net economic benefit assessment. The methodology and guidance for developing project information and assessments thus varies across projects, following the available guidance and practice for that mode. Similarly, the level of detail with which project information is reported varies by project — for example some studies report the summary results, others provide year-by-year results. Collectively, these factors prevented the project team from fully reconciling each of the assessments. Because of these uncertainties, net project benefits were reported in a range. If a project's BCR rose above a 10.0 threshold, we reported the value as simply "over 10.0."

Projects with smaller benefit-cost ratios were reported in one of three ranges: 2.0 – 4.0, 4.0 – 7.0, and 7.0 – 10.0. The ranges were chosen by looking at the estimate ratios and selecting the breakpoints based on the groupings in the results.

In general, the process was to:

- Identify project costs and adjust to common year used for this study
- Adjust project benefits (or estimate) to common year used for this study
- Discount costs and benefits to yield net present value if not already discounted, adjusting to a common year and rate. Discount rates applied to federal infrastructure projects originate in statute and are updated periodically by the federal Office of Management and Budget (OMB) in conjunction with the federal infrastructure agencies. The Water Resources Planning Act of 1965 and the Water Resources Development Act of 1974, for example,

require an annual determination of a discount rate for federal water projects, including those of the US Bureau of Reclamation and the US Army Corps of Engineers that are covered in this project. The rate for federal fiscal year 2017 (October 1, 2016 to September 30, 2017) was reset to 2.875 percent on October 13, 2016, based on guidance from the US Treasury on the average yield of marketable US government securities with maturities of 15 years or more. The 1992 Circular A-94 (Appendix C), pursuant to the Budget and Accounting Act of 1921, the federal Office of Management and Budget (OMB) establishes real discount rates to be used to evaluate benefits and costs of all federal capital programs or policies, including transportation projects like those analyzed here, but specifically excluding federal water projects. The rate to be applied is related to the type of the project and its expected benefits and costs. If the project is anticipated to have benefits to the general public (societal benefits such as travel time savings or crash reductions), the guidance currently suggests a discount rate of 7 percent, which represents the real discount rate on private investment. If the analysis includes benefits and costs exclusively related to the public agency, for example, an analysis of an investment that would bring about a cost savings to the agency, the guidance suggests using the real discount rate for public-sector investments, which is often lower due to the lower risk associated with government borrowing. Real discount rates for 2016 range from 1 percent (10-year investment) to 1.5 percent (30-year investment). For consistency, we used both a 3 percent and 7 percent discount rate in our analysis, but for simplicity, presented results only using a 3 percent rate.

Finally, one of the largest differences across project assessments was the length of the analysis period — the time over which benefits were accrued to the project. As this is an important difference across assessments and one that the project team could not adjust, we included the length of the assessment period in the table for the reader's use in reviewing the list.

Another challenge related to the reporting of operations and maintenance costs; some projects had advanced to the point of having estimates, but many had not. Presentation of an "apples to apples" comparison required estimating net economic benefits relative to capital costs only.

5.9 Identifying the Primary Challenges Faced by Projects

Information collected describing project delivery was verified through interviews with relevant parties. In nearly all cases, funding was an impediment to project delivery.

Lack of consensus among stakeholders was an impediment for half of the projects. As large projects most likely to deliver national benefits are often multimodal and multi-jurisdictional, this highlights the challenge of advancing these projects. Increased capital costs as the project develops similarly play a role in half of the projects, helping to explain many of the funding challenges. As complex projects advance, the engineering requirements to solve the problem are increasingly better understood and defined — often leading to better cost estimates. Moreover, as projects advance through the public environmental process, project features may be added and the least cost alternative may not be selected. Finally, a variety of regulatory issues played a role in a quarter of the projects.

5.10 Projects that Were Not Considered for the Short-List

In addition to the projects discussed above, certain types of projects that might provide sufficient national or regional net economic benefits to be advanced to the short-list were not considered for various reasons including the following:

- Publicly available data were insufficient to project costs and/or benefits.
- Projects critical to the U.S. economy which have high likelihoods of being built in the future, but that are insufficiently developed at this time.
- Projects of national significance, but that are simply slow to complete and are therefore not facing challenges to completion under our definition.
- Projects that do face challenges, but the net economic benefits of which are too small to be in the list of projects of major economic significance.
- Projects without a clear sponsor.

6.0 What Did We Learn from Constructing the List?

First, there are a large number of attractive transportation and water infrastructure projects nationwide. These cover all modes and all regions of the country. Alone, the 40 projects identified in this study are estimated to generate net economic benefits of $800 billion. Our analytic work showed that there are many similar projects behind this list. As a group, the 40 projects highlighted in this study return between $3.50 and $7.00 for every dollar of capital expenditure.

The greatest concentration of projects is in the South and the West. As the fastest-growing regions of the U.S., these regions are developing numerous projects to accommodate their expanding economies, rising freight flows associated with the numerous ports located here (some of the nation's busiest) and vigorous cross-border trade with Mexico. Nine of the eleven megaregions projected to develop in the U.S. between now and 2040 are in these regions. Railways and highways dominate the distribution of projects by mode, but the distinction can be misleading in some cases as these projects are supporting other modes such as ports and airports. For example, the Hampton Roads Crossing and the I-5 Columbia River Crossing are both important corridors for the maritime ports in their regions. Some I-5 Columbia River crossing project alternatives included transit too.

Second, no surprise, but lack of adequate funds is the major hurdle to completing these projects. While responsibility for this shortfall can be shared among many government agencies, it is hard not to recognize a long running reluctance by legislative decision makers at all levels to increase funding for infrastructure.

Third, there is limited interest in regional or even national projects. Part of this problem results from a general reduction in federal funds for major transportation and water infrastructure programs. This has shifted the responsibility for infrastructure funding to state and local governments. In one respect, this may produce a desirable outcome – these governments are closer to the delivery of infrastructure services and should make more efficient investment decisions and manage limited financial resources more carefully. However, as agencies are developing projects in line with their own more limited resources, there are fewer large multi-state initiatives that address the larger regional issues created by rising freight volumes and evolving logistics patterns for example. U.S. DOT's work to develop a national rail and national freight plan may eventually counter this trend.

Today there is limited incentive for state and local agencies to invest in projects with broad benefits. This is not just an issue related to lack of funds, but partly a lack of financial and planning incentives. For example, the Interstate Highway System was built rapidly once the federal match changed from 50-50 to 90-10. Today such incentives are limited — one example is a slightly higher federal match for freight projects that reflect a statewide freight plan.

A related problem is that most of the debate over infrastructure tends to focus on "needs," with projects of all sizes and types lumped together. This makes it difficult to focus on projects likely to have the largest national economic benefits. This study aims to help re-focus the debate on projects with significant national economic benefits relative to their costs.

Finally, the analytic work to identify the 40 projects of major economic significance relied on existing studies where available. These used a variety of assumptions and methods. Any national view regarding the value of infrastructure would benefit from a more uniform and consistent approach to reporting. The Corps of Engineers' water resource investment program, U.S. DOT's TIGER program (which both use a BCR) and the Federal Transit Administration's (FTA) New Starts Program (which uses consistent metrics across projects but not a BCR) stand out in this regard, but many other parts of infrastructure development assess projects in a less formal manner. The nation's approach to developing candidate infrastructure investments has evolved gradually over time and largely in modal silos. A consistent set of project planning and development guidelines could improve this process, although care would still be needed in making inter-modal comparisons. Similarly, care would still be needed to ensure that state and local infrastructure financing programs that are working well can continue to work well. A recent Congressional Budget Office (CBO) study identified the practice of allocating highway investment on the basis of benefits and costs, and user fees (discussed in Section 3.2) as two potential approaches for making highway investment more productive.[11]

[11] Ibid.

Project Profiles

I-10 Program

U.S. REGION: **South**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: > **$236.0 B**
BENEFIT-COST RATIO: > **10.0**

Photo Source: TxDOT

Photo Source: ADOT

PROJECT SPONSORS:

- Florida, Alabama, Mississippi, Louisiana, Texas, New Mexico, Arizona, and California state Departments of Transportation

PROGAM:

- Related to Recapitalization of the National Interstate Highway System

PROJECT DESCRIPTION

- Add capacity as needed along the I-10 corridor between Florida and California. This is particularly important for interstate movements. I-10 connects several of the nation's fastest growing states as well as major international airports and ports.

CONSIDERATIONS

- The I-10 Corridor is more than 2,600 miles long. As of 2002, the Corridor had approximately 400 miles operating at an unacceptable level of service (LOS). By 2025, the deficient mileage is forecast to reach approximately 1,500 miles.
- The average number of lanes needed by 2025 is expected to increase from 6 to 10.1 lanes along urban sections, and from 4.1 lanes to 5.2 lanes along rural sections.
- Increasing national freight flows in the corridor will result in increasing congestion and delays.

Sources: (1) Wilbur Smith

I-10 Program



Photos Source: FHWA

PROJECT BENEFITS

- With capacity improvements, travel time reliability along the Corridor is expected to increase significantly over the forecast period, translating into significant reductions in delay for freight and passengers.
- Inter-regional trade, among the eight states and between the I-10 Corridor region and the rest of the United States, generates significant economic benefits in terms of jobs, earnings, and economic output.
- Provides for an improved high-speed, safe, low cost-per-mile interstate system.

PRIMARY CHALLENGES

- Difficult to coordinate a multi-state investment strategy.
- States need funding for additional capacity to keep interstates operating at an acceptable LOS.

STATES OF FLORIDA, ALABAMA, MISSISSIPPI, LOUISIANA, TEXAS, NEW MEXICO, ARIZONA, AND CALIFORNIA MARKETS SERVED:

Population (Census, 2015 value)	108,320,000
Employment (BLS, 2015 value)	44,494,000
GDP (BEA, 2014 value, $M)	$ 5,721,182

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 28,629
Discounted Capital Cost	$ 26,222
Discounted Benefits	$ >262,220
Net Economic Benefits	$ >235,998
Benefit-Cost Ratio	>10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

National Traffic Signal Coordination

U.S. REGION: **National**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **> $3.9 B**
BENEFIT-COST RATIO: **> 10.0**

Photos Source: USDOT

PROJECT SPONSORS:

- Individual state DOTs, cities, and Metropolitan Planning Organizations
- Institute of Transportation Engineers

PROJECT DESCRIPTION

- Program to coordinate traffic signals nationwide provides a broad array of benefits, including reduced traffic congestion, reduced emissions (including CO_2), and reduced energy consumption.

CONSIDERATIONS

- Improving traffic signal operations can have a large impact on transportation system efficiency.
- Delays in highway travel have been increasing, and delays at traffic signals contribute an estimated 5-10% of all traffic delay, or 295 million vehicle hours on major highways alone.
- Some cities have not made the proper investments since they do not want to encourage through traffic.

Sources: (1) ITE

National Traffic Signal Coordination

PROJECT BENEFITS

- Delay savings, even when just considering major arterials, are significant.
- Fuel savings resulting from less idling and related environmental benefits including CO2 reductions as a result of smoother traffic flow.
- Improvements for freight and transit operations.
- Costs are low, at approximately $500 to $3,000 per intersection.

PRIMARY CHALLENGES

- Coordination among local cities and towns can be difficult since they may have different objectives and different levels of funding.
- Adaptive signal control systems are more expensive but also more effective.
- While costs are low for individual traffic signals, real gains depend on corridor improvements and many towns and cities are still short of funds.
- Traffic signals need to be maintained properly, creating additional local budget issues.

NATIONAL MARKET SERVED:

Population (Census, 2015 value)	321,419,000
Employment (BLS, 2015 value)	141,958,000
GDP (BEA, 2014 value, $M)	$ 17,232,618

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 455
Discounted Capital Cost	$ 435
Discounted Benefits	$ >4,350
Net Economic Benefits	$ >3,915
Benefit-Cost Ratio	>10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

California High Speed Rail

U.S. REGION: **West**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$130.3 – 260.6 B**
BENEFIT-COST RATIO: **4.0 – 7.0**

Photos Source: hsr.ca.gov

PROJECT SPONSORS:

- California High Speed Rail Authority
- Federal Railroad Administration

PROJECT DESCRIPTION

- The high-speed rail system planned for California will eventually encompass over 800 miles of rail, with up to 24 stations. Full build-out of the system will connect Los Angeles to San Francisco.

CONSIDERATIONS

- The capacity of California's intercity transportation system is insufficient to meet existing and future demand, and the current and projected future congestion of the system will continue to result in deteriorating air quality, reduced reliability, and increased travel times.

Sources: (1) CA HSR Benefit Cost Analysis

California High Speed Rail

PROJECT BENEFITS

- Travel time, reliability, travel cost and productivity benefits for users transferring from auto to HSR.
- Travel time, reliability, safety and emission benefits for highway users traveling in less congested conditions due to mode shift from auto to HSR.
- Passenger delay, operating cost and emission savings in the aviation sector due to mode shift from air to HSR.

PRIMARY CHALLENGES

- Funding
- Litigation against the Authority for noncompliance with Proposition 1A and other cases over the project's environmental certification and use of cap-and-trade money.
- Logistics and scheduling at Union Station in LA

CALIFORNIA MARKET SERVED:

Population (Census, 2015 value)	39,145,000
Employment (BLS, 2015 value)	16,093,000
GDP (BEA, 2014 value, $M)	$ 2,305,921

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 58,794
Discounted Capital Cost	$ 43,425
Discounted Benefits	$ 173,700 – 303,975
Net Economic Benefits	$ 130,275 – 260,550
Benefit-Cost Ratio	4.0 – 7.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Next Generation Air Traffic Control System

U.S. REGION: **National**
PROJECT TYPE: **Air**

NET ECONOMIC BENEFIT: **$58.0 – 116.0 B**
BENEFIT-COST RATIO: **4.0 – 7.0**

Photo Source: FAA

PROJECT SPONSORS:

- Federal Aviation Administration in partnership with individual airports nationwide

NextGEN

PROJECT DESCRIPTION

- NextGen is a long-term initiative that is transforming the current ground-based radar air-traffic control system to a system based on satellite navigation, automated position reporting, and digital communications.

CONSIDERATIONS

- Growth in passenger and cargo air traffic have contributed to congested airspace that creates delays, increases the likelihood of safety incidents involving aircraft, increases emissions, and reduces convenience to passengers.
- Technology advancements have made the traditional radar surveillance, ground-based navigation systems, and voice communications utilized by air traffic control outdated and inefficient.

Source: FAA

Next Generation Air Traffic Control System

PROJECT BENEFITS

- Increase air transportation-system capacity by allowing the nation's airports to use existing runway and terminal capacity more efficiently.
- Greater airspace safety and security by proactively identifying and resolving potential hazards and a reduction in delays experienced by airlines and passengers.
- Fuel savings and reduced GHG and emissions.
- Provide a better travel experience, with less time spent sitting on the ground and holding in the air, increases airport access, predictability, and reliability.

PRIMARY CHALLENGES

- Rollout is slower than planned due to insufficient funding by airports/airlines and disagreements among implementation partners that have slowed decision-making by FAA.

NATIONAL MARKET SERVED:

Population (Census, 2015 value)	321,419,000
Employment (BLS, 2015 value)	141,958,000
GDP (BEA, 2014 value, $M)	$ 17,232,618

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 25,312
Discounted Capital Cost	$ 19,340
Discounted Benefits	$ 77,360 – 135,380
Net Economic Benefits	$ 58,020 – 116,040
Benefit-Cost Ratio	4.0 – 7.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Positive Train Control

U.S. REGION: **National**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$27.1 – 54.1 B**
BENEFIT-COST RATIO: **4.0 – 7.0**

Photo Source: FRA

PROJECT SPONSORS:

- US Department of Transportation
- Individual privately-owned railroads
- Commuter rail lines
- Amtrak

PROJECT DESCRIPTION

- Positive Train Control (PTC) systems will prevent train-to-train collisions, overspeed derailments, and incursions into roadway work limits. PTC sends and receives a continuous stream of data transmitted by wireless signals about the location, speed, and direction of trains. PTC systems utilize advanced technologies including digital radio links, global positioning systems and wayside computer control systems that aid dispatchers and train crews in safely managing train movements.

CONSIDERATIONS

- Freight railroads will ultimately be required to install PTC on an estimated 60,000 miles of track.
- Railroads must self-fund PTC.
- Congressional deadline of December 2018.

Sources: (1) AAR

Positive Train Control

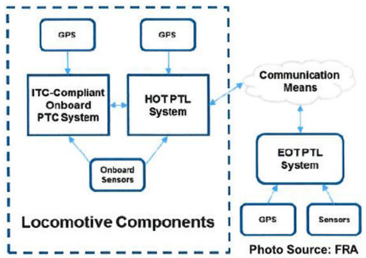


Photo Source: FRA

Photo Source: FRA

PROJECT BENEFITS

- When fully up and running, PTC will complement existing safety technologies in important ways. It will help prevent train collisions, derailments caused by high speeds, unauthorized incursions by trains onto sections of track where maintenance is taking place, and movement of a train through a track switch left in the wrong position.
- Because of modal diversions, highway accident costs, air pollution, and rail accidents would be reduced. Shippers would receive a benefit from service quality improvements.

PRIMARY CHALLENGES

- Meeting the December 2018 deadline
- Interoperability among systems

NATIONAL MARKETS SERVED:

Population (Census, 2015 value)	321,418,820
Employment (BLS, 2015 value)	141,958,417
GDP (BEA, 2014 value, $M)	$ 17,232,618

ECONOMIC BENEFITS AND COSTS

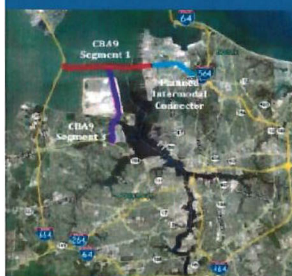
	2015$ (M)
Capital Cost (total program)	$ 10,000
Discounted Capital Cost	$ 9,022
Discounted Benefits	$ 36,088 – 63,154
Net Economic Benefits	$ 27,066 – 54,132
Benefit-Cost Ratio	4.0 – 7.0

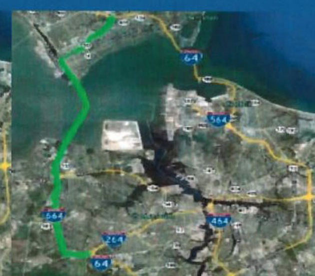
Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Hampton Roads Crossing

U.S. REGION: **South**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$19.0 – 38.0 B**
BENEFIT-COST RATIO: **4.0 – 7.0**





PROJECT SPONSORS:

- Virginia Department of Transportation

PROJECT DESCRIPTION

- The program would provide a new crossing parallel to the I-664 Monitor Merrimac Memorial Bridge Tunnel with a connection from the new bridge tunnel to Norfolk and Portsmouth.
- Widen I-664 to the I-64/I-264 interchange in Chesapeake, VA.
- New interchanges and connections for existing highways and new roadways, and a tunnel to the west of the existing I-664 Monitor Merrimac Memorial Bridge Tunnel for vehicular and multimodal traffic.

CONSIDERATIONS

- Improve accessibility, mobility, and goods movement to help relieve congestion at the existing I-64 Hampton Roads Bridge Tunnel.
- Connect ports, the military, and major freight corridors to controlled access highways.

Sources: (1) HRT Planning Organization

Hampton Roads Crossing

Photos Source: VDOT

PROJECT BENEFITS

- Reduces congestion at Hampton Roads Bridge Tunnel for an average of over 90,000 vehicles per day.
- Increases travel at underutilized Monitor Merrimac Memorial Bridge Tunnel by an average of over 63,000 vehicles per day.
- Other benefits include improved regional travel times, improved safety, direct connections to the port and Navy, accommodating future growth in the western part of the region.
- The Port of Virginia is able to accommodate post-Panamax ships and is a designated strategic military port.

PRIMARY CHALLENGES

- Funding

VIRGINIA MARKET SERVED:

Population (Census, 2015 value)		8,383,000
Employment (BLS, 2015 value)		3,812,000
GDP (BEA, 2014 value, $M)	$	462,861

STATES EAST OF THE MISSISSIPPI RIVER MARKETS SERVED:

Population (Census, 2015 value)		185,224,000
Employment (BLS, 2015 value)		82,689,000
GDP (BEA, 2014 value, $M)	$	9,727,377

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 8,171
Discounted Capital Cost	$ 6,328
Discounted Benefits	$ 25,312 – 44,296
Net Economic Benefits	$ 18,984 – 37,968
Benefit-Cost Ratio	4.0 – 7-0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Chicago CREATE

U.S. REGION: **Midwest**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$11.2 – 22.4 B**
BENEFIT-COST RATIO: **4.0 – 7.0**

Photos Source: createprogram.org

PROJECT SPONSORS:

- State of Illinois
- City of Chicago
- Metra
- Amtrak
- Freight railroads

CREATE
KEEPING THE GO IN CHICAGO

PROJECT DESCRIPTION

- CREATE will invest in improvements to increase the efficiency of the region's passenger and freight rail infrastructure and enhance the quality of life for Chicago-area residents.
- The full program includes 37 freight, 7 passenger, and 25 grade separation projects.

CONSIDERATIONS

- Due to geometric constraints and shared tracks with passenger operations, it can take up to 30 hours for freight trains to pass through the Chicago region.
- Freight rail delays lead to increased traffic congestion on roadways, generate unnecessary levels of air pollution, raise safety concerns, adversely affect the reliability and speed of rail passenger service, and make it harder for farmers to make a profit.
- At-grade rail crossings negatively impact communities and cause chronic traffic delays on roadways.

Sources: (1) CREATE Program

Chicago CREATE

PROJECT BENEFITS

- Reduced delay to passenger trains, freight trains, and motorists at grade separations and on the highway due to avoided truck traffic.
- Increased rail capacity and logistics cost savings through avoided truck diversions and avoided highway pavement damage.
- Safety from grade separation projects and truck travel avoided.
- Sustainability through fuel savings resulting from increased rail capacity and avoided truck trips, reduced motorist trips, and reduced emissions due to fuel savings.

PRIMARY CHALLENGES

- Funding

CHICAGO MSA MARKET SERVED:

Population (Census, 2014 value)	9,555,000
Employment (BLS, 2015 value)	4,557,000
GDP (BEA, 2014 value, $M)	$ 610,552

NATIONAL MARKETS SERVED:

Population (Census, 2015 value)	321,419,000
Employment (BLS, 2015 value)	141,958,000
GDP (BEA, 2014 value, $M)	$ 17,232,618

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost (total program)	$ 3,910
Discounted Capital Cost	$ 3,741
Discounted Benefits	$ 14,964 – 26,187
Net Economic Benefits	$ 11,223 – 22,446
Benefit-Cost Ratio	4.0 – 7.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Rural Water Supply Program

U.S. REGION: **West**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **$5.6 – 11.1 B**
BENEFIT-COST RATIO: **4.0 – 7.0**


Photo Source: EPA


Photo Source: EPA


Photo Source: Bureau of Reclamation

PROJECT SPONSORS:

- States of New Mexico, North Dakota, South Dakota, Minnesota, Montana and Iowa
- North Central Montana Regional Water Authority
- Rocky Boy's Reservation
- Garrison Diversion Conservancy District
- Eastern New Mexico Water Utility Authority
- Fort Peck Tribes
- Dry Prairie Rural Water Authority
- Bureau of Reclamation

PROJECT DESCRIPTION

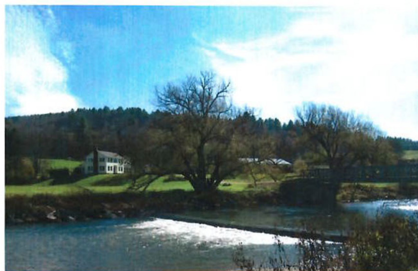
- As part of the Rural Water Supply Program, financial and technical assistance is provided to serve rural communities (less than 50,000 people) and Indian tribes and tribal organizations in 17 states, to undertake appraisal investigations and feasibility studies, however, construction of a project requires a specific Act of Congress.

CONSIDERATIONS

- Insufficient water is limiting economic growth and ability to meet demands of increasing population.
- Poor water quality and inconsistent water pressure due to aging infrastructure causing extensive regulatory violations and water system shutdowns.
- Some water supplies contain high levels of manganese, iron, sulfate, copper and other minerals unsafe for long-term human consumption.

Sources: Bureau of Reclamation and Project Sponsors

Rural Water Supply Program



Photos Source: EPA

PROJECT BENEFITS

- Deliver safe and reliable water supply to meet the long-term water needs of rural and disadvantaged communities.
- Expands economic development opportunities.

PRIMARY CHALLENGES

- Federal funding for selected projects has not been adequate to complete the project and does not cover cost increases due to inflation.
- A lack of Federal funding at an adequate level significantly extends each project's completion date, increasing the total project cost and affecting the sponsor's ability to provide matching funding.

AZ, CA, CO, ID, KS, MT, NE, NV, NM, ND, OK, OR, SD, TX, UT, WA, WY MARKETS SERVED:

Population* (Census, 2015 value)	111,678,000
Employment (BLS, 2015 value)	47,838,000
GDP (BEA, 2014 value, $M)	$ 6,233,933

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 2,236
Discounted Capital Cost	$ 1,854
Discounted Benefits	$ 7,416 – 12,978
Net Economic Benefits	$ 5,562 – 11,124
Benefit-Cost Ratio	4.0 – 7.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Northeast Corridor Improvements

U.S. REGION: **Northeast**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$75.0 – 225.0 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

NEC FUTURE
A Rail Investment Plan for the **Northeast Corridor**

Photos Source: NEC Future

PROJECT SPONSORS:

- Individual state DOTs, including Massachusetts, Connecticut, Rhode Island, Pennsylvania, New Jersey, New York, Delaware, Maryland, Virginia, and the District of Columbia
- Amtrak
- Federal Railroad Administration
- Corridor operators including SEPTA, NJTransit, MTA, MetroNorth, VRE, MARC, MBTA

PROJECT DESCRIPTION

- Improvements to passenger rail transportation in the Northeast Corridor from Washington, D.C. to Boston, MA. Growth in population and employment in the region, combined with changes in travel preference, will increasingly require a level of service and connectivity that cannot be supported by the existing corridor infrastructure.

CONSIDERATIONS

- The quality of service falls short due to the aging and obsolete infrastructure that has resulted from insufficient investment to maintain a state of good repair.
- A transportation system that provides capacity and options for reliable, efficient, environmentally sustainable, and cost-effective movement of passengers and goods is needed to support continued economic growth.

Sources: (1) NEC FUTURE

Northeast Corridor Improvements

Photos Source: NEC Future

PROJECT BENEFITS

- Collectively, the investments would improve the state of good repair and reliability.
- Travel times between the region's economic centers would be reduced.
- Improved reliability would benefit both intercity travelers and transit commuters who share the corridor.

PRIMARY CHALLENGES

- Funding
- Governance

DC, VA, MD, DE, NJ, PA, NY, CT, RI, AND MA MARKETS SERVED:

Population (Census, 2015 value)	69,005,000
Employment (BLS, 2015 value)	32,424,000
GDP (BEA, 2014 value, $M)	$ 4,355,899

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 100,800
Discounted Capital Cost	$ 75,000
Discounted Benefits	$ 150,000 – 300,000
Net Economic Benefits	$ 75,000 – 225,000
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Southeast High Speed Rail

U.S. REGION: **South**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$4.3 – 12.8 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

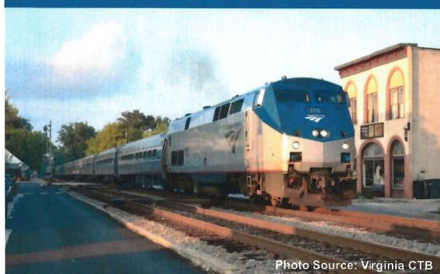


Photo Source: Virginia CTB


Photo Source: GDOT

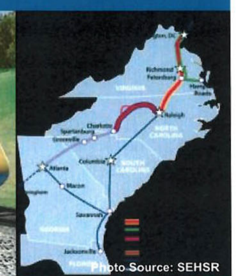


Photo Source: SEHSR

PROJECT SPONSORS:

- Individual state DOTs, including DC, Virginia, North Carolina, South Carolina, and Georgia
- Federal Railroad Administration

PROJECT DESCRIPTION

- Extending high-speed passenger rail services from Washington, D.C. south through Richmond, Hampton Roads, Raleigh, Charlotte, and Atlanta.
- SEHSR would connect to the Northeast Corridor in Washington, DC.

CONSIDERATIONS

- The goal is to improve intercity travel and mobility between Atlanta and DC by expanding the region's transportation capacity and reliable mode choices through improvements in passenger rail services.
- Parts of the corridor, especially along I-95, are highly congested. Regional highways and the airports along the Eastern seaboard are nearing the limits of capacity.

Sources: (1) Southeast Corridor PRCIP SDP

Southeast High Speed Rail


Photo Source: dc2rvarail.com


Photo Source: NC DOT

PROJECT BENEFITS

- Reductions in passenger vehicles result in safety savings, emissions reductions, highway congestion savings, highway maintenance savings, and land value accretion.
- The availability of a reliable and high-speed connection between the region's economic centers would support long-term economic development in the region.

PRIMARY CHALLENGES

- Funding
- Trackage rights agreements

DC, VA, NC, SC, AND GA MARKETS SERVED:

Population (Census, 2015 value)	34,209,000
Employment (BLS, 2015 value)	15,082,000
GDP (BEA, 2014 value, $M)	$ 1,725,090

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 4,644
Discounted Capital Cost	$ 4,254
Discounted Benefits	$ 8,508 – 17,016
Net Economic Benefits	$ 4,254 – 12,762
Benefit-Cost Ratio	2.0 – 4.0

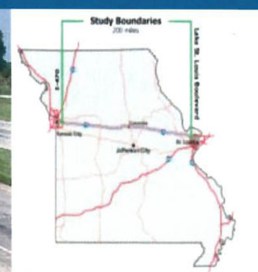
Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

I-70 Missouri

U.S. REGION: **Midwest**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$3.9 – 11.6 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: improvei70.org



PROJECT SPONSORS:

- Missouri Department of Transportation

PROGRAM:

- National Interstate Highway System

PROJECT DESCRIPTION

- Reconstruct and add capacity (approximately 200 miles) in Missouri between Kansas City and St. Louis. The corridor is truck-heavy both between Kansas City and St. Louis and also as part of interstate routes.

CONSIDERATIONS

- I-70 is the most important transportation corridor in Missouri, connecting the state's two largest cities and carrying more rural daily traffic than any other route.
- Many portions of the facility are strained beyond capacity, increasing delays and dampening economic activity. Deteriorating pavement and poorly functioning interchanges compound the problem.
- By the year 2030, all segments of I-70 are expected to operate at unacceptable levels of service.

I-70 Missouri

Photo Source: improvei170.org

PROJECT BENEFITS

- The increased capacity and improved roadway geometrics will improve operational conditions, relieve congestion and reduce the density of traveling vehicles, thereby reducing the crash rate, improving freight movement efficiencies, and providing increased accessibility to recreational activities.
- The project will upgrade substandard bridges, interchanges, and roadways.
- The selected alternative will generally be constructed along the existing alignment to preserve the general location of the existing facility.
- Additional lanes and frontage roads will allow for redundancies and improve response times to regional and national emergencies.

PRIMARY CHALLENGES

- Funding

MISSOURI MARKET SERVED:

Population (Census, 2015 value)		6,084,000
Employment (BLS, 2015 value)		2,764,000
GDP (BEA, 2014 value, $M)	$	279,835

KANSAS, MISSOURI, AND ILLINOIS MARKETS SERVED:

Population (Census, 2015 value)		21,855,000
Employment (BLS, 2015 value)		10,086,000
GDP (BEA, 2014 value, $M)	$	1,160,527

ECONOMIC BENEFITS AND COSTS

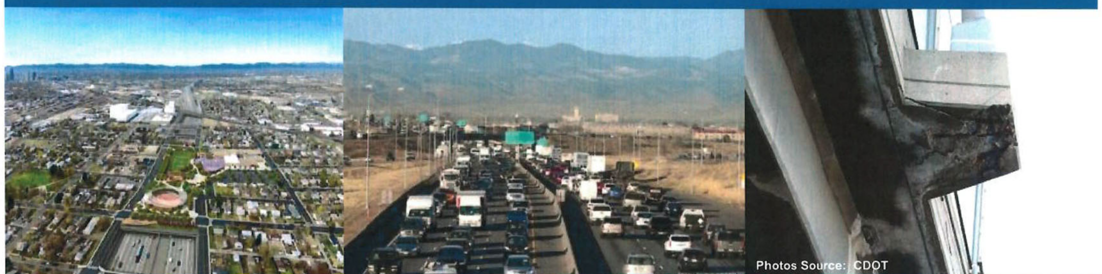
		2015$ (M)
Capital Cost	$	4,208
Discounted Capital Cost	$	3,854
Discounted Benefits	$	7,708 – 15, 416
Net Economic Benefits	$	3,854 – 11,562
Benefit-Cost Ratio		2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

I-70 East

U.S. REGION: **West**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **> $15.7 B**
BENEFIT-COST RATIO: **> 10.0**



Photos Source: CDOT

PROJECT SPONSORS:

- Colorado Department of Transportation

PROGAM:

- Recapitalization of the National Interstate Highway System

PROJECT DESCRIPTION

- The project in Denver would remove the deteriorating, 50-year old viaduct, rebuild I-70 below grade on the existing alignment, and place a nearly four-acre landscaped cover over the highway between Columbine Street and Clayton Street. It also would add managed lanes in each direction of the highway from I-25 to Tower Road to improve mobility.

CONSIDERATIONS

- The purpose of the project is to implement a transportation solution that improves safety, access, and mobility and addresses congestion on I-70, a key east-west national corridor.
- The need arises from increased transportation demand, limited transportation capacity, safety concerns, and transportation infrastructure deficiencies in the corridor.
- The corridor also connects to a nationally-recognized bottleneck at the intersection of I-70 and I-25.

Sources: (1) FHWA

I-70 East

Photos Source: CDOT

PROJECT BENEFITS

- The addition of new lanes, improvement to ramps, addition of auxiliary lanes, improvements to roadways, and modification of interchanges will better facilitate traffic movements.
- Implementation of managed lanes will provide additional benefits to operations of I-70 as a whole, will preserve capacity on I-70, and will provide reliable travel times. The general purpose lanes in these alternatives will operate slightly less efficiently than the managed lanes.
- Daily vehicle hours traveled will decrease with the build alternative, resulting in travel time savings for users.

PRIMARY CHALLENGES

- Funding

COLORADO MARKET SERVED:

Population (Census, 2015 value)		5,457,000
Employment (BLS, 2015 value)		2,516,000
GDP (BEA, 2014 value, $M)	$	305,871

UTAH, COLORADO, AND KANSAS MARKETS SERVED:

Population (Census, 2015 value)		11,364,000
Employment (BLS, 2015 value)		5,298,000
GDP (BEA, 2014 value, $M)	$	590,309

ECONOMIC BENEFITS AND COSTS

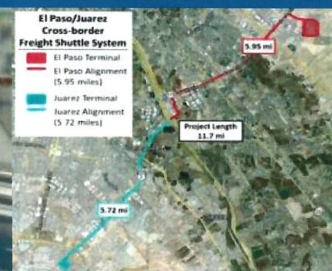
	2015$ (M)	
Capital Cost	$	1,904
Discounted Capital Cost	$	1,744
Discounted Benefits	$	>17,440
Net Economic Benefits	$	>15,696
Benefit-Cost Ratio		>10.0

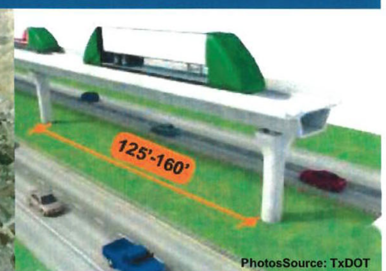
Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Texas Freight Shuttle System

U.S. REGION: **South**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **> $9.4 B**
BENEFIT-COST RATIO: **> 10.0**





PhotosSource: TxDOT

PROJECT SPONSORS:

- TxDOT
- Freight Shuttle International
- Texas A&M Transportation Institute
- FSS Consortium

PROJECT DESCRIPTION

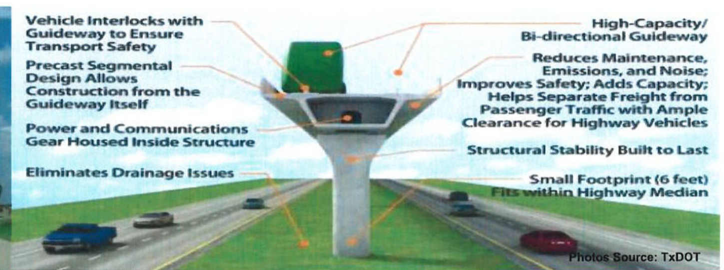
- The Freight Shuttle System (FSS) is an automated system of transport vehicles operating on an elevated and secure guideway between specially designed, secure terminals.
- The project would construct 11.7 miles of cross-border FSS connecting El Paso, TX to Cuidad Juarez, Mexico.
- FSS will use single-unit transporters propelled by linear induction motors to move freight on an electric, elevated guideway built on highway right-of-way or other available public or private ROW.

CONSIDERATIONS

- Major landside ports-of-entry to the U.S., including those along the U.S./Mexico border, experience truck volumes during peak hours that exceed capacity. In addition, the existing border crossing processes are inefficient.

Source: TxDOT

Texas Freight Shuttle System



Photos Source: TxDOT

PROJECT BENEFITS

- Reduces border congestion, security, infrastructure damage, air quality, carbon emissions and fossil fuel dependency.
- Enables trucking interests, retailers and manufacturers to improve their supply chain efficiency by automating freight movement.

PRIMARY CHALLENGES

- Funding

NATIONAL MARKET SERVED:

Population (Census, 2014 value)		321,413,000
Employment (BLS, 2015 value)		141,958,000
GDP (BEA, 2014 value, $M)	$	17,232,618

ECONOMIC BENEFITS AND COSTS

		2015$ (M)
Capital Cost	$	1,094
Discounted Capital Cost	$	1,046
Discounted Benefits	$	>10,460
Net Economic Benefits	$	>9,414
Benefit-Cost Ratio		>10.0

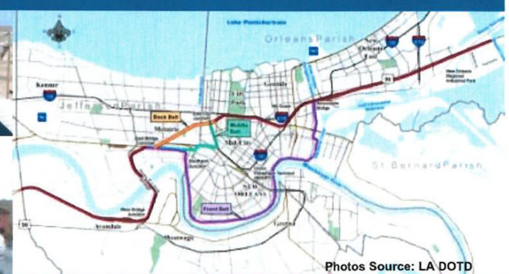
Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

New Orleans Rail Gateway

U.S. REGION: **South**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **> $5.5 B**
BENEFIT-COST RATIO: **> 10.0**

NEW ORLEANS
RAIL GATEWAY PROGRAM
AN ECONOMIC ENGINE FOR OUR COMMUNITY



Photos Source: LA DOTD

PROJECT SPONSORS:

- Louisiana Department of Transportation and Development
- New Orleans Regional Planning Commission
- Freight operators

PROJECT DESCRIPTION

- The New Orleans Rail Gateway is the fourth largest in the country. Upgrades are required to accommodate growing rail traffic. The Project is a program of individual improvements designed to collectively reduce vehicle congestion, correct rail and roadway physical and operational deficiencies, improve safety, and facilitate emergency evacuation from the region. Significant planning work is ongoing.

CONSIDERATIONS

- The New Orleans Gateway is one of five major rail interchange points between the eastern and western Class I railroads and also has one of the four major Mississippi River rail bridges. The Gateway rail network is operating near capacity with freight trains experiencing a combined 30 hours of delay per day.

Sources: (1) LA DOTD (2) New Orleans Rail Gateway Infrastructure Feasibility Analysis

New Orleans Rail Gateway

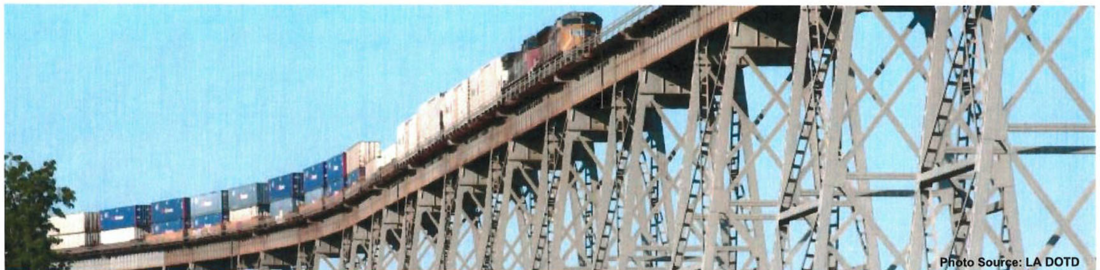


Photo Source: LA DOTD

PROJECT BENEFITS

- Addressing capacity constraints and delay issues could expedite the transfer of railcars between the eastern and western railroads, reduce transit time and costs that are borne by shippers, and eventually benefit the consumer by providing a lower cost of living.

PRIMARY CHALLENGES

- Funding
- Governance and coordination of multiple stakeholder interests

NEW ORLEANS MSA MARKET SERVED:

Population (Census, 2014 value)		1,252,000
Employment (BLS, 2015 value)		563,000
GDP (BEA, 2014 value, $M)	$	80,278

NATIONAL MARKET SERVED:

Population (Census, 2015 value)		321,413,000
Employment (BLS, 2015 value)		141,958,000
GDP (BEA, 2014 value, $M)	$	17,232,618

ECONOMIC BENEFITS AND COSTS

	2015$ (M)	
Capital Cost	$	721
Discounted Capital Cost	$	615
Discounted Benefits	$	>6,150
Net Economic Benefits	$	>5,535
Benefit-Cost Ratio	>10.0	

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Mississippi River Crossing

U.S. REGION: **South**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **> $5.0 B**
BENEFIT-COST RATIO: **> 10.0**

Photos Source: TDOT

PROJECT SPONSORS:

- Tennessee Department of Transportation
- Arkansas Department of Transportation

PROJECT DESCRIPTION

- The new bridge will improve cross-river mobility for people and freight in the Memphis, Tennessee area. This includes safeguarding cross-river mobility against earthquakes, crashes, hostile acts, or other catastrophe to maintain local, regional, and national traffic flow and commerce.

CONSIDERATIONS

- The Memphis area is a major multi-modal distribution center with limited rail and highway crossings of the Mississippi River. The crossings are susceptible to bridge failure and closures or restrictions due to vehicular incidents, earthquakes, and other catastrophes.
- There are two highway bridge crossings near downtown, but there is little highway redundancy north or south of Memphis since the next nearest bridge crossings lie 70 miles to the south and 90 miles to the north.

Source: Mississippi River Crossing Feasibility and Location Study

Mississippi River Crossing


Photo Source: TDOT

PROJECT BENEFITS

- Mobility for future growth including lower transportation costs for goods, enhanced productivity, and competitiveness for Memphis area businesses.
- Capacity relief will decrease operating costs and travel times, and improve economic competitiveness for businesses in the region and increase the quality of life for residents.
- Enhance freight movement for the five Class 1 railroads that serve Memphis and the inland port.
- Meet current and future transportation demand as traffic continues to increase and freight traffic is expected to double in the next two decades.
- Improve efficiency and effectiveness of the transportation system by diverting traffic from the downtown crossings and providing an alternate route.

PRIMARY CHALLENGES

- Funding

TENNESSEE, ARKANSAS, AND MISSISSIPPI MARKETS SERVED:

Population (Census, 2015 value)		12,571,000
Employment (BLS, 2015 value)		5,206,000
GDP (BEA, 2014 value, $M)	$	521,947

ECONOMIC BENEFITS AND COSTS

	2015$ (M)	
Capital Cost	$	603
Discounted Capital Cost	$	561
Total Discounted Benefits	$	>5,610
Net Economic Benefits	$	> 5,049
Benefit-Cost Ratio		>10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Medium Diversion at White Ditch

U.S. REGION: **South**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **> $3.5 B**
BENEFIT-COST RATIO: **> 10.0**

PROJECT SPONSORS:

- Coastal Protection and Restoration Authority
- US Army Corps of Engineers

PROGRAM:

- Louisiana Coastal Area Program

PROJECT DESCRIPTION

- Construct diversion to provide additional freshwater, nutrients, and fine sediment to the area between the Mississippi River and River aux Chenes ridges for wetland restoration.
- Restore functional hydrology and improve habitat conditions for fish and wildlife.

CONSIDERATIONS

- Wetlands deteriorating due to subsidence, lack of sediment and nutrient deposition, and erosion.
- Recent hurricanes and tropical storms have also caused significant damage and land loss.
- With an average loss of about 275 acres of marsh per year, the ecosystem is vulnerable to complete collapse.

Sources: USACE, CPRA

Medium Diversion at White Ditch

PROJECT BENEFITS

- Restore and maintain ecological integrity, including habitats, communities, and populations of native species.
- Contribute to achieving and sustaining a larger coastal ecosystem that can support and protect the environment, economy, and culture of southern Louisiana.
- Maintain the current marsh habitat of 41,200 acres by restoring sediment inputs averaging about 1.3 million cubic yards per year.
- Restore functional hydrology.

PRIMARY CHALLENGES

- Recommended plan exceeds the cost authorization for this project.
- Pending agreement between USACE and the State of Louisiana.

LOUISIANA MARKET SERVED:

Population (Census, 2015 value)	4,671,000
Employment (BLS, 2015 value)	1,987,000
GDP (BEA, 2014 value, $M)	$ 251,673

ECONOMIC BENEFITS AND COSTS

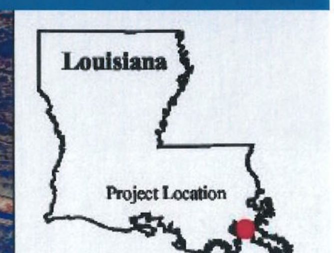
	2015$ (M)
Capital Cost	$ 421
Discounted Capital Cost	$ 391
Discounted Benefits	$ >3,910
Net Economic Benefits	$ >3,519
Benefit-Cost Ratio	>10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Medium Diversion at Myrtle Grove

U.S. REGION: **South**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **> $2.5 B**
BENEFIT-COST RATIO: **> 10.0**



Photos Source: USACE

PROJECT SPONSORS:

- Coastal Protection and Restoration Authority
- US Army Corps of Engineers

PROGRAM:

- Louisiana Coastal Area Program

PROJECT DESCRIPTION

- Construct control structure to divert additional sediment and nutrients to nourish highly degraded existing fresh to brackish wetlands in shallow open water areas.
- Compliment sediment diversion through dedicated dredging along the Mississippi River.

CONSIDERATIONS

- Substantial loss of wetlands with a shift to more saline marshes in the last 50 years.
- Moderately high wetland loss rates are primarily caused by the altered hydrology associated with navigation and flood control projects, as well as oil and gas activities.
- Without remediation, about 14,500 acres of wetlands will be lost over the next 20 years and wetland types will continue to shift towards more saline habitats.

Sources: USACE, CPRA

Medium Diversion at Myrtle Grove

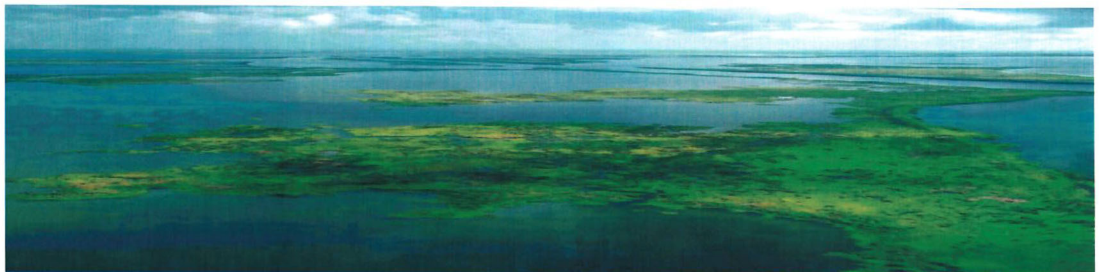


Photo Source: USACE

PROJECT BENEFITS

- Provide up to 13,400 acres of new emergent marsh and prevent the loss of another 6,300 acres of marsh.
- Restore and maintain ecological integrity, including habitats, communities, and populations of native species.
- Contribute to achieving and sustaining a larger coastal ecosystem that can support and protect the environment, economy, and culture of southern Louisiana.
- Sustainable reintroduction of riverine resources.
- Preservation and maintenance of critical coastal geomorphic structures and critical areas within the coastal ecosystem.

PRIMARY CHALLENGES

- Funding has not been obligated to construct project (partial funding could come from Coastal Wetlands Planning Protection and Restoration Act).
- Pending agreement between USACE and the State of Louisiana.

LOUISIANA MARKET SERVED:

Population (Census, 2015 value)		4,671,000
Employment (BLS, 2015 value)		1,987,000
GDP (BEA, 2014 value, $M)	$	251,673

ECONOMIC BENEFITS AND COSTS

	2015$ (M)	
Capital Cost	$	302
Discounted Capital Cost	$	281
Discounted Benefits	$	>2,810
Net Economic Benefits	$	>2,529
Benefit-Cost Ratio	>10.0	

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Brent Spence Bridge

U.S. REGION: **Midwest**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$14.9 – 22.3 B**
BENEFIT-COST RATIO: **7.0 – 10.0**

Photos Source: brentspencebridgecorridor.com

PROJECT SPONSORS:

- Ohio and Kentucky state Departments of Transportation

PROGAM:

- Recapitalization of the National Interstate Highway System

PROJECT DESCRIPTION

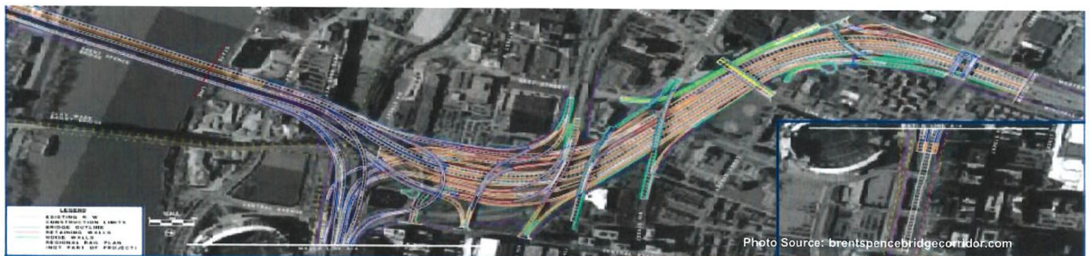
- The bridge carries both I-75 and I-71 traffic through the Greater Cincinnati and Northern Kentucky area, but it also connects 10 States (including Kentucky and Ohio) from as far north as Michigan to as far south as Florida.
- The bridge was listed as "functionally obsolete" by the National Bridge Inventory in 1998, due in large part to limited visibility and safety concerns.

CONSIDERATIONS

- The Brent Spence Bridge is a key part of America's mid-west transportation infrastructure and is important to commerce in Alabama, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Michigan, Ohio and Tennessee. The aging bridge does not adequately serve current volume and certainly cannot meet increasing demand.

Sources: (1) Report to Congress

Brent Spence Bridge



PROJECT BENEFITS

- The project will improve delivery times, reduce congestion costs resulting from excessive time spent in traffic, and improve national productivity and economic performance.
- Other positive impacts include economic returns on increased transportation network efficiencies.

PRIMARY CHALLENGES

- Funding
- Disagreements between Ohio and Kentucky and local communities about proposed tolls for the bridge

OHIO AND KENTUCKY MARKETS SERVED:

Population (Census, 2015 value)	16,039,000
Employment (BLS, 2015 value)	7,293,000
GDP (BEA, 2014 value, $M)	$ 763,845

ECONOMIC BENEFITS AND COSTS

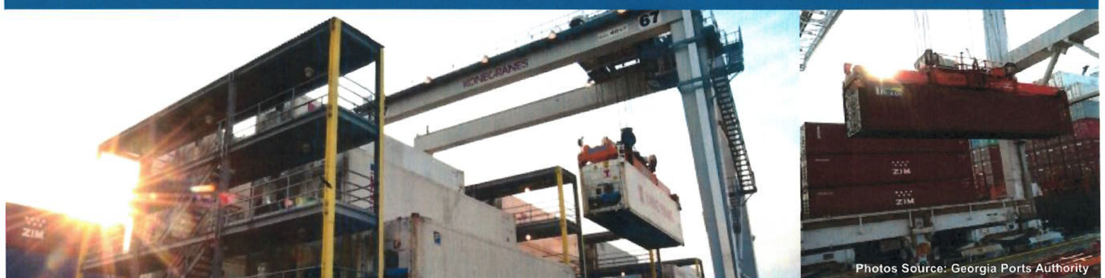
	2015$ (M)
Capital Cost	$ 2,826
Discounted Capital Cost	$ 2,480
Discounted Benefits	$ 17,360 – 24,800
Net Economic Benefits	$ 14,880 – 22,320
Benefit-Cost Ratio	7.0 – 10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Savannah Harbor Expansion

U.S. REGION: **South**
PROJECT TYPE: **Ports-Waterways**

NET ECONOMIC BENEFIT: **$3.8 – 5.7 B**
BENEFIT-COST RATIO: **7.0 – 10.0**



Photos Source: Georgia Ports Authority

PROJECT SPONSORS:

- Georgia Ports Authority
- US Army Corps of Engineers

Georgia Ports Authority
WE DO MORE

PROJECT DESCRIPTION

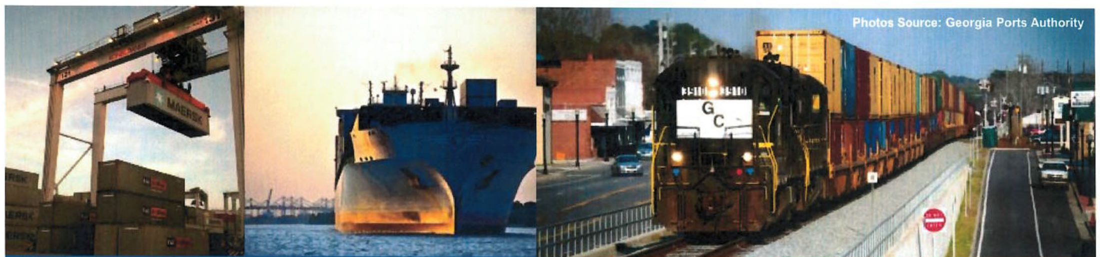
- Deepen the Savannah Harbor federal shipping channel from a depth of 42 feet to 47 feet
- Extend entrance channel by 7 miles
- Construct three bend wideners and two meeting areas
- Enlarge turning basin and terminals

CONSIDERATIONS

- Port is not able to efficiently accommodate the growing number of large container vessels demanded of world trade.

Sources: USACE, Georgia Ports Authority

Savannah Harbor Expansion



Photos Source: Georgia Ports Authority

PROJECT BENEFITS

- Reduction in harbor transit times and consequent vessel delays.
- Reduced meeting area and tide delays as a result of channel modifications, which reduce congestion within the harbor.
- Able to accommodate supersized cargo ships expected to begin arriving through an expanded Panama Canal.

PRIMARY CHALLENGES

- Available funding (federal plus local) does not currently cover the project cost, extending the project completion date, increasing the total project cost.

GEORGIA MARKET SERVED:

Population (Census, 2015 value)	10,215,000
Employment (BLS, 2015 value)	4,260,000
GDP (BEA, 2014 value, $M)	$ 474,697

STATES EAST OF MISSISSIPPI RIVER MARKET SERVED:

Population (Census, 2015 value)	185,224,000
Employment (BLS, 2015 value)	82,689,000
GDP (BEA, 2014 value, $M)	$ 9,727,377

ECONOMIC BENEFITS AND COSTS

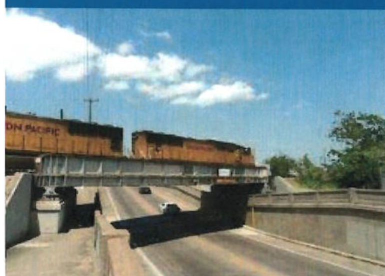
	2015$ (M)
Capital Cost	$ 691
Discounted Capital Cost	$ 633
Discounted Benefits	$ 4,431 – 6,330
Net Economic Benefits	$ 3,798 – 5,697
Benefit-Cost Ratio	7.0 – 10.0

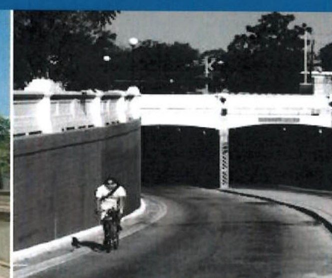
Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs

Houston-Galveston Grade Crossing Improvements

U.S. REGION: **South**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$2.4 – 3.6 B**
BENEFIT-COST RATIO: **7.0 – 10.0**





Photos Source: Gulf Coast Rail District

PROJECT SPONSORS:

- Gulf Coast Rail District

PROJECT DESCRIPTION

- Rail infrastructure investments included those designed to address congestion at key locations in the 8-county Greater Houston region. Additional investments were proposed to improve the throughput capacity for existing mainline tracks by making investments in yards, switching, and track capacity designed to increase train speeds and improve system operating performance.

CONSIDERATIONS

- Shippers expressed a general dissatisfaction with the quality and quantity of rail infrastructure in the Houston region.
- Although businesses in several sectors are ready to make expansions and investment decisions, they are hesitant due to chronic congestion in specific subdivisions in the rail system.

Sources: (1) Gulf Coast Freight Rail District

Houston-Galveston Grade Crossing Improvements

Photos Source: Gulf Coast Rail District

PROJECT BENEFITS

- Addresses congestion at five of the most significant rail system bottlenecks in the region.
- Extensions and expansions of second main tracks, and extension of the Englewood East yard tracks to increase the receiving capacity for the Englewood Yards.
- New trackage is designed to relieve congestion by allowing trains to pass one another along the highly trafficked Glidden Subdivision.
- Re-routing of about 30 trains from the East Belt to the West Belt, thereby reducing overall train delays.

PRIMARY CHALLENGES

- Funding

TEXAS MARKET SERVED:

Population (Census, 2015 value)	27,469,000
Employment (BLS, 2015 value)	11,807,000
GDP (BEA, 2014 value, $M)	$ 1,641,044

ECONOMIC BENEFITS AND COSTS

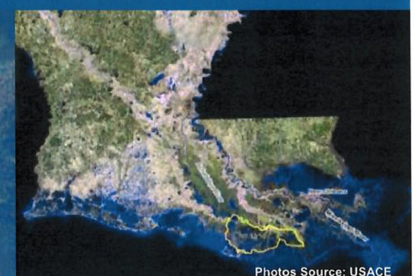
	2015$ (M)
Capital Cost	$ 433
Discounted Capital Cost	$ 402
Discounted Benefits	$ 2,814 – 4,020
Net Economic Benefits	$ 2,412 – 3,618
Benefit-Cost Ratio	7.0 – 10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

ARTM/MOHNL

U.S. REGION: **South**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **$1.8 – 2.7 B**
BENEFIT-COST RATIO: **7.0 – 10.0**



Photos Source: USACE

PROJECT SPONSORS:

- Coastal Protection and Restoration Authority
- US Army Corps of Engineers

PROGRAM:

- Louisiana Coastal Area Program

PROJECT DESCRIPTION

- Convey Atchafalaya River Water to Northern Terrebonne Marshes and Multipurpose Operation of the Houma Navigation Lock (ARTM/MOHNL) will increase freshwater flow into the northern Terrebonne Marshes through repairing banks along the GIWW, enlarging constrictions in the GIWW, and diverting additional Atchafalaya River freshwater into the Bayou Chene/GIWW system.

CONSIDERATIONS

- Natural processes combined with human activities have accelerated wetland loss and ecosystem degradation to the Northern Terrebonne Marshes.
- Loss of wetlands will have negative impacts on essential fish habitats and threatened and endangered species, as well as potential impacts to oil and gas infrastructure and navigable waterways, which currently benefit from protection provided by the wetlands.

Sources: USACE, CPRA

ARTM/MOHNL

Photos Source: USACE

PROJECT BENEFITS

- Restore and maintain ecological integrity, including habitats, communities, and populations of native species.
- Prevent, reduce, and/or reverse future wetland loss.
- Achieve and maintain characteristics of sustainable marsh hydrology.
- Increase sediment and nutrient load to surrounding wetlands.
- Increase residence time of freshwater and reduce salinity levels.

PRIMARY CHALLENGES

- Pending agreement between USACE and the State of Louisiana

LOUISIANA MARKET SERVED:

Population (Census, 2015 value)		4,671,000
Employment (BLS, 2015 value)		1,987,000
GDP (BEA, 2014 value, $M)	$	251,673

ECONOMIC BENEFITS AND COSTS

	2015$ (M)	
Capital Cost	$	332
Discounted Capital Cost	$	304
Discounted Benefits	$	2,128 – 3,040
Net Economic Benefits	$	1,824 – 2,736
Benefit-Cost Ratio	7.0 – 10.0	

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Boston Harbor Dredging

U.S. REGION: **Northeast**
PROJECT TYPE: **Ports-Waterways**

NET ECONOMIC BENEFIT: **$1.8 – 2.6 B**
BENEFIT-COST RATIO: **7.0 – 10.0**

Photos Source: Massport

PROJECT SPONSORS:

- Massachusetts Port Authority
- US Army Corps of Engineers

PROJECT DESCRIPTION

- Widen and deepen main shipping channel to a depth of 47 feet.
- Additional shipping channels in port will be deepened to a depth of 40 feet.

CONSIDERATIONS

- Growth in waterborne shipping of containers and bulk commodities is constrained by lack of adequate channel dimensions, particularly depth, to meet the needs of Massport, its customers, and other terminal operators.
- Port is not able to efficiently accommodate the growing number of large container vessels demanded of world trade.

Sources: USACE, Massachusetts Port Authority

Boston Harbor Dredging

PROJECT BENEFITS

- Effectively and efficiently accommodating existing and prospective deep-draft vessel traffic in the Port of Boston.
- Minimize the cost of transporting existing cargo volumes and anticipated future increases in cargo volumes to and from New England in an environmentally acceptable and sustainable manner.
- Use of dredged material, particularly the large volume of rock that channel deepening would yield, for habitat creation and enhancement or other purposes.

PRIMARY CHALLENGES

- Available funding (federal plus local) covers design work but not the full capital project cost, extending the project completion date and increasing the final cost to deliver the project.

MASSACHUSETTS MARKET SERVED:

Population (Census, 2015 value)	6,794,000
Employment (BLS, 2015 value)	3,482,000
GDP (BEA, 2014 value, $M)	$ 455,732

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 317
Discounted Capital Cost	$ 294
Discounted Benefits	$ 2,058 – 2,940
Net Economic Benefits	$ 1,764 – 2,646
Benefit-Cost Ratio	7.0 – 10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs

I-35 Trade Corridor

U.S. REGION: **Midwest**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$41.1 – 82.2 B**
BENEFIT-COST RATIO: **4.0 – 7.0**

Photo Source: USDOT

Photo Source: Public Domain

Photo Source: USDOT

PROJECT SPONSORS:

- Texas, Oklahoma, Kansas, Missouri, Iowa, and Minnesota state Departments of Transportation

PROGAM:

- Recapitalization of the National Interstate Highway System

PROJECT DESCRIPTION

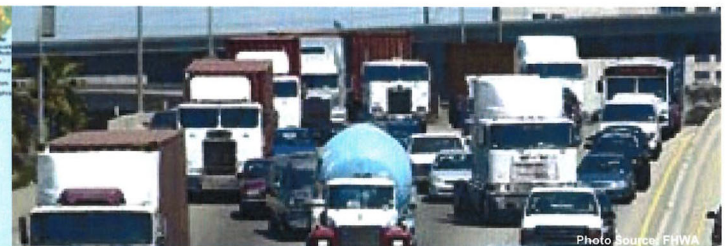
- Recommended investment strategy for upgrading the I-35 Corridor from Texas to Minnesota to accommodate future public traffic volumes as allowed by available right of way. Includes maintaining the existing facility to rehabilitate pavements and bridge decks.
- Upgrades bridge structures to maintain integrity and widens I-35 along approximately 65% of the route to meet demand.
- Includes special provisions for truck-only lanes. Connections enhance NAFTA trade between Mexico, the US, and Canada.

CONSIDERATIONS

- I-35 is ideally positioned to be a major route for increasing levels of international trade activity. Project presents a strategy to guide future, potential improvements to I-35.

Sources: (1) Iowa DOT

I-35 Trade Corridor



PROJECT BENEFITS

- Implementation of improvements along I-35 will improve travel times along the corridor and reduce vehicle operating costs and accident costs.
- The economic impact of the project will support jobs, income, wages, and value added.
- Encourage NAFTA-related trade.

PRIMARY CHALLENGES

- Funding
- Cohesive planning among impacted states

TEXAS, OKLAHOMA, KANSAS, MISSOURI, IOWA, AND MINNESOTA MARKETS SERVED:

Population (Census, 2015 value)	48,989,000
Employment (BLS, 2015 value)	22,060,000
GDP (BEA, 2014 value, $M)	$ 2,735,404

ECONOMIC BENEFITS AND COSTS

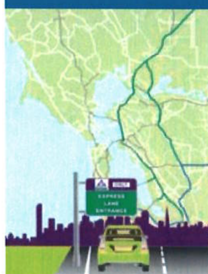
	2015$ (M)
Capital Cost	$ 15,606
Discounted Capital Cost	$ 13,693
Discounted Benefits	$ 54,772 – 95,851
Net Economic Benefits	$ 41,079 – 82,158
Benefit-Cost Ratio	4.0 – 7.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

MTC Managed Lanes

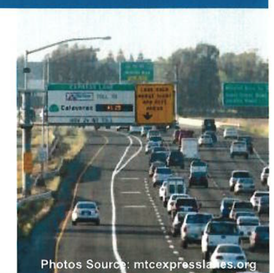
U.S. REGION: **West**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$4.8 – 9.6 B**
BENEFIT-COST RATIO: **4.0 – 7.0**



BAY AREA EXPRESS LANES

METROPOLITAN TRANSPORTATION COMMISSION



Photos Source: mtcexpresslanes.org

PROJECT SPONSORS:

- Alameda County Transportation Commission (ACTC)
- Metropolitan Transportation Commission (MTC)
- California Highway Patrol (CHP)
- Caltrans
- Contra Costa Transportation Authority (CCTA)
- Solano Transportation Authority (STA)

PROJECT DESCRIPTION

- The Express Lanes network is comprised of specially-designated highway lanes (HOV, HOT, express toll lanes) throughout the San Francisco Bay Area operated under MTC.
- The mission of Express Lanes is to provide a reliable travel choice, encourage ridesharing and bus ridership, as well as create transparency for customers.

CONSIDERATIONS

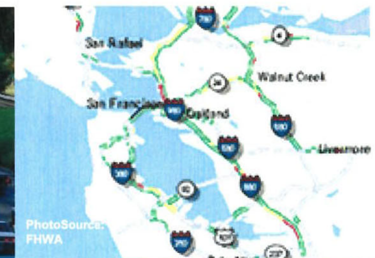
- Persistent congestion on Bay Area freeways continues to cause significant delay, emissions, and lost productivity for Bay Area travelers.
- Given current congestion, projected population and job growth, increased travel demand, limited opportunities for system expansion, and scarce transportation funding, the Bay Area must take a harder look at ways to more actively manage the performance of its transportation system, particularly the freeways.

Sources: (1) MTC

MTC Managed Lanes


Photo Source: Public Domain image attributed to Kevin Casper


Photo Source: FHWA



PhotoSource: FHWA

PROJECT BENEFITS

- Express/managed lanes are designed to improve overall mobility in the Bay Area.
- Express Lanes are free for qualifying carpools, vanpools, motorcycles and other toll-exempt vehicles.

PRIMARY CHALLENGES

- Funding

SAN FRANCISCO MSA MARKET SERVED:

Population (Census, 2014 value)		4,594,000
Employment (BLS, 2015 value)		2,255,000
GDP (BEA, 2014 value, $M)	$	411,969

ECONOMIC BENEFITS AND COSTS

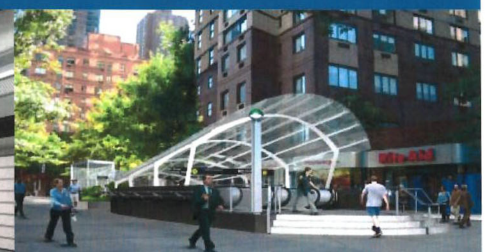
	2015$ (M)	
Capital Cost	$	2,000
Discounted Capital Cost	$	1,592
Discounted Benefits	$	6,368 – 11,114
Net Economic Benefits	$	4,776 – 9,552
Benefit-Cost Ratio		4.0 – 7.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

2nd Avenue Subway – Phase 2

U.S. REGION: **Northeast**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$11.1 – 33.2 B**
BENEFIT-COST RATIO: **2.0 – 4.0**



Photos Source: MTA

PROJECT SPONSORS:

- New York MTA
- Federal Transit Administration

PROJECT DESCRIPTION

- Extension of the 2nd Avenue Subway in New York City from 125th Street to Wall Street.
- Builds on the Phase I investment which is substantially complete.

CONSIDERATIONS

- The area served by the 2nd Avenue Subway is the densest, highest value commercial corridor in the nation.
- The existing Lexington Line provides north-south mobility and operates at full capacity during peak periods. There is no ability for the transit system to support additional growth.
- Without the ability of New York's transit system to accommodate additional growth, the competitiveness of the nation's largest urban economy will erode.

Sources: (1) City University of New York

2nd Avenue Subway – Phase 2

PROJECT BENEFITS

- Will decrease crowding on the adjacent Lexington Avenue Line.
- Improved access to labor and businesses.
- Reduce travel times for those on the far east side of Manhattan and those traveling from the east side to west Midtown.

PRIMARY CHALLENGES

- Funding for Phase 2

NEW YORK CITY MSA MARKET SERVED:

Population (Census, 2014 value)		20,093,000
Employment (BLS, 2015 value)		9,279,000
GDP (BEA, 2014 value, $M)	$	1,558,518

ECONOMIC BENEFITS AND COSTS

	2015$ (M)	
Capital Cost	$	12,600
Discounted Capital Cost	$	11,056
Discounted Benefits	$	22,112 – 44,224
Net Economic Benefits	$	11,056 – 33,168
Benefit-Cost Ratio		2.0 – 4.0

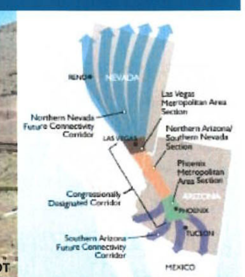
Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

I-11 Corridor

U.S. REGION: **West**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$9.7 – 29.1 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: AZDOT



PROJECT SPONSORS:

- Arizona Department of Transportation
- Nevada Department of Transportation

PROJECT DESCRIPTION

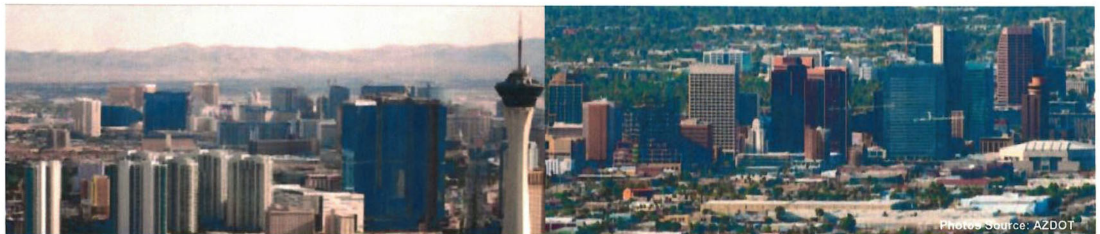
- Bi-state Corridor interstate highway to link Phoenix, AZ and Las Vegas, NV, as well as new routes north and south of both cities via the potential Intermountain West Corridor.

CONSIDERATIONS

- This investment would address ongoing growth in the regional economy, while providing the Intermountain West with needed north-south transportation capacity to expand its manufacturing capabilities with Mexico and Canada.
- Phoenix and Las Vegas are the largest neighboring cities not connected by an interstate. This connection would support the growth of the Megaregions in the Southwest.

Sources: (1) Nevada and Arizona DOTs

I-11 Corridor



Photos Source: AZDOT

PROJECT BENEFITS

- Travel time savings and vehicle operating cost savings result from improved reliability and changes in average network speeds with the project.
- The I-11 and Intermountain West Corridor may result in new trips that would not have otherwise been made. Induced trips create both travel time and vehicle operating cost impacts, as well as increased economic and social activity.
- Safety benefits occur as traffic switches to the safer Interstate level road.
- Crash reduction factors for new roadway improvements as well as changes in VMT results in safety benefits.
- Due to more reliable transport times and lower transport costs as a result of the I-11 and Intermountain West Corridor improvements, local manufacturers may choose to hold less inventory and reduce overhead costs. As a result, the manufacturing and machinery industries may become more competitive or profitable, resulting in freight logistics benefits.

PRIMARY CHALLENGES

- Funding

ARIZONA AND NEVADA MARKETS SERVED:

Population (Census, 2015 value)		9,719,000
Employment (BLS, 2015 value)		3,878,000
GDP (BEA, 2014 value, $M)	$	421,592

ECONOMIC BENEFITS AND COSTS

		2015$ (M)
Capital Cost	$	11,370
Discounted Capital Cost	$	9,699
Discounted Benefits	$	19,398 – 38,796
Net Economic Benefits	$	9,699 – 29,097
Benefit-Cost Ratio		2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Morganza to the Gulf

U.S. REGION: **South**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **$9.2 – 27.5 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

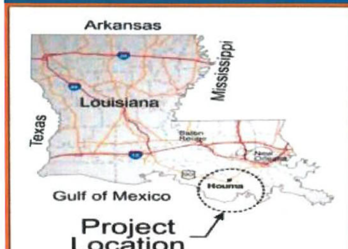


Photo Source: USACE

Photo Source: Louisiana Recovery Authority

PROJECT SPONSORS:

- Louisiana Coastal Protection and Restoration Authority Board
- Terrebonne Levee and Conservation District
- US Army Corps of Engineers

PROJECT DESCRIPTION

- About 98-miles of earthen levee, 23 water control structures, a lock complex in the Houma Navigational Canal, an adjoining floodgate, and a dam closure.
- Designed to provide hurricane and storm damage reduction benefits while ensuring navigational passage and tidal exchange.
- Located about 60 miles southwest of New Orleans, LA.

CONSIDERATIONS

- Extreme deterioration of coastal marshes have steadily increased storm surge inundation over time, resulting in greater damage and safety concerns in the vicinity of Houma, LA.
- The area is also significantly affected by tides emanating from the Gulf of Mexico.

Source: USACE

Morganza to the Gulf

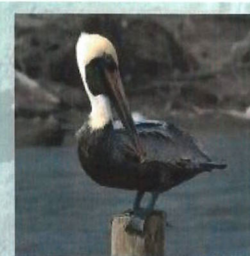


Photo Source: USACE

PROJECT BENEFITS

- Safety of more than 150,000 people and 1,700 square miles of farmlands, industrial and residential areas.
- Protect against tidal and storm surge up to a Category 3 hurricane.
- Provides a safe harbor for fishermen in a storm event.
- Beneficial to marshes and wetlands in the Terrebonne Basin.
- Floodgates would reduce storm damage during tropical storms and allow navigable waterways to remain open during non-storm conditions.

PRIMARY CHALLENGES

- While state and local funds have been used to construct interim features, additional funding is needed to complete the project.
- No Federal funds have been appropriated for construction.

HOUMA – BAYOU CANE – THIBODAUX MSA MARKET SERVED:

Population (Census, 2015 value)		211,000
Employment (BLS, 2015 value)		100,000
GDP (BEA, 2014 value, $M)	$	13,198

ECONOMIC BENEFITS AND COSTS

		2015$ (M)
Capital Cost	$	10,746
Discounted Capital Cost	$	9,166
Discounted Benefits	$	18,332 – 36,664
Net Economic Benefits	$	9,166 – 27,498
Benefit-Cost Ratio		2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs

I-69 Extension

U.S. REGION: **South**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$6.8 – 20.3 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photo Source: Public Domain image attributed to Billy Hathorn

Photo Source: Public Domain image attributed to Mark Robinowitz

Photo Source: FHWA

PROJECT SPONSORS:

- Indiana Department of Transportation
- Kentucky Department of Transportation
- Mississippi Department of Transportation
- Arkansas Department of Transportation
- Louisiana Department of Transportation
- Texas Department of Transportation

PROJECT DESCRIPTION

- Extension of I-69 from Indianapolis to the Mexico border through Indiana, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana, and Texas. Connection to the existing I-69 in Michigan will provide access for the auto markets between Detroit and Mexico.

CONSIDERATIONS

- The corridor was designated a High Priority Corridor of National Significance in ISTEA, is a North American trade route, an international trade route, and a NAFTA corridor. Congress has designated the new interstate to be I-69.
- The corridor upgrade to interstate designation will improve international and interstate trade, and facilitate economic development.
- Better connections are needed between auto parts distributors in Mexico and auto manufacturing along the potential corridor.

Sources: (1) Wilbur Smith and HNTB

I-69 Extension

Photo Source: Public Domain image attributed to MUTCD

Photo Source: Public Domain image attributed to Chicago Independent Media Center

Photo Source: FHWA

PROJECT BENEFITS

- Improves international and interstate movement of freight.
- Improves capacity to meet current and future needs.
- Facilitates economic development and enhances domestic and international growth through efficient and flexible transportation.
- Facilitates connections to intermodal facilities and major ports along the corridor.
- Facilitates the safe and efficient movement of people and goods resulting in improved reliability and time savings and vehicle operating cost savings.
- Directly connects urban areas of Indianapolis, Evansville, Memphis, Shreveport/Bossier City, Houston, Laredo, Brownsville, and the Lower Rio Grande Valley with an interstate.

PRIMARY CHALLENGES

- Funding
- Coordination among states

INDIANA, KENTUCKY, TENNESSEE, MISSISSIPPI, ARKANSAS, LOUISIANA, AND TEXAS MARKETS SERVED:

Population (Census, 2015 value)		55,755,000
Employment (BLS, 2015 value)		22,807,000
GDP (BEA, 2014 value, $M)	$	2,815,783

ECONOMIC BENEFITS AND COSTS

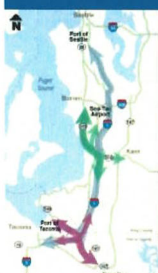
	2015$ (M)	
Capital Cost	$	10,500
Discounted Capital Cost	$	6,775
Discounted Benefits	$	13,550 – 27,100
Net Economic Benefits	$	6,775 – 20,325
Benefit-Cost Ratio		2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Puget Sound Gateway – Phase 2

U.S. REGION: **National**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$2.6 – 7.9 B**
BENEFIT-COST RATIO: **2.0 – 4.0**



Photos Source: WSDOT

Washington State Department of Transportation

PROJECT SPONSORS:

- Washington State Department of Transportation

PROJECT DESCRIPTION

- The SR 509, I-5 and SR 167 Puget Sound Gateway Project in Seattle would relieve traffic congestion and improve freight mobility by completing the long-planned SR 167 and SR 509 corridor connections to I-5.
- Provides improved connections to the Port of Seattle and the Port of Tacoma.
- Builds on substantial Phase I investment in corridor.

CONSIDERATIONS

- The major goals of this project are to provide a significant time savings to peak-hour travel time between Seattle and Tacoma, to improve access to SeaTac International Airport, and to improve freight mobility within the state's most traveled freight corridor.

Sources: (1) WSDOT

Puget Sound Gateway – Phase 2


Photo Source: WSDOT


PhotoSource: USDOT

PROJECT BENEFITS

- Improves regional mobility and relieves traffic congestion on local roads and highways by providing new and more efficient travel options, improving overall system performance for freight, commuters and transit.
- Completes critical freight links between the ports of Seattle and Tacoma and key distribution centers, warehouses, and industrial areas in King and Pierce counties.
- Provides direct access to Seattle-Tacoma International Airport from the south, better connecting the state's hub airport to I-5 and improving movement of air cargo.
- Provides quantifiable travel time savings, vehicle operating cost savings, safety savings, air quality/global warming savings, and noise/external cost savings.

PRIMARY CHALLENGES

- Funding

SEATTLE MSA MARKET SERVED:

Population (Census, 2014 value)		3,671,000
Employment (BLS, 2015 value)		1,902,000
GDP (BEA, 2014 value, $M)	$	300,827

ECONOMIC BENEFITS AND COSTS

	2015$ (M)	
Capital Cost	$	3,000
Discounted Capital Cost	$	2,632
Discounted Benefits	$	5,264 – 10,528
Net Economic Benefits	$	2,632 – 7,896
Benefit-Cost Ratio		2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

I-5 Columbia River Crossing

U.S. REGION: **West**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$2.5 – 7.5 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: Columbia River Crossing Coalition

PROJECT SPONSORS:

- Washington State Department of Transportation
- Oregon State Department of Transportation
- Federal Highway Administration
- Federal Transit Administration
- With input from Metro (the metropolitan planning organization in Portland), Southwest Washington Regional Transportation Council, TriMet, C-TRAN, and the cities of Portland and Vancouver

PROJECT DESCRIPTION

- I-5 is the only continuous north/south interstate highway on the West Coast, providing a commerce link for the United States, Canada, and Mexico. The segment crossing the Columbia River between Portland and Vancouver serves two international ports, 5 major highways and influences the operating performance of this international corridor. Light rail is proposed on the bridge to connect Vancouver, WA to Portland's rail network.

CONSIDERATIONS

- The existing I-5 crossing of the Columbia River consists of two side-by-side bridges, built four decades apart. The crossing, which served 30,000 vehicles per day in the 1960s, now carries more than 130,000 automobiles, buses, and trucks each weekday. The bridges are stretched far beyond capacity—the hours of stop-and-go traffic grow every year.
- The existing I-5 bridges do not meet current seismic standards.

Sources: (1) Columbia River Crossing Economic Benefits Analysis

I-5 Columbia River Crossing

Photo Source: Public Domain

Photo Source: Columbia River Crossing Coalition

PROJECT BENEFITS

- Traveler savings for both passengers and truck freight from improved system efficiency impacts include savings in travel time, reliability, vehicle operating costs, safety and emissions.
- Market access impacts include positive changes to freight delivery markets, logistics, labor markets, and business productivity.

PRIMARY CHALLENGES

- Disagreement over need for light rail system
- Funding
- Disagreements among multiple stakeholders and state DOTs
- Competition from the nearby I-205 bridge

WASHINGTON AND OREGON MARKETS SERVED:

Population (Census, 2015 value)		11,199,000
Employment (BLS, 2015 value)		4,947,000
GDP (BEA, 2014 value, $M)	$	635,684

ECONOMIC BENEFITS AND COSTS

	2015$ (M)	
Capital Cost	$	2,712
Discounted Capital Cost	$	2,484
Discounted Benefits	$	4,968 – 9,936
Net Economic Benefits	$	2,484 – 7,452
Benefit-Cost Ratio		2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Fargo-Moorhead Metro Flood Control

U.S. REGION: **Midwest**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **$1.7 – 5.0 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: USACE

PROJECT SPONSORS:

- City of Fargo, ND
- City of Moorhead, MN
- US Army Corps of Engineers

PROJECT DESCRIPTION

- Construct retention dams and 36 mile diversion channel around Fargo-Moorhead to reduce risk of flooding.
- Incorporate non-structural measure to reduce flood risk to selected residential and nonresidential structures.

CONSIDERATIONS

- Average annual flood damages are estimated at more than $195 million.
- Red River has exceeded flood stage in 49 of the past 110 years.
- Significant emergency measures have been implemented multiple times to prevent catastrophic flooding.

Source: USACE

Fargo-Moorhead Metro Flood Control

Photo Source: USACE

PROJECT BENEFITS

- Risk of a catastrophic flood event would be reduced for the Fargo-Moorhead Metropolitan Area.
- Maintain manufacturing base of region (many companies stated they would relocate outside of the United States if facilities flooded).
- Reduce significant costs incurred during emergency flood fights.
- Protect vibrant local economy, which generates $4.35 billion in annual non-farming wages and over $2.77 billion in annual taxable sales along with $14 billion in property value.

PRIMARY CHALLENGES

- Available funding (federal and local) sources are not sufficient to complete the project.
- The Minnesota Department of Natural Resources has denied a permit application for the proposed Fargo-Moorhead Flood Risk Management Project.

FARGO MSA MARKET SERVED:

Population (Census, 2015 value)	228,000
Employment (BLS, 2015 value)	140,000
GDP (BEA, 2014 value, $M)	$ 15,026

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 1,897
Discounted Capital Cost	$ 1,665
Discounted Benefits	$3,330 – 6,660
Net Economic Benefits	$1,665 – 4,995
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Sabine Neches Waterway

U.S. REGION: **South**
PROJECT TYPE: **Ports-Waterways**

NET ECONOMIC BENEFIT: **$1.2 – 3.5 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: Sabine Neches Navigation District

PROJECT SPONSORS:

- Sabine Neches Navigation District
- US Army Corps of Engineers

SABINE • NECHES
NAVIGATION DISTRICT
Our commitment runs deep

PROJECT DESCRIPTION

- Deepen and widen the Sabine-Neches Waterway (SNWW) along the border of Texas and Louisiana to allow for larger vessels and lessen congestion.

CONSIDERATIONS

- Navigational safety on the SNWW is a concern given the large traffic base, the number of crude oil and LNG vessels, and dangerous cargo transits.
- Congestion is increased during times when the SNWW serves an important military function as one of the busiest ports for military cargo in the world.
- The most significant trend adversely affecting the study area is the high rate of wetland loss that has occurred over the last century.

Sources: USACE, Sabine Neches Navigation District

Sabine Neches Waterway

PROJECT BENEFITS

- Improve the navigational efficiency along the SNWW waterway.
- Improve safety for all vessels.
- Maintain the ecological value of coastal and estuarine resources within the project area.
- National security.

PRIMARY CHALLENGES

- Available funding (federal plus local) does not currently cover the project cost, extending the project completion date, increasing the total project cost.

TEXAS AND LOUISIANA MARKET SERVED:

Population (Census, 2015 value)	32,140,000
Employment (BLS, 2015 value)	13,794,000
GDP (BEA, 2014 value, $M)	$ 1,892,716

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 1,262
Discounted Capital Cost	$ 1,173
Discounted Benefits	$2,346 – 4,692
Net Economic Benefits	$1,173 – 3,519
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs

Watershed Rehabilitation Program

U.S. REGION: **National**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **$1.1 – 3.3 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: NRCS

PROJECT SPONSORS:

- Local sponsors and dam owners located across the country
- Natural Resource Conservation Service

PROJECT DESCRIPTION

- Rehabilitate aging dams that are reaching the end of their 50-year design lives and/or have been reclassified as high hazard due to downstream development.

CONSIDERATIONS

- Many of these dams are classified as high hazard with a potential for loss of life if the dam should fail.
- During the past 20 years, more than 4,300 dams reached or exceeded their 50-year design life.
- Over the next 10 years, another 3,500 dams will have met or exceeded their design life.

Source: NRCS

Watershed Rehabilitation Program

Photo Source: NRCS

PROJECT BENEFITS

- Rehabilitated dams would continue to provide flooding and erosion damage reduction, improved wildlife habitat, recreation, and improved water quality through sediment and erosion control.
- Creates rural economic growth and job opportunities.
- Rehabilitated dams would reduce potential for catastrophic failure and loss of life.

PRIMARY CHALLENGES

- Funding

NATIONAL MARKET SERVED:

Population (Census, 2015 value)	321,419,000
Employment (BLS, 2015 value)	141,958,000
GDP (BEA, 2014 value, $M)	$ 17,232,618

ECONOMIC BENEFITS AND COSTS

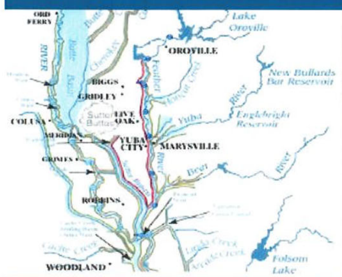
	2015$ (M)
Capital Cost	$ 1,200
Discounted Capital Cost	$ 1,099
Discounted Benefits	$2,198 – 4,396
Net Economic Benefits	$1,099 – 3,297
Benefit-Cost Ratio	2.0 – 4.0

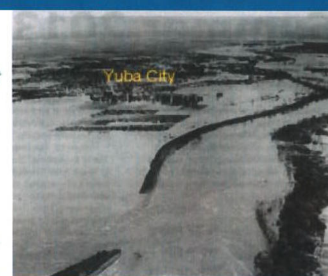
Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Sutter Basin

U.S. REGION: **West**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **$0.6 – 1.9 B**
BENEFIT-COST RATIO: **2.0 – 4.0**





Photos Source: USACE

PROJECT SPONSORS:

- State of California
- Sutter County
- Central Valley Flood Protection Board
- Sutter-Butte Flood Control Agency
- US Army Corps of Engineers

PROJECT DESCRIPTION

- Strengthen 41.4 miles of existing project levees to reduce risk of flood damage.
- Restore the ecosystem for the communities of Yuba City, Live Oak, Gridley, and Biggs.

CONSIDERATIONS

- The existing project levees within the study area are at risk of failure.
- The unique geography, small number of transportation corridors, and population distribution cause ineffective or hazardous evacuation conditions.
- Economically disadvantaged community with a vulnerable senior population.

Sources: USACE

Sutter Basin

Photos Source: USACE

PROJECT BENEFITS

- Five additional evacuation routes.
- Reduce the risk of flooding for 88,000 people.
- Reduce the risk of flooding to 27 critical infrastructure facilities.
- Increase developable land by about 30,000 acres.
- Increase recreational resources.

PRIMARY CHALLENGES

- USACE policy restricts woody vegetation on Federal project levees, consequently, about 20 acres of riparian vegetation may require removal to comply with the policy, resulting in effects on fish and wildlife habitat and social values like recreation and aesthetics. This policy has led to an environmental dispute with those who would preserve the vegetation and question the necessity of the removal.

YUBA-SUTTER MSA MARKET SERVED:

Population (Census, 2014 value)	170,000
Employment (BLS, 2015 value)	41,000
GDP (BEA, 2014 value, $M)	$ 5,472

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 709
Discounted Capital Cost	$ 631
Discounted Benefits	$1,262 – 2,524
Net Economic Benefits	$ 631 – 1,893
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Jacksonville Harbor Dredging

U.S. REGION: **South**
PROJECT TYPE: **Ports-Waterways**

NET ECONOMIC BENEFIT: **$0.6 – 1.8 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photo Source: USACE

PROJECT SPONSORS:

- Jacksonville Port Authority
- US Army Corps of Engineers

US Army Corps of Engineers®

PROJECT DESCRIPTION

- Increase the depth of the existing channel along the St. Johns River from its current depth of 40 feet to a maximum depth of 47 feet.

CONSIDERATIONS

- The Port of Jacksonville is mentioned in the President's "We Can't Wait" initiative, which works to expedite the permitting and review process.
- Government and business leaders at the state and local level along with the local sponsor have expressed interest in growing the local economy by making Jacksonville a hub for logistical activity.
- Super Post-Panamax Vessels (PPX2) vessels are displacing less efficient vessels and require a deeper channel.

Sources: USACE, Jacksonville Port Authority

Jacksonville Harbor Dredging

PROJECT BENEFITS

- Allow for larger vessels to access the channel; therefore reducing transportation costs and providing increased navigational safety, while avoiding or minimizing impacts to environmental resources.
- Deeper channels can accommodate an increase in the TEU weight, which means that the cargo is relatively denser. Denser cargoes imply that more freight can be stored per unit volume.
- The increase in forecasted cargo requires a greater number of port calls in the future, and greater port traffic in the future means greater cost savings with deeper channel depths.
- Port able to accommodate supersized cargo ships expected to begin arriving through an expanded Panama Canal.

PRIMARY CHALLENGES

- Available funding does not currently cover the project cost, extending the project completion date, increasing the total project cost, and delaying benefits.

FLORIDA MARKET SERVED:

Population (Census, 2015 value)	20,271,000
Employment (BLS, 2015 value)	8,075,000
GDP (BEA, 2014 value, $M)	$ 838,939

STATES EAST OF MISSISSIPPI RIVER MARKET SERVED:

Population (Census, 2015 value)	185,224,000
Employment (BLS, 2015 value)	82,689,000
GDP (BEA, 2014 value, $M)	$ 9,727,377

ECONOMIC BENEFITS AND COSTS

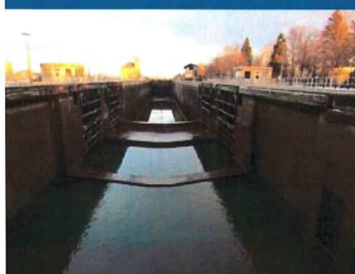
	2015$ (M)
Capital Cost	$ 673
Discounted Capital Cost	$ 616
Discounted Benefits	$1,232 – 2,462
Net Economic Benefits	$ 616 – 1,848
Benefit-Cost Ratio	2.0 – 4.0

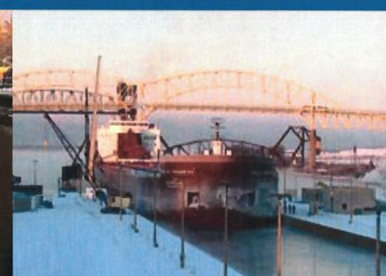
Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Soo Locks Modernization

U.S. REGION: **Midwest**
PROJECT TYPE: **Ports-Waterways**

NET ECONOMIC BENEFIT: **$0.6 – 1.7 B**
BENEFIT-COST RATIO: **2.0 – 4.0**





Photos Source: USACE

PROJECT SPONSOR:

- US Army Corps of Engineers

US Army Corps of Engineers®

PROJECT DESCRIPTION

- Rehabilitate or construct second lock for the Poe Lock at the Soo Lock system. These facilities connect the Great Lakes in Michigan, permitting shippers in the western portion of the Great Lakes to access the St. Lawrence Seaway and use the lakes for commercial shipping.

CONSIDERATIONS

- More than 60% of the current U.S. and Canadian fleet is restricted by size to the Poe Lock.
- Any type of service disruption or closure may result in delays to vessel transit.
- Closures of the ageing Poe Lock are expected to increase.
- In the event of a closure (short or long term) of the Poe Lock, there may not be viable alternatives to transporting the more than 40 million tons of iron ore and coal to U.S. manufacturers along the Great Lakes.

Source: USACE

Soo Locks Modernization

Photos Source: USACE

PROJECT BENEFITS

- Increased reliability, fewer outages and less delay would allow shippers to move more tonnage during the shipping season with greater efficiency and fewer emissions.
- Enhanced reliability of the locks would lower the operators' risk profile to prospective lenders. This would make lenders more inclined to finance the operators' capital investments (e.g., fleet improvements, infrastructure, plant operations).
- Other factors such as Canadian vessel movements, commodities, and outages from additional lock components, can be expected to further increase benefits.
- Federal guidance (followed by the US Army Corps of Engineers) does not fully capture impacts to the nation for each closure of the Poe Lock.

PRIMARY CHALLENGES

- Available funding (federal plus local) does not currently cover the project cost, extending the project completion date, increasing the total project cost.

MICHIGAN MARKET SERVED:

Population (Census, 2015 value)	9,923,000
Employment (BLS, 2015 value)	4,265,000
GDP (BEA, 2014 value, $M)	$ 448,244

GREAT LAKE STATES MARKET SERVED:

Population (Census, 2015 value)	46,787,000
Employment (BLS, 2015 value)	21,515,000
GDP (BEA, 2014 value, $M)	$ 2,368,286

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 626
Discounted Capital Cost	$ 582
Discounted Benefits	$1,164 – 2,328
Net Economic Benefits	$ 582 – 1,746
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs

Long Bridge

U.S. REGION: **South**
PROJECT TYPE: **Railway**

NET ECONOMIC BENEFIT: **$0.5 – 1.5 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

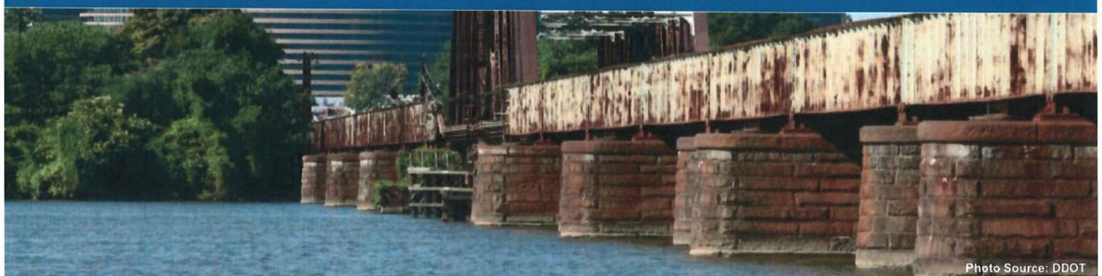


Photo Source: DDOT

PROJECT SPONSORS:

- Virginia Railway Express
- Virginia Department of Transportation
- District Department of Transportation
- CSX
- Amtrak

PROJECT DESCRIPTION

- The Long Bridge is an important element of the District of Columbia transportation infrastructure and a critical component in the national system of railroads. It is the only railroad crossing of the Potomac River east of Harpers Ferry, West Virginia and the only railroad crossing directly connecting the Commonwealth of Virginia and the District.
- Today the bridge carries local, regional, and national freight traffic, along with regional and longer-distance or intercity passenger rail traffic and commuter rail traffic.

CONSIDERATIONS

- The volume of rail traffic on the bridge is growing as more local commuter trains and regional trains are added to the ever-increasing number of freight and intercity passenger trains, pushing the aged bridge structure to the limits of its functional capacity and threatening the District and Northern Virginia with gridlock.

Source: Long Bridge 2014 TIGER Application

Long Bridge

Photos Source: DDOT

PROJECT BENEFITS

- A new four-track Long Bridge would create the bridge capacity needed to accommodate project growth in VRE, Amtrak, and freight traffic and offer significant time savings for these passengers and goods.
- Time savings translate into person hours saved for rail passengers, highway users (if future demand for commuter rail service cannot be accommodated with a new bridge), operating cost savings for both passenger and freight operators, inventory savings for freight shippers, and reduced vehicle miles traveled (VMT) in an already congested Washington, D.C. MSA.

PRIMARY CHALLENGES

- Funding

WASHINGTON, D.C. MSA MARKET SERVED:

Population (Census, 2014 value)	6,034,000
Employment (BLS, 2015 value)	2,581,000
GDP (BEA, 2014 value, $M)	$ 471,584

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 575
Discounted Capital Cost	$ 511
Discounted Benefits	$ 1,022 – 2,044
Net Economic Benefits	$ 511 – 1,533
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars, values were discounted using a 3% discount rate. O&M excluded from costs.

Heartland Expressway

U.S. REGION: **Midwest**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$0.4 – 1.2 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: NDOR

PROJECT SPONSORS:

- Nebraska Department of Roads
- Colorado Department of Transportation
- Wyoming Department of Transportation
- South Dakota Department of Transportation

PROJECT DESCRIPTION

- The Heartland Expressway is a key portion of the larger Ports-to-Plains Corridor that extends from Mexico to Canada. Approximately 200 miles of the Heartland Expressway's 498 miles is located within Nebraska's borders.

CONSIDERATIONS

- Fulfillment of the legislative intent of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which calls for the development of High Priority Corridors on the National Highway System
- The lack of north-south highways contributes to increasingly severe traffic congestion, especially in Colorado, and contributes to homeland security issues involving defense mobility.

Sources: (1) NDOR

Heartland Expressway

PROJECT BENEFITS

- Improves the efficiency of commerce and travel by providing for increased transportation demand resulting from new regional sources of energy development, expanding agricultural markets, and commercial development
- Increases intermodal transportation by improving links between roadway, railway and airport facilities
- Enhances safety through modifications that better enable passenger cars and oversize trucks to share the road
- Saves travel times for existing and diverted corridor users

PRIMARY CHALLENGES

- Funding

NEBRASKA MARKET SERVED:

Population (Census, 2015 value)		1,896,000
Employment (BLS, 2015 value)		1,002,000
GDP (BEA, 2014 value, $M)	$	111,007

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 568
Discounted Capital Cost	$ 414
Discounted Benefits	$ 828 – 1,656
Net Economic Benefits	$ 414 – 1,242
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Corpus Christi Ship Channel

U.S. REGION: **South**
PROJECT TYPE: **Ports-Waterways**

NET ECONOMIC BENEFIT: **$0.3 – 1.0 B**
BENEFIT-COST RATIO: **2.0 – 4.0**

Photos Source: Port Corpus Christi

PROJECT SPONSORS:

- The Port of Corpus Christi Authority
- US Army Corps of Engineers

US Army Corps of Engineers®

PROJECT DESCRIPTION

- Deepen existing ship channel to a depth of 52 feet and widen it to 530 feet to accommodate larger vessels.

CONSIDERATIONS

- More energy companies are trying to reduce costs by using larger cargo vessels, placing more pressure on the nation's 5th largest port to deepen and widen the existing ship channel.
- Periodic dredging of the La Quinta Channel Extension Deepening is needed to maintain the channel to its authorized depth to provide for safe and efficient navigation of commercial vessels.
- A record 8,528 vessels passed through the port in 2014.

Sources: USACE, The Port of Corpus Christi Authority

Corpus Christi Ship Channel


Photo Source: Port Corpus Christi

PROJECT BENEFITS

- Provide channel access to a proposed multi-purpose dock and container handling facility.
- Barge lanes and a deeper channel will increase maritime safety and reduce costly vessel delays, leading to a reduction in transportation costs.
- The ecosystem restoration components will protect and enhance several important habitats. In addition, the improvements include constructing approximately 1,000 acres of shallow water habitat using dredged material.

PRIMARY CHALLENGES

- Congressional reauthorization of the project may be required before construction of the Main Channel and Barge Lanes Elements of the Corpus Christi Ship Channel project can commence. The process for moving forward is in negotiation.
- Available funding (federal plus local) does not currently cover the project cost, extending the project completion date, increasing the total project cost and delaying benefits.

TEXAS MARKET SERVED:

Population (Census, 2015 value)	27,469,000
Employment (BLS, 2015 value)	11,807,000
GDP (BEA, 2014 value, $M)	$ 1,641,044

TX, OK, AR, LA MARKETS SERVED:

Population (Census, 2015 value)	39,029,000
Employment (BLS, 2015 value)	16,669,000
GDP (BEA, 2014 value, $M)	$ 2,195,925

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 358
Discounted Capital Cost	$ 328
Discounted Benefits	$ 656 – 1,312
Net Economic Benefits	$ 328 – 984
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs

Truckee River

U.S. REGION: **West**
PROJECT TYPE: **Water**

NET ECONOMIC BENEFIT: **$307 – 921 M**
BENEFIT-COST RATIO: **2.0 – 4.0**

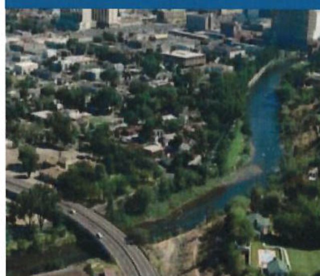


Photo Source: USACE

PROJECT SPONSORS:

- Truckee River Flood Management Authority
- US Army Corps of Engineers

PROJECT DESCRIPTION

- Flood risk management and recreation features along approximately six miles of the Truckee River in Nevada from U.S. Route 395 to the town of Vista, NV.

CONSIDERATIONS

- Flooding from the Truckee River poses a life and safety hazard to downtown Reno and Truckee Meadows.
- The quality and quantity of riparian and related floodplain habitats have diminished along the Truckee River causing adverse effects on the aquatic ecosystem, including special status fish species.
- Passage of spawning fish species from Pyramid Lake is obstructed by various artificial barriers.
- The Truckee River is no longer a stable river system.

Source: USACE

Truckee River

Photo Source: USACE

PROJECT BENEFITS

- Project features are designed to provide "100-year flood protection" in high-value commercial and industrial areas near the Truckee River, including the Reno-Tahoe International Airport.
- Recreation features include a new pedestrian/bike bridge, bike lanes on bridges, pedestrian/bike paths, and new access sites and improvements in downtown Reno.
- Fish and wildlife enhancement features, consisting of riparian plantings, marsh habitat preservation, and fish habitat improvements.

PRIMARY CHALLENGES

- In 2012, the study was re-scoped to assess the feasibility of modifying the Congressionally-authorized project to reduce flood damages in the Truckee Meadows project area while avoiding or minimizing adverse effects.
- Funding.

RENO-SPARKS AREA MSA MARKET SERVED:

Population (Census, 2010 value)	318,000
Employment (BLS, 2015 value)	211,000
GDP (BEA, 2014 value, $M)	$ 20,554

ECONOMIC BENEFITS AND COSTS

	2015$ (M)
Capital Cost	$ 336
Discounted Capital Cost	$ 307
Discounted Benefits	$ 614 – 1,228
Net Economic Benefits	$ 307 – 921
Benefit-Cost Ratio	2.0 – 4.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate; O&M excluded from costs.

Accommodating Autonomous Vehicles

U.S. REGION: **National**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$5.0 – 7.5 T**
BENEFIT-COST RATIO: **7.0 > 10.0**

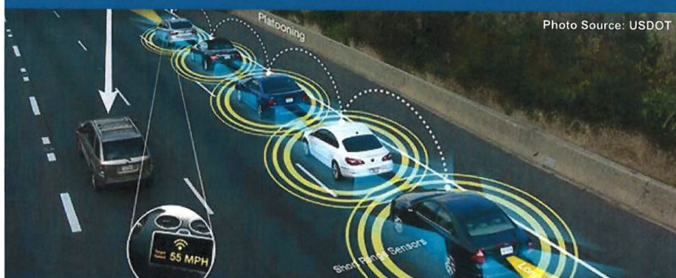


Photo Source: USDOT

Photo Source: Google

PROJECT SPONSORS:

- Primarily private vehicle manufacturers and owners and technology firms
- Some infrastructure investments from individual state DOTs
- Some federal grants to support technology development
- Federal and state regulatory agencies

PROJECT DESCRIPTION

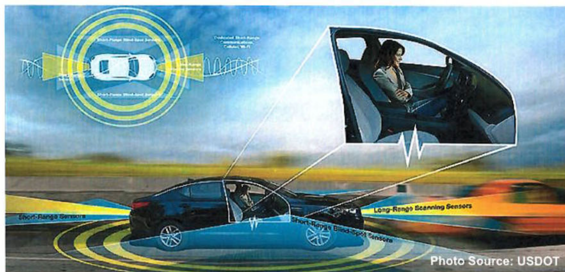
- Autonomous vehicles represent a breakthrough in surface transportation. They depend on in-vehicle technology including vehicle to vehicle communication (V2V). V2I refers to a variety of ways to share vehicle information with other public and private users.

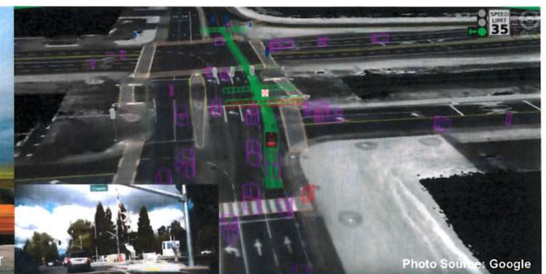
CONSIDERATIONS

- Several auto manufacturers will have semi-autonomous vehicles (for expressways and major arterials during good weather) available later this year. Fully autonomous cars (all roads) will likely be available before the end of the next decade.
- No set of consistent state (and perhaps federal) safety regulations currently exist.
- More technical development is called for in order to handle poor weather, local roads, V2V communication, and interface with the driver.
- State and local governments have yet to decide how these new vehicles affect investment and operations.

Sources: USDOT, Morgan Stanley

Accommodating Autonomous Vehicles





PROJECT BENEFITS

- Autonomous cars bring obvious social benefits—significant reduction in highway fatalities, fewer road crashes, reduced traffic congestion, higher occupant productivity, fuel savings.
- Improved access for people who are mobility impaired whether due to disabilities or age.
- Improved roadway capacity since there will be fewer crashes and autonomous vehicles will allow reduced space between traveling vehicles.
- Potential efficiency gains from freight and transit operations.

PRIMARY CHALLENGES

- Consistent national and/or state regulations regarding safety and technical compatibility while not discouraging innovation.
- Uncertainty over pace of deployment of new vehicles and critical mass needed in order to generate significant safety and capacity benefits.
- Financial impacts on state and local agencies.
- Other effects including changes in transit use, urban form, and VMT.

NATIONAL MARKET SERVED:

Population (Census, 2015 value)	321,419,000
Employment (BLS, 2015 value)	141,958,000
GDP (BEA, 2014 value, $M)	$ 17,232,618

ECONOMIC BENEFITS AND COSTS

(Assumes Low Costs and Benefits)	2015$ (T)
Capital Cost	$ 1.3
Discounted Capital Cost	$ 0.83
Total Discounted Benefits	$ 5.8 – 8.3
Net Economic Benefits	$ 5.0 – 7.5
Benefit-Cost Ratio	7.0 – 10.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.

Recapitalization of the National Interstate Highway System (IHS)

U.S. REGION: **National**
PROJECT TYPE: **Highway**

NET ECONOMIC BENEFIT: **$1.6 – 3.1 T**
BENEFIT-COST RATIO: **4.0 > 7.0**

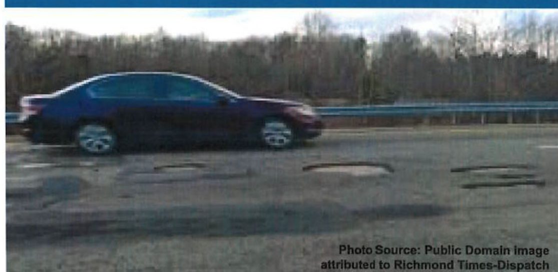


Photo Source: Public Domain Image attributed to Richmond Times-Dispatch


Photo Source: USDOT

PROJECT SPONSORS:

- Individual State DOTs
- Federal Highway Administration

PROJECT DESCRIPTION

- The nation's 46,876 mile IHS has long provided a consistent, national network for freight and personal movement, but most infrastructure is now more than fifty years old. NCHRP developed options to recapitalize the network, including additional capacity where needed. This project follows the "Reduced Service/Lower Investment" scenario that includes one half of the cost-effective lane additions.

CONSIDERATIONS

- Cost-effective and reliable movement of freight remains vital to future economic growth.
- State and federal funds for highways has not kept pace with the growth in demand for travel.
- Some states have been able to increase highway revenues, but their focus has been on maintenance and in-state improvements rather than inter-state routes.
- The recent FAST Act provides no net growth in federal funds.

Sources: NCHRP, FHWA

Recapitalization of the National Interstate Highway System (IHS)

PROJECT BENEFITS

- Provides a reliable and safe national road network.
- Encourages business access to national and regional markets.
- Supports access to other parts of the freight network, including ports, airports, and intermodal freight.

PRIMARY CHALLENGES

- Adequate funds are key, given the political reluctance in many states to increase highway user fees.
- Need to find incentives for states to focus on inter-state connections. As with the original Interstate, federal incentives would help.
- Local opposition is likely regarding environmental concerns and different development scenarios.
- Will the growth in autonomous cars and trucks call for a different roadway system? For example, truck pelotons may need truck-only lanes, at least during part of the day.

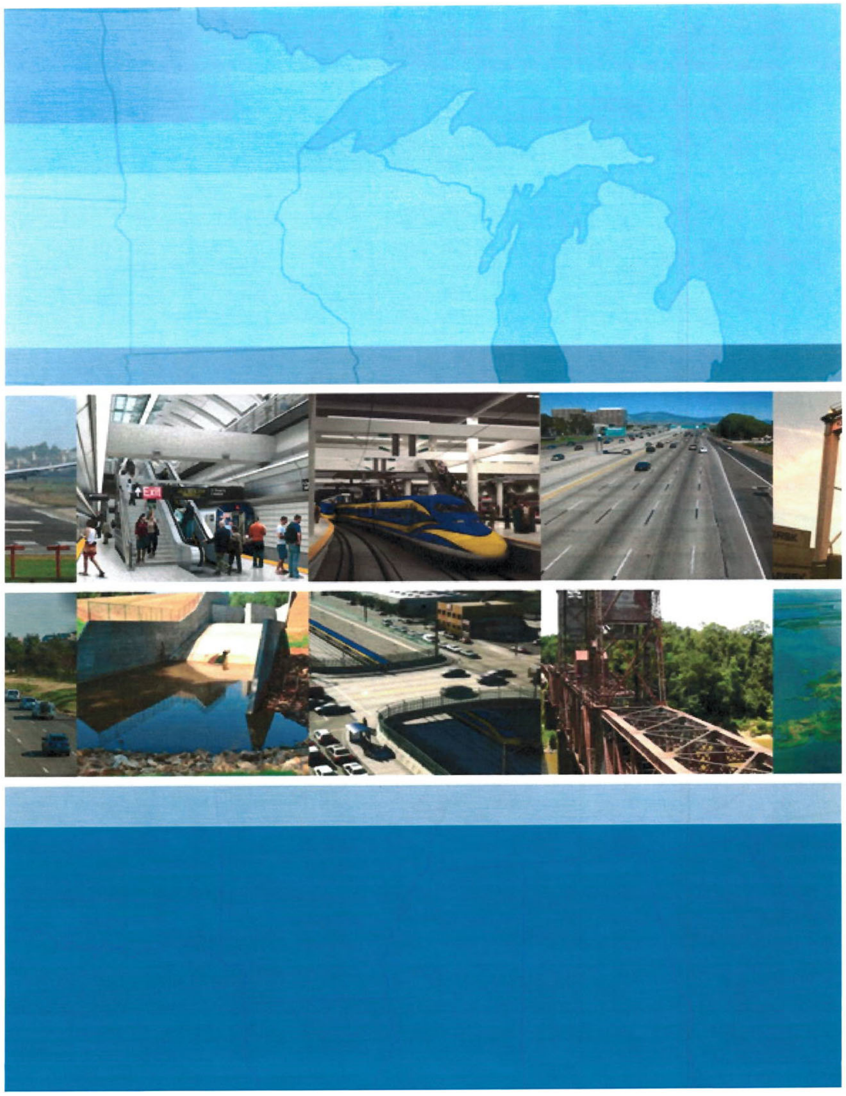
NATIONAL MARKET SERVED:

Population (Census, 2015 value)	321,419,000
Employment (BLS, 2015 value)	141,958,000
GDP (BEA, 2014 value, $M)	$ 17,232,618

ECONOMIC BENEFITS AND COSTS

(Assumes Low Costs and Benefits)	2015$ (T)
Capital Cost	$ 0.79
Discounted Capital Cost	$ 0.52
Total Discounted Benefits	$ 2.1 – 3.6
Net Economic Benefits	$ 1.6 – 3.1
Benefit-Cost Ratio	4.0 – 7.0

Note: All values in 2015 dollars; values were discounted using a 3% discount rate. O&M excluded from costs.



Senator CARPER. Let me just ask the receptionist, anything else that we need? No.

All right, I think we are ready for takeoff. It was a good day.

Thanks, everyone.

And now with that, the hearing is concluded.

[Whereupon, at 12:50 p.m., the hearing was adjourned.]

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