

ALIGNING FEDERAL SURFACE TRANSPORTATION POLICY TO MEET 21ST-CENTURY NEEDS

(116-7)

HEARING BEFORE THE SUBCOMMITTEE ON HIGHWAYS AND TRANSIT OF THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE HOUSE OF REPRESENTATIVES ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

MARCH 13, 2019

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Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

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MARCH 8, 2019

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Highways and Transit
FROM: Staff, Subcommittee on Highways and Transit
RE: Subcommittee Hearing on “Aligning Federal Surface Transportation Policy to Meet 21st Century Needs”

PURPOSE

The Subcommittee on Highways and Transit will meet on Wednesday, March 13, 2019, at 10 a.m. in HVC 210, Capitol Visitor Center, to receive testimony on “Aligning Federal Surface Transportation Policy to Meet 21st Century Needs.” The purpose of the hearing is to examine if and how Federal-aid highway and Federal transit programs and policies need to change in order to meet current and future transportation challenges. The Subcommittee will hear from representatives of the American Association of State Highway and Transportation Officials, the National League of Cities, the American Public Transportation Association, the Association of Metropolitan Planning Organizations, the Associated General Contractors of America, the Transportation Learning Center, and the Texas Innovation Alliance.

BACKGROUND

THE FEDERAL ROLE IN SURFACE TRANSPORTATION INVESTMENT

The Federal Government has continued its strong role in surface transportation investment, in partnership with States, since the 1916 Federal Aid Roads Act. The enactment of the landmark *Federal-Aid Highway Act of 1956* (1956 Act) (P.L. 84–627) made significant Federal investment in America’s system of roads and bridges. This Act established formula grant programs to distribute Federal surface transportation funds to States through specific eligible categories. The 1956 Act also established a dedicated funding mechanism through the Highway Trust Fund (HTF). Secure funding, along with a long-term 13-year authorization, gave States the certainty and continuity needed to develop and begin construction on the Interstate System and other surface transportation projects.

Congress has enacted a number of authorization bills in the decades following the passage of the 1956 Act to modify the Federal-aid highway program, create the Federal transit program, provide ongoing funding to States for the construction and maintenance of the Nation’s surface transportation network, and extend the highway-related taxes deposited into the HTF. Congress has sustained the pattern of long-term, multi-year authorization bills to continue steady, predictable funding levels to facilitate project planning and construction. Since 1991, major authorization bills include: the *Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)* (P.L. 102–240) enacted in 1991, the *Transportation Equity Act for the 21st Century (TEA-21)* (P.L. 105–178) enacted in 1998, the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)* (P.L. 109–59) enacted in 2005, and the *Moving Ahead for Progress in the 21st Century Act (MAP-21)* (P.L. 112–141) enacted in 2012.

Most recently, Congress enacted the *Fixing America’s Surface Transportation Act (FAST Act)* (P.L. 114–94), on December 4, 2015. The FAST Act provided \$281 billion in funding for highway, transit, and highway safety programs and reauthorized those programs for 5 years. The FAST Act is set to expire on September 30, 2020. In the 116th Congress, a priority for the Subcommittee on Highways and Transit is developing and enacting a bill to reauthorize Federal highway, public transit, and highway safety programs.

HIGHWAY TRUST FUND SOLVENCY

Federal surface transportation investments are funded through Federal excise taxes levied on motor fuels and on related products such as tires and freight trucks, which are deposited into the HTF. Congress has not adjusted the motor fuel excise taxes since 1993, and the purchasing power of these taxes have fallen over 40 percent in the last 25 years. Improved vehicle fuel efficiency has further eroded Federal revenues. As a result, revenues coming into the HTF have not kept pace with expenditures from authorized programs.

Congress has had to transfer \$144 billion from the General Fund and other funds to keep the HTF solvent since 2008. The Congressional Budget Office (CBO) estimates that over the next 10 years, the HTF will fall \$159 billion short based on continuing currently authorized highway, transit, and safety program levels. An additional \$5 billion is necessary to ensure that there is a prudent balance in the HTF, which brings the shortfall to \$164 billion. This does not include any higher investment levels to meet growing surface transportation needs. Without a solvent HTF, Congress cannot enact a long-term, multi-year authorization bill.

CONDITION OF OUR SURFACE TRANSPORTATION NETWORK

According to Congressional Budget Office (CBO) data, from 2003 to 2017 Federal spending on infrastructure, including surface transportation programs, decreased by nearly 20 percent, adjusted for inflation.¹ This reduction has resulted in a growing backlog of investment needs. One in three interstate bridges have repair needs, and nearly 9 percent of the Nation's bridges are structurally deficient.² One out of every five miles of highway pavement is in poor condition nationwide, and more than two out of every five miles of America's urban interstates are congested.³

The American Society of Civil Engineers (ASCE) has identified a more than \$1 trillion gap in current surface transportation funding in order to fix what we have, meet future needs, and restore our global competitiveness. Similarly, according to the U.S. Department of Transportation's (DOT) 2015 *Conditions & Performance Report*, there is an \$836 billion backlog of unmet capital investment needs for highways and bridges. DOT estimates that all levels of government need to invest approximately \$143 billion per year to improve the conditions and performance of our roads and bridges. We need to invest \$37.3 billion per year at all levels of government to improve the conditions and performance of all roads. The cost of bringing the Nation's rail and bus transit systems into a state of good repair is estimated at \$90 billion, and we would need to invest \$26.4 billion per year to accommodate the high-growth scenario of future transit ridership. We currently underinvest by approximately \$9.5 billion per year at all levels of government on transit capital investments.

MEETING 21ST CENTURY CHALLENGES

The next surface transportation reauthorization bill will only continue to facilitate economic growth, ensure global competitiveness, and create jobs, including family supporting jobs, if Congress makes the necessary investments in the Nation's surface transportation system. Congress will also need to ensure that Federal surface transportation programs can address current and future challenges. In the coming decades, our transportation system will come under immense pressure and face significant challenges. America's population is expected to grow to approximately 400 million by 2051.⁴ Freight volumes will continue to soar as freight tons are expected to increase by 40 percent over the next 30 years.⁵ The Transportation Research Board's recent report on the future of the Interstate System concluded that the Interstate System must be preserved and rehabilitated, while also renewed and modernized to adapt to the Nation's changing demographic, economic, climate, and technological landscape.⁶ This hearing is the Subcommittee's first step of its process to develop a long-term surface transportation reauthorization bill. The hearing will provide an opportunity for Members to consider potential changes to Federal surface

¹ CBO report, "Public Spending on Transportation and Water Infrastructure, 1956 to 2017" October 2018.

² ARTBA Bridge Report, 2018.

³ ASCE Report Card, 2017.

⁴ U.S. Census Bureau, "Projections of the Size and Composition of the U.S. Population: 2014 to 2060," 2015.

⁵ U.S. DOT, Bureau of Transportation Statistics, "DOT Releases 30-Year Freight Projections," 2016.

⁶ Transportation Research Board, "Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future," 2018.

transportation policies and programs in order to address current and future challenges. Witness testimony is likely to touch on the following areas:

- Strengthening the model of a Federal, State, and local partnership,
- Improving roads, bridges, and public transit systems,
- Moving people and goods safely and more efficiently and reducing congestion,
- Harnessing innovation and incorporating technology to improve mobility,
- Ensuring a qualified transportation workforce,
- Building stronger and more resilient infrastructure, and
- Improving project delivery and protecting the environment.

WITNESS LIST

- The Honorable Ron Nirenberg, Mayor, city of San Antonio, *on behalf of the National League of Cities*
- Mr. Roger Millar, Secretary, Washington State Department of Transportation, *on behalf of the American Association of State Highway and Transportation Officials*
- Mr. Darran Anderson, Director of Strategy and Innovation, Texas Department of Transportation, *on behalf of the Texas Innovation Alliance*
- Mr. Jack Clark, Executive Director, Transportation Learning Center
- Ms. Therese W. McMillan, Executive Director, Metropolitan Transportation Commission, *on behalf of the Association of Metropolitan Planning Organizations*
- Mr. Al Stanley, Vice President, Stanley Construction Company, Inc., *on behalf of the Associated General Contractors of America*
- Mr. Michael Terry, President and CEO, IndyGo—Indianapolis Public Transportation Corporation, *on behalf of the American Public Transportation Association*

ALIGNING FEDERAL SURFACE TRANSPORTATION POLICY TO MEET 21ST-CENTURY NEEDS

WEDNESDAY, MARCH 13, 2019

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

The subcommittee met, pursuant to notice, at 10:03 a.m. in room HVC-210, Capitol Visitor Center, Hon. Eleanor Holmes Norton (Chair of the subcommittee) presiding.

Ms. NORTON. It is time for us to come to order and begin.

I ask unanimous consent that Members not on the subcommittee be permitted to sit with the subcommittee at today's hearing and ask questions.

Without objection, so ordered.

Finally, we are having the first hearing of our Subcommittee on Highways and Transit. I particularly look forward to collaborating with my good friend, the ranking member, Mr. Davis, and with Members on both sides of the aisle.

Bear in mind that this subcommittee and full committee have the reputation for being the most bipartisan in the Congress. There is a reason for that. We are dealing with what everybody wants.

The enthusiasm about our subcommittee is clear. This subcommittee is larger than almost all of the other full committees in the House. Everybody wanted to get on board. I think what that does is signal the importance of the underlying subject matter.

We, of course, are at the end—at least by 2020—of the FAST Act. The FAST Act was written by all of us. I was very pleased to work with Mr. Graves and with Mr. Shuster. I intend to run this subcommittee in the same bipartisan way. We need everybody.

The FAST Act was a significant achievement because it was the first full authorization act in 10 years. The chief problem for us—and perhaps it remains a problem—is that we had to do a 6-year bill in 5 years, because there was no increase in funding.

We have a tall and very different order this time. Obviously, we have got to maintain what we have, and we have not done a good job of doing that. But at the same time, we have got to modernize our entire system. And there are entirely new—at least for the subcommittee—issues: climate change, you can't build roads or transit the way you used to, with climate change bearing upon us.

So we regard this as a transformational moment in our work, as we try to figure out how do you move people and goods, in what

amounts to a new era for transportation and infrastructure than even a few years ago.

The challenge is huge, and it means that infrastructure at every level and all modes of transportation have to be looked at anew, and not in the way we looked at it even at the last reauthorization.

The importance of this bill, I supposed, is seen by the priority it has been given. It is H.R. 2. You know, there is H.R. 1 and there is H.R. 2. It means that this bill is important to the entire country.

We will not be able to do a bill worthy of the American people if we think the way we did last time, or if we pit one mode against another. What we need now is adaptable infrastructure that has to work together, particularly to avoid congestion.

This committee has to lead in accommodating one mode of transportation that will get people from one place to another, and they then may need another mode of transportation. So we will be depending not only on the usual modes of transportation—transit and autos—driving, that is—but we will be looking closely at biking and expediting walking, and even scooting, which I love to talk about.

[Laughter.]

Ms. NORTON. Would love to do.

Indeed, while this hearing is important, I am very interested in holding subcommittee hearings on these alternative modes of travel.

Transit investment is indeed a more critical part than it was at the last reauthorization. The Committee on Ways and Means has already begun leading. Some on the other side of their aisle talked about something I thought we had laid to rest some time ago, and that is that we are to stop funding transit with Federal dollars. Are they crazy? We need more transit. That is clean energy. I can't imagine it, and we are not going to go down that road again. It shut down this committee the last time it was raised.

The future of the Highway Trust Fund cannot be avoided. But when we talked about transit—before I get to that, when we talked about transit I recalled that from the last—from one of the last hearings we had people from rural areas—I remember the director of the Tennessee Department of Transportation indicated how important transit was to all the counties of Tennessee, and we better not just talk about that as an urban matter.

In the last authorization—technology was a very small part of our bill, or even our discussion. It is a major part of what we have to do if we are serious about our crippled congestion, and if we are serious about doing something about it. There are troubling signs of slippage in the skill of our labor pool. We will be having hearings on that matter.

The Committee on Ways and Means has already met to discuss the solvency of the Highway Trust Fund. I won't get into that.

The debate goes on, but whatever happens with funding, we must do our work to get a bill by 2020 for the American people.

[Ms. Norton's prepared statement follows:]

—————

Prepared Statement of Hon. Eleanor Holmes Norton, a Delegate in Congress from the District of Columbia, and Chair, Subcommittee on Highways and Transit

Welcome to the first hearing of the Subcommittee on Highways and Transit. I look forward to collaborating with my Ranking Member, Mr. Davis, and Members on both sides of the aisle.

Our Subcommittee, at 56 Members, is larger than almost all (18 of 21) full Committees in Congress. It is good that we have so much interest—because we have a hefty agenda. Moving a surface transportation authorization bill is the top priority of the Subcommittee this Congress. The FAST Act expires at the end of September 2020, and the Members of this Subcommittee are responsible for developing the next bill.

Today's hearing is the first step in the authorization process. We will hear from stakeholders at different levels of government and the private sector who will advise us on which areas of Federal highway and transit policy warrant a fresh look.

In this authorization, we need to restore and maintain the roads, bridges, and transit systems we have, particularly at a time when the changing climate threatens the longevity of these assets. We need to modernize so that transportation policy evolves and reaps the benefits of technology. We must also transform our transportation network to move people and goods more safely and efficiently.

I represent the District of Columbia, a densely populated city that—along with Maryland, Virginia, and the Federal government—provides a transportation system for over six million people. Congestion, transit woes, and deteriorating bridges are challenges my region faces on a daily basis. These same challenges are found across the country.

Today, we have with us the Mayor of the nation's fastest growing city—San Antonio, Texas, who will share his story of tackling congestion and delivering mobility.

We can't achieve these goals if we continue to think in outdated ways, by pitting one mode against another. We will need adaptable infrastructure that can accommodate any mode of transportation that will get a person from here to there—driving, transit, biking, walking, even scooting. We must direct investment to the most efficient and effective solutions.

Transit investment is a crucial part of this equation. At last week's infrastructure hearing before the Committee on Ways and Means, some Members on the other side of the aisle raised the tired argument that we should stop funding transit with Federal dollars. We have heard the argument that transit funding only helps urban areas. Access to transit is critical for every American—including in rural areas. For colleagues new to the Subcommittee, allow me to quote from testimony we heard in two hearings last Congress.

In a hearing on the future of the Highway Trust Fund, Mr. Jack Schroerer, the Director of the Tennessee DOT stressed the critical role transit plays in providing accessibility in rural areas. He stated: "In Tennessee, we fund transit in all 95 counties... it is an integral part of our rural areas to get people to the doctor and hospitals... Almost all that money is Federal dollars, comes from FTA, and we put it to good use, and people in our rural counties use it a lot."

At a separate hearing, we heard Julia Castillo, head of the Heart of Iowa Regional Transit Agency testify on the importance of public transit options in rural Iowa. Ms. Castillo stated in her testimony: "People who live in more rural areas need the same types of services as those in urban areas and even though it may be more challenging and sometimes more expensive, we need to find ways in which to efficiently meet those needs so their independence, freedom, quality of life and ability to grow and prosper where they live is not compromised."

In the next authorization, we must also harness technology and innovation. Innovation has the power to address crippling congestion problems. It has the promise of saving lives and ushering in dramatic safety gains. And it has the ability to seamlessly connect people to a choice of transportation options. But these gains can only be realized if we find the right balance in public policy to protect consumers, workers, and taxpayers while spurring innovation. This Committee must play a strong role in finding and supporting that balance.

We must also ensure that we have a skilled labor pool to take on the challenge of building 21st-century infrastructure. In a long-term reauthorization bill, we must prioritize investing in human capital and worker training. We must also ensure a level playing field for women and minority contractors. I'm pleased to welcome Al Stanley who is here today on behalf of the Associated General Contractors of Amer-

ica. Mr. Stanley, we welcome your insight into industry needs and best practices on workforce development. Thank you for being here today.

Of course, our Subcommittee cannot get a bill to the President's desk without finding the means to pay for these investments. For that, we need the Committee on Ways and Means to act to raise Federal revenue. It is time for Congress to step up and address the solvency of the Highway Trust Fund. I am pleased that the Ways and Means Committee took the first step and held a hearing on this pressing issue last week.

As the funding debate goes on, we must do our work on this Subcommittee and develop a sound plan that directs investment to projects and priorities that will move our country forward. Thank you to the witnesses for sharing your ideas on that front this morning. I look forward to your testimony.

Ms. NORTON. Now I am going to ask the ranking member to make his opening statement at this time.

Mr. DAVIS. Well, thank you, Madam Chair, and it is a pleasure to be able to have this opportunity to work with you. I am very thankful to our leader, Ranking Member Graves, for giving me this opportunity to chair this—to be the ranking member of this subcommittee. Sorry about that. Sometimes old habits are hard to break.

I really want to thank, too, my good friend and the chairman of the full committee, Peter DeFazio. I have got a great working relationship with the chairman, and our years that we have served together on this committee.

And he is—he and also Chair—Madam Chairman Holmes Norton, they want to work with us. They want to get things done. And that is really where I think this committee can rise above, and this subcommittee can rise above the partisan politics that we see kind of take over what is happening here in Washington.

You know, you mention the size of this subcommittee. It is actually six times the size of the full committee I serve on that I am the full committee ranking member of, the Committee on House Administration. But it also shows the importance of where we are as a nation, when it comes to reinvesting and rebuilding our crumbling roads and infrastructure. And if this subcommittee is any indication, this will be where that bipartisan agreement comes from.

As everyone here knows, the FAST Act that provided \$281 billion for Federal surface transportation programs expires at the end of September of 2020. Madam Chair and I, along with Chairman DeFazio and Ranking Member Graves, we will work together to develop a long-term strategy on how to address our Nation's infrastructure needs. But it has got to be a bipartisan bill to put a reauthorization forward.

With this being our first hearing on reauthorization, I think it is important to note how critical this bill is to ensuring a good quality of life for all Americans, and to supporting our economy.

This bill, surface reauthorization bill, will allow the Federal Government to continue its longstanding role in infrastructure investment. But we have got some big challenges and some opportunities before us. Now let me highlight a few of them.

First, the Highway Trust Fund is not able to meet our surface transportation needs as they stand today, let alone our future needs. Congress and the administration must come together and find a way to shore up the Highway Trust Fund, providing sustainable funding for our Nation's infrastructure needs.

Second, while our current system has significant needs, we must also begin to prepare for the future. Underinvestment has taken its toll on the system's ability to move people and also freight. We face increasing congestion, delays, and safety issues. Not only is adequate infrastructure investment important to mobility, it also creates jobs and allows our economy to prosper.

Third, as this process moves forward, it is essential we find ways to build more efficiently so we can stretch the Federal dollar. We need to identify and attack hidden project costs by streamlining the project delivery process and reducing burdensome regulations. And this committee has a history of doing so.

And lastly, by incorporating technologies and other innovations, we have the opportunity to increase safety and efficiency in our entire surface transportation system.

I believe we can look forward to and I believe we can do these things and come to an agreement. And I look forward to working with my colleagues on these very important issues.

And I want to take an opportunity to say thank you to each of the witnesses that are here today, too. And I look forward to your testimony.

[Mr. Davis's prepared statement follows:]

Prepared Statement of Hon. Rodney Davis, a Representative in Congress from the State of Illinois, and Ranking Member, Subcommittee on Highways and Transit

As everyone here knows, the FAST Act, which provided \$281 billion for federal surface transportation programs, expires on September 30, 2020. Chairwoman Norton and I, along with Chairman DeFazio and Ranking Member Graves, will work together to develop a long-term, bipartisan bill to reauthorize surface transportation programs.

With this being our first hearing on reauthorization, it is important to note how critical this bill is to ensuring a good quality of life for all Americans and to supporting the U.S. economy. The surface transportation reauthorization bill will allow the federal government to continue its long-standing role in infrastructure investment. But we have some big challenges and opportunities before us. Let me highlight a few of them.

First, the Highway Trust Fund is not able to meet our surface transportation needs as they stand today, let alone our future needs. Congress and the Administration must come together and find a way to shore-up the Highway Trust Fund, providing sustainable funding for our Nation's surface transportation programs.

Second, while our current surface transportation system has significant needs, we must also begin to prepare for the future. Underinvestment has taken its toll on the system's ability to move people and freight—we face increasing congestion, delays, and safety issues. Not only is adequate infrastructure investment important to mobility, it also creates jobs and allows our economy to prosper.

Third, as the reauthorization process moves forward, it is essential that we find ways to build more efficiently—to stretch the federal dollar. We need to identify and attack hidden project costs by streamlining the project delivery process and reducing burdensome regulations.

And lastly, by incorporating technologies and other innovations, we have the opportunity to increase safety and efficiency in our surface transportation system.

In closing, to quote the greatest band of the 90's and 2000's, "if today was your last day, and tomorrow was too late," can we reach an agreement on reauthorization? I believe we can and look forward to working with my colleagues this Congress to achieve this goal.

Mr. DAVIS. And I yield back.

Ms. NORTON. Thank you very much. I am going to go to the——

Mr. DEFAZIO. No, Madam Chair.

Ms. NORTON. I am going to go to——

Mr. DEFAZIO. Thanks.

Ms. NORTON. If he will let me.

[Laughter.]

Ms. NORTON. To the chairman of the full committee, Mr. DeFazio.

Mr. DEFAZIO. Thank you. First, I would like to give you this, Eleanor [giving a box to Ms. Norton]. I am a bit pressed for time, and I will miss some of your testimony because I have to have my third call in 3 days with the FAA about 737s.

So just briefly, we have a little cognitive dissonance this week. We have the President's budget, which again proposes, you know, cuts pretty much across the board in transportation, on one hand, but then talks about the fairy dust of leveraging \$200 billion of Federal money into \$1 trillion of investment, something we all know is impossible. It was part of the plan last year by D.J. Gribbin, which I am not aware of a single Member of Congress supporting, because it was so fanciful. It was based in so-called asset recycling, privatization, tolling, whatever.

We need to do something real, and it is long overdue. We held the first hearing in the full committee on the cost of inaction, doing nothing. And now we are going to start talking about how we fund and move forward with the longer term bill.

You know, CRs hurt, in terms of construction. States will delay major projects if we are in CR mode, because they don't know what the long-term prospect is for a major project. I was one of the few Democrats to vote against the so-called Recovery Act, because it was all based in shovel-ready projects, running out and putting down pavement on top of pavement, as opposed to addressing some of the major deficiencies in the system, the bridges, or whatever you wanted to address with real investment, where you get secondary and tertiary employment effects. Contractors didn't buy any new equipment, because they knew it was a 1-year thing to go out and put down a little bit of pavement. So the manufacturers of equipment didn't get the orders, and so on and so on, down the line.

We need a long-term vision. We need long-term funding. The Committee on Ways and Means did hold a hearing last week, the first hearing, substantive hearing, by that committee on infrastructure funding, in almost a decade. So that is progress.

But again, people wanted to fall to easy solutions. Oh, all we need is an investment bank. Or, oh, let's go to vehicle miles traveled tomorrow. We can't and we won't. As far as a private investment bank goes, we have already got TIFIA. Yes, if you want to have a private investment bank, that is great. But you are still competing for the same 12 percent of the projects that can fund a revenue stream to repay those projects. That means we have got another 88 percent of need here.

There is no transit system in the world that makes money. So we can't pretend that we are going to suddenly have massive private investment in rebuilding the \$100 billion of deficit we need just to bring existing transit up to a state of good repair, which would attract a lot more riders, let alone building out new transit options for people.

So, you know, we are here to make the case. We know the policies we need, we know we need more investment. We have to make the case to America, we have to make the case to this administration, we have to make the case to some of our colleagues here in Congress, that you can't just paper this over again.

The FAST Act papered it over. They pretended to, you know, create money. We are actually borrowing money to put in the trust fund right now. We are not admitting it because we had illusory phoney pay-fors that the Republicans stuck in the bill. But it was status quo funding. That was not adequate.

I did, after a long battle, get a provision in the bill that says any additional real funds allocated by Congress will immediately flow through the policies in this bill. So we don't have to have a lengthy authorization fight to get some money out there soon.

We are, at the same time, working on a long-term reauthorization, which, as Eleanor said, will be iterative. It is going to be the first 21st-century authorization, and it will be different than the repetitive things we have done, building on the Eisenhower legacy, which was a great legacy. But it is time to move on to more progressive things.

[Mr. DeFazio's prepared statement follows:]

Prepared Statement of Hon. Peter A. DeFazio, a Representative in Congress from the State of Oregon, and Chair, Committee on Transportation and Infrastructure

Thank you, Chair Norton and Ranking Member Davis, for holding this hearing. Without question, the most imperative work this Subcommittee will undertake in the 116th Congress is crafting a surface transportation authorization bill.

Although the deadline when highway and transit programs expire—September 2020—may seem a comfortable distance on the Congressional calendar, we don't have time to spare. We must find a solution immediately to a very real and very looming funding crisis in order to make reauthorization possible.

We are just one week away from the official start of spring—and the start of the construction season in many parts of the country. Thanks to the FAST Act, States and local governments go into this construction season with certainty when it comes to highway and transit investments. That will not be the case for much longer. Planning projects, signing contracts, and hiring workers will all grind to a halt next year if Congress fails to enact a reauthorization bill.

When we get too close to the wire on passing an authorization—or when the amount or availability of Federal funding becomes uncertain with Continuing Resolutions and government shutdowns—it has real effects on stalling highway and transit projects. Earlier this year, we saw evidence of this, when Oklahoma announced that 45 projects were being delayed due to the government shutdown. In the spring of 2015, as Congress was beginning its process to develop the FAST Act, several States announced they would delay the start of projects over uncertainty about whether and when Federal funds would come.

Last week, the Committee on Ways and Means held a hearing on finding a sustainable solution to highway and transit funding. The hearing demonstrated once again that there is near unanimous support among stakeholders for finding real revenues. The U.S. Chamber of Commerce, the AFL-CIO, and the American Trucking Associations were all in firm agreement that the cost of inaction to businesses, workers, and the economy is real. Even more importantly, the unequivocal willingness of the business community to pay higher user fees in order to have better infrastructure is equally real. This is consistent with the message this Committee has heard from stakeholders for years.

It is time for this clear willingness to translate into action by Congress to do the right thing and raise real revenues. At the hearing, many Republican members of the Committee advocated for private investment, pushing State and local governments to do more on their own, and stripping transit out of the Highway Trust Fund. Let me be clear—this is the opposite of raising real revenue. This lowest-com-

mon-denominator mentality does nothing to address structurally deficient bridges, crippling congestion, or the need to build more resilient infrastructure. In fact, it does the opposite by cementing underinvestment as a strategy.

I see plenty of opportunity in the upcoming surface transportation bill to improve highway and transit programs. We can save time and money in project delivery through smarter design, increased accountability, and tougher procurement rules. We can learn from and reward State innovation, and we can provide more local control over transportation dollars. We can harness the power of technologies to reduce congestion and increase safety. We can invest in electrification and other strategies to reduce greenhouse gas emissions. And with every dollar, we can create and sustain more good-paying American jobs and support U.S. manufacturing.

But all of that will only become a reality if we get serious about finding the money and come to agreement that there is no time to wait. Thank you, Madam Chair, and I look forward to the testimony.

Mr. DEFAZIO. So, with that, I have to go take a call from the Administrator, but I will be back. Thank you very much, I appreciate it.

Ms. NORTON. I want to thank our distinguished chairman for giving me a gavel. There is nothing more precious than having your own gavel. And it even has my name on it. So I appreciate that very much, sir.

[Applause.]

Ms. NORTON. As I think was mentioned, this hearing is being held here. This is not our hearing room. Our hearing room will be available in May. Therefore, you will see our Members having to come all the way over from, usually, Rayburn.

For example, I have another very important committee meeting going on right now. I just can't go, so I regret that. But Members will come in when they can, and we understand.

We really have here a cross-section of witnesses to open today's hearing, so that we begin to get the lay of the land.

We have the mayor of the city of San Antonio—the fastest growing city, I believe, in the United States—Mayor Ron Nirenberg.

Mr. Roger Millar, who is the secretary of the Washington State Department of Transportation, is here on behalf of the American Association of State Highway and Transportation Officials.

We have Darran Anderson, the director of strategy and innovation at the Texas Department of Transportation, but he is here on behalf of the Texas Innovation Alliance—a very important new area for us.

Jack Clark, the executive director of the Transportation Learning Center.

Therese McMillan, executive director of the Metropolitan Transportation Commission on behalf of the Association of Metropolitan Planning Organizations.

Al Stanley, vice president of Stanley Construction Company on behalf of Associated General Contractors of America.

And Michael Terry, who is president and CEO of IndyGo, Indianapolis Public Transportation Corporation, here on behalf of the American Public Transportation Association.

So we will start with Mr. Nirenberg. But before we begin, we would like Mr. Carson, my good friend from Indianapolis, to introduce Mr. Terry, who is a constituent from his own district.

Mr. CARSON. Thank you, your excellency, Chairwoman Norton, and to Ranking Member Davis, for allowing me to speak today. I

am going to have to leave. I know this isn't my committee, but I have another commitment.

I am honored to introduce a friend and fellow Hoosier, Mike Terry. Congressman Pence knows Mr. Terry, as well.

IndyGo is the Indianapolis Public Transportation Corporation. It is our largest transportation provider in the great Hoosier State, and it has been led by Mike Terry since 2009. And Madam Chair, under his great leadership, IndyGo was awarded funding under the Obama administration to build the first green bus rapid transit program in the country.

Despite the current administration's recommendations to terminate this funding, Mike's steady leadership helped win a voter initiative that added State funding to this transit program, and he worked with our congressional delegation to secure the appropriations needed to build an innovative system that we believe will be a smart model for other mid-sized cities.

Mr. Terry, thank you for your leadership and for testifying today to share your thoughts with my colleagues.

I yield back, Madam Chair.

Ms. NORTON. Thank you, Mr. Carson.

Without objection, our witnesses' full statements will be included in the record.

Since your testimony, your entire testimony, will be made a part of the record, we ask that you limit your oral testimony to 5 minutes.

Mayor Nirenberg, you may proceed.

TESTIMONY OF HON. RON NIRENBERG, MAYOR, CITY OF SAN ANTONIO, TEXAS, ON BEHALF OF THE NATIONAL LEAGUE OF CITIES; ROGER MILLAR, PE, FASCE, FAICP, SECRETARY, WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, ON BEHALF OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS; DARRAN ANDERSON, DIRECTOR OF STRATEGY AND INNOVATION, TEXAS DEPARTMENT OF TRANSPORTATION, ON BEHALF OF THE TEXAS INNOVATION ALLIANCE; JOHN KEVIN "JACK" CLARK, EXECUTIVE DIRECTOR, TRANSPORTATION LEARNING CENTER; THERESE W. MCMILLAN, EXECUTIVE DIRECTOR, METROPOLITAN TRANSPORTATION COMMISSION, ON BEHALF OF THE ASSOCIATION OF METROPOLITAN PLANNING ORGANIZATIONS; AL STANLEY, VICE PRESIDENT, STANLEY CONSTRUCTION COMPANY, INC., ON BEHALF OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA; AND MICHAEL TERRY, PRESIDENT AND CEO, INDIANAPOLIS PUBLIC TRANSPORTATION CORPORATION (INDYGO), ON BEHALF OF THE AMERICAN PUBLIC TRANSPORTATION ASSOCIATION (APTA)

Mr. NIRENBERG. Good morning, Chair Norton, Ranking Member Davis, and members of the subcommittee. I am Ron Nirenberg, the mayor of San Antonio, Texas, the Nation's seventh largest and fastest growing city in the United States. I am honored to be here today on behalf of the residents of San Antonio and also the National League of Cities, the Nation's oldest and largest network of cities, towns, and villages across America.

Right now there are over 2,000 local officials here in DC meeting with their Members of Congress to emphasize a simple message: Invest in America's infrastructure.

America's cities and local leaders are ready to work with this committee to reauthorize our essential transportation programs. We believe that investing in infrastructure should be Congress' top priority this year.

As mayors, we are tasked with fixing everything under the sun, from street maintenance and congestion to air quality and pollution. And as fellow Texan, President Lyndon B. Johnson, once remarked, "When the burdens of the Presidency seem unusually heavy, I always remind myself it could be worse. I could be a mayor."

The challenges that cities and towns must confront are great and growing, but so are the opportunities for investment and innovation. We believe that the greatest opportunity in front of this committee is to partner and to collaborate with America's mayors and the National League of Cities to address our shared infrastructure priorities. We believe that Congress should focus on three key areas: modern mobility, regional connectivity, and safety.

Cities believe the mobility of our citizens should be the new measure of success in the next reauthorization. This focus on mobility is to move people in the most efficient, effective, and safest way possible. Today the transportation marketplace is undergoing a technological revolution. It is unmistakable. From ridesharing to e-scooters, entrepreneurs are innovating to meet the demand for more and better transit options. We believe in supporting innovation with responsible rules of the road, and by investing in infrastructure that is durable and adaptable to the future.

In San Antonio we are working on a framework for modern mobility called ConnectSA. This initiative builds off past community planning efforts around land use, buses, bikes, and roads. The goal is to integrate all of our infrastructure investments to achieve a more efficient transportation network that moves people more safely and more effectively. ConnectSA will leverage first- and last-mile technology, build an advanced rapid transit network over 500 square miles on dedicated lanes, and improve the bus system for more frequent ridership. We have a menu of local revenue options to fund this investment, but a Federal partnership is absolutely necessary for success.

Our cities are rapidly growing, and we have to provide more transit choices to alleviate traffic congestion and to grow our economy. The U.S. is now the most congested developed nation in the world, with Americans spending an entire workweek each year stuck in traffic. And San Antonio, by 2040, will add another million more people. And with the additional cars we will lose yet another workweek in traffic. We have to be proactive in addressing this challenge.

The fastest growing region in the Nation is the 74-mile corridor anchored by Austin and San Antonio. Achieving the full economic potential of this mega-region requires investing in regional connectivity and reducing congestion. Current congestion risks this growth coming to a grinding halt. By 2040 the Interstate 35 corridor between San Antonio and Austin will exceed or rival Dallas-

Fort Worth. We are working with our metropolitan planning organizations to expand capacity and utilize technology, and a regional rail line continues to hold enormous promise. We need a Federal partner that invests in regional connectivity to expand our economy.

Finally, a transportation system is only as effective as it is safe. In addition to modern mobility and regional connectivity, safety is a top priority for our cities. This is an ongoing crisis that deserves more attention. Cities—along with our health professionals, safety workers, transportation leaders—believe that zero is the only acceptable number of deaths on our roads. So we are all working towards Vision Zero efforts. Saving lives on our Nation’s roads is a shared priority.

Additional funding for safety nets that are both data-driven and evidence-based would make our transportation system much safer. The cities and mayors of America are here to be your partners on progress for surface transportation. We urge you to make investing and infrastructure, modern mobility, regional connectivity, and safety your top priority. America’s economy will only move as well as its transportation system. And our children and grandchildren’s quality of life depends on us making bold decisions together.

Thank you, and I look forward to answering your questions.

[Mr. Nirenberg’s prepared statement follows:]

**Prepared Statement of Hon. Ron Nirenberg, Mayor, City of San Antonio,
Texas, on behalf of the National League of Cities**

Good morning, Chair Norton, Ranking Member Davis and Members of the Subcommittee:

I am Ron Nirenberg, Mayor of San Antonio, Texas, the nation’s seventh largest city and the fastest growing city in the U.S. I am honored to be here today on behalf of the city of San Antonio and the National League of Cities (NLC), the nation’s oldest and largest network of cities, towns and villages across America.

REBUILD AMERICA’S INFRASTRUCTURE

Cities are ready to work with this Committee to increase infrastructure investment and to reauthorize our essential transportation programs. In fact, right now there are over 2,000 local officials in D.C. here to meet with their Members of Congress to reiterate that infrastructure must be Congress’ top priority this year. We ask that this Committee work with local leaders to forge a bipartisan path forward.

Local leaders want to play a larger role in rebuilding America’s infrastructure in collaboration with our Federal and state partners. Every day, city leaders hear from our citizens, and they’re quick to tell us—they want modern mobility options that are efficient, reliable, cost-effective, and safe. From budget commitments to bonding to ballot initiatives, local officials have shown that when given the opportunity to leverage Federal investments in our regions and give our citizens the mobility they want, we will follow through.

Today, you have asked for our feedback on aligning our transportation policy to meet cities’ needs across the country. We believe strongly the U.S. needs to shape its transportation approach for the future with both our growing megaregions and our small towns in mind. Cities like San Antonio are growing rapidly along with congestion that demands new approaches, not just more lanes. We should all be equally invested in bridging the urban-rural divide in our country because investing in what connects every American is a predictor of success for both rural and urban areas. To accomplish this, local leaders encourage Congress to focus on three key areas: investing in mobility, regional connectivity, and data-driven safety programs.

INVEST IN CITIZENS’ MOBILITY

Cities believe the mobility of our citizens should be our new measure of success in the next reauthorization. Cities of all sizes are not only piloting technology-driven

solutions with their partners but are harnessing new mobility options in their existing pain points and throughout their regions. Without a doubt, we also acknowledge these new mobility options are not replacing our existing strategic transportation investments. In fact, they are more important than ever because innovators are leveraging them. Ride hailing use our roads and curb space. Rapid buses move on dedicated road lanes. Bikeshare and scooters use bike lanes and transit exchange points. Traffic management solutions leverage our city signs, lights and broadband. Investing in mobility is about committing to innovation and building off our strategic assets.

In San Antonio, we are embracing this strategy. We are building a framework for modern mobility called ConnectSA. We are focused on better access for all our citizens by leveraging innovative transit options and improving traffic flow through our city. Our goal is to seamlessly integrate last-mile options like scooters and bikes and to invest in reliable and frequent buses for an advanced rapid transit network while we manage congestion to accommodate our future growth.

Local officials also recognize that innovation is currently not equally distributed. However, if Congress could right-sized Federal programs for urban, growing and small communities, new mobility models could move more quickly into small and medium communities. Communities of all sizes see tremendous value in right-sizing technology and mobility models to allow greater on-demand service for both seniors, workers heading to major employers, and for late-shift workers to have a dependable ride home. Investing in mobility like this could change the lives of so many of our residents at home.

INVEST IN REGIONAL CONNECTIVITY

The U.S. is now the most congested developed country in the world, with Americans spending an entire work week each year stuck in traffic. More than two out of every five miles of the nation's urban interstates are congested, and most of them flow straight through our major urban cores. Creating and sustaining a transportation network that works—a platform for commerce and human interaction—is one of the oldest and most important functions of government.

The fastest growing region in the Nation is the 74-mile corridor anchored by San Antonio and Austin. This is the western half of the Texas Triangle, and America's next great metropolis. We have all the elements of a successful metro economy: world-class universities, an educated and expanding workforce, a burgeoning tech community, relatively affordable land and a business friendly environment. Achieving the full economic potential of this San Antonio-Austin mega-region requires investing in connectivity to reduce congestion. Current congestion risks this growth coming to a grinding halt. By 2040, the Interstate 35 coordinator population will rival the Dallas-Fort Worth area's current size. We are working with our metropolitan planning organizations to expand capacity and utilize technology, and a regional rail line continues to hold enormous promise.

We need a Federal partner that invests in the essential connectivity options that will keep our regions growing. A regionally driven strategy can build partnerships and bold solutions that fit each area's needs. One size will not fit all, but no one is better equipped to evaluate and prioritize than those on the ground at the local and regional level. New programs, Federal Surface Transportation Block Grants, Transit New Starts, Transportation Alternatives, multimodal Transportation Investment Generating Economic Recovery (TIGER) and Better Utilizing Investments to Leverage Development (BUILD) grants, and smaller grants like Mobility on Demand will all be critical to a future of innovative mobility and regional cooperation.

Demand for these grants far exceeds the amount of available funds. Each year, USDOT sees many times more applications for BUILD grants than they have funds available which should be a startling statistic if we are committed to meeting America's intermodal needs for the future.

INVEST IN DATA-DRIVEN SAFETY

In the U.S., crashes and collisions on the roadways are the leading cause of death for people between the ages of 5 and 24 and the cause of over 2.5 million injuries. Cities—along with our health professionals, our public safety workers, our transportation leaders—believe that zero is the only acceptable number of deaths on our roads. In the Road to Zero coalition, we are proud to be joined by over 900 partners to:

- Double down on what works through proven, evidence-based strategies
- Advance life-saving technology in vehicles and infrastructure
- Prioritize safety by adopting a safe-systems approach and creating a positive safety culture

Cities, like San Antonio, are leading Vision Zero efforts, but saving lives on the nation's roads is a joint responsibility. Additional funding to safety efforts that are both data-driven and corridor-driven, taking systems-based approaches, and deploying technical experts across regions could drive results.

CONCLUSION

In closing, this reauthorization's transportation investment could bring new mobility, connectivity and safety to our hometowns. Cities believe that Congress must continue to be a steady Federal investment partner in infrastructure through the Highway Trust Fund, and it has become an economic and safety risk to not adequately fund a multimodal transportation system. We encourage Congress to set a new revenue course for the future that also course corrects our policies to leverage the innovation happening in transportation and invest in the mobility for our citizens.

Cities are ready to step up and be a true partner in these efforts. I look forward to any questions you might have.

Ms. NORTON. Thank you, Mayor Nirenberg.

Mr. Millar, secretary of the Washington State Department of Transportation, on behalf of the American Association of State Highway and Transportation Officials, you may proceed for 5 minutes.

Mr. MILLAR. Thank you, Chair Norton and Ranking Member Davis, for inviting me to participate in this hearing. I am Roger Millar, the secretary of the Washington State Department of Transportation.

Today it is my honor, on behalf of the State of Washington and AASHTO, which represents the transportation departments of all 50 States, Washington, DC, and Puerto Rico—so it is my honor to present on their behalf.

I am going to focus my comments today on strengthening the Federal-State-local partnership model, improving the delivery of projects to save time and money, utilizing innovation to address mobility challenges, including safety, state of good repair, congestion, and universal access, and supporting good jobs in a qualified transportation workforce.

As the Congress considers FAST Act reauthorization, AASHTO urges that you retain the current highway and transit program framework. This includes retaining the current mass transit account within the Highway Trust Fund and retaining relative distributions. Additionally, we strongly recommend that Federal funds continue to be provided through the existing formula-based structure directly to the States. And we urge Congress to enact a revenue solution for the Highway Trust Fund, and to address the \$7.6 billion rescission of unobligated contract authority that is scheduled to take effect July 1, 2020.

States are eager to find ways to improve the delivery of projects to save time and money, while properly engaging diverse stakeholders and protecting the environment. Over the past several decades, significant progress has been made towards the goal of improving project delivery, including through provisions in SAFETEA-LU, MAP-21, and the FAST Act.

As you all know, NEPA is not a permit you apply for. It is, rather, a broad, transparent environmental review and decisionmaking process.

In Washington State, 90 percent of our projects in our last three major transportation packages since 2005 have been delivered on

or ahead of schedule and on or under budget. So project delivery has not been a problem in Washington State.

In Washington State, 94 percent of our projects are already excluded from NEPA through the use of categorical exclusions. The project types that we invest in have been proven to not negatively impact communities or the environment.

For our large projects that require detailed NEPA documents, we find that the robust community and agency involvement we participate in and lead upfront leads to better outcomes, adherence to budget and schedule, and broad acceptance and support for the projects.

Each State DOT has its own experience. Speaking on behalf of all the AASHTO members I can tell you that some of our States believe the NEPA process still takes too long and is too costly.

Federal programs should support State DOTs that take innovative approaches to improving mobility. We continue to evolve from highway builders of the last century to stewards of the 21st-century multimodal transportation system.

At WSDOT we recognize that we can't build our way out of congestion, and so we are instead focused on an actionable path forward in a congested world with limited resources. We are working on innovative approaches that encompass cooperative, automated transportation, mobility on demand, transportation system management and operations, transportation demand management, addressing the complex relationship between transportation and land use, providing a more complete suite of multimodal transportation choices, and making targeted investments in roadway capacity.

We are using managed lanes and congestion pricing, where appropriate, to improve mobility and move more people on the infrastructure we have in place. We are making investments in items like ramp meters and variable speeds message signs to improve our capacities.

We are expanding our nationally recognized commute trip reduction program to address travel modes other than the commute, because we find that today only 16 percent of our total traffic is commute traffic. The rest of it is people going about their business in different ways.

Finally, State DOTs need a well-trained and diverse workforce to deliver 21st-century transportation programs. The Washington State DOT expects to lose a significant number of our employees through retirement in the next 5 years, including 31 percent of our maintenance staff and 41 percent of our engineers. If you look at our Washington State ferries, the men and women who drive our boats, 75 percent of them are eligible to retire in the next 5 years. And that is not a license you pick up down at the DMV.

We also have significant gaps in our available workforce for our contractor and consulting partners. State DOTs can't deliver our programs without qualified personnel. So Congress should continue to support important programs like STEM education, on-the-job training, supportive services, and disadvantaged business enterprise supportive services to help us bring the people we need to the workforce to deliver the program.

In conclusion, we remain committed to assisting Congress in the development of strategies to ensure long-term economic growth,

and enhance quality of life through robust, multimodal transportation investments.

Thank you again for the honor and the opportunity to testify today.

[Mr. Millar's prepared statement follows:]

Prepared Statement of Roger Millar, PE, FASCE, FAICP, Secretary, Washington State Department of Transportation, on behalf of the American Association of State Highway and Transportation Officials

INTRODUCTION

Chairman Norton, Ranking Member Davis, and Members of the Subcommittee, thank you for the opportunity to provide the perspective of the nation's state departments of transportation on aligning Federal surface transportation policy to meet twenty-first century needs.

My name is Roger Millar, and I serve as Secretary of the Washington State Department of Transportation (WSDOT), and as a member of the Board of Directors and Chair of the Council on Public Transportation of the American Association of State Highway and Transportation Officials (AASHTO). Today it is my honor to testify on behalf of the great State of Washington and AASHTO, which represents the transportation departments of all 50 States, Washington, DC, and Puerto Rico.

I joined WSDOT as Deputy Secretary in October 2015 and was appointed Secretary of Transportation in August 2016. I've spent over 40 years working in the transportation industry at the local and state level and in the private sector. The prominent theme that has run through my career has been planning and implementing transportation systems that are not ends unto themselves; but rather the means toward economic vitality, environmental stewardship, social equity, public health, and aesthetic quality.

I oversee an agency that is the steward of Washington State's multimodal transportation system and responsible for ensuring that people and goods move safely and efficiently. In addition to building, maintaining, and operating the state highway system, WSDOT operates the largest ferry system in the Nation, sponsors the Amtrak Cascades intercity passenger rail service, owns and operates 16 airports, and owns a 300-mile short-line freight rail system. We work in partnership with others to maintain and improve local roads, railroads and airports, as well as to support mobility options such as public transportation, bicycle, and pedestrian programs.

Having this important conversation on the future direction of Federal surface transportation policy could not be timelier in light of the discussion around an infrastructure package and pending reauthorization of the Fixing America's Surface Transportation (FAST) Act. Given the ever-increasing pace of change in our world—through technological advances, workforce challenges, demographic changes, environmental instability, and economic uncertainty—there is tremendous opportunity to make Federal policy more proactive, flexible, and adaptable.

State DOTs have already taken significant action in modernizing our policy and technical development at AASHTO, with our Board of Directors approving a reorganization of the AASHTO committee structure in 2016. This was the culmination of an 18-month effort led by a committee of state DOT CEOs and senior DOT officials. This modernized committee structure is inclusive of all disciplines, addresses state-identified priorities and emerging issues, and is intended to be more efficient and nimbler in its decisionmaking.

Perhaps the hallmark of this change is putting all modes of transportation on equal footing when it comes to policymaking. AASHTO now formulates transportation policy through its six modal councils—active transportation, aviation, highways and streets, public transportation that I now chair, rail transportation, and water transportation—plus a special committee on freight, which I chaired until recently, all of which support the new AASHTO Transportation Policy Forum as the holistic policymaking body for the Association.

My remarks today center around the following key points:

- Strengthening the Federal/State/local partnership model
 - The current Federal program structure for highway and transit programs must be preserved.
 - Congress needs to enact a permanent revenue solution for the Highway Trust Fund.
- Improving the delivery of projects to save time and money

- States are eager to find ways to improve the delivery of projects to save time and money, while properly engaging diverse stakeholders in program and project development, upholding environmental safeguards and providing resiliency.
- Utilizing innovation to address mobility challenges, including safety, state of good repair, congestion, and universal access
 - Federal programs should support state DOTs that take innovative approaches to transportation system management, demand management, and improved mobility.
 - The Federal program must support and provide sufficient flexibility to allow state DOTs to harness innovation and technology.
- Supporting good jobs and a qualified transportation workforce
 - Congress should continue to fund programs that support the development of a diverse and robust workforce suitable for staffing the development and delivery of twenty-first century transportation programs.

As you examine what works well and what doesn't, I urge you to make sure that policies that work effectively are not discarded or nullified in the name of major reform.

STRENGTHENING THE FEDERAL/STATE/LOCAL PARTNERSHIP MODEL

The current Federal program structure for highway and transit programs must be preserved.

The state DOTs have the utmost appreciation for your Subcommittee's leadership, along with your House and Senate peers in partner committees to shepherd the FAST Act in December 2015. This legislation has ensured much-needed funding stability in the federally supported passenger rail, freight, safety, highway, and transit programs through 2020.

To further build on the Federal surface transportation's solid foundation, we believe that it is time for all transportation stakeholders—led by Congress and the President—to begin work on reauthorizing the FAST Act now. We are extremely grateful for the work of this Subcommittee in that regard. We need to ensure a smooth transition upon the FAST Act's expiration on September 30, 2020, without the need for disruptive extensions of the program.

As part of the work of AASHTO's Transportation Policy Forum, we are currently in the process of gathering expert input from our wide range of technical and modal committees comprising leaders from all state DOTs. We're also seeking our industry partners' input during this process prior to our formal adoption later next year, in order to maximize the inclusivity of perspectives in our policy recommendations to come.

As FAST Act reauthorization gets under way, AASHTO urges Congress to retain the current highway and transit program framework as the core foundation on which modernizing policy improvements can be made. This means not only retaining the current Mass Transit Account within the Highway Trust Fund (HTF) and their relative distributions of receipts in place since 1983, but also maintaining the current maximum non-Federal match ratios for both highway and transit programs. Furthermore, we strongly recommend that Federal funds continue to be provided through the existing formula-based program structure directly to states rather than looking at untested new approaches that will require more time and oversight.

For over one hundred years, we as a nation have enjoyed the fruits of the Federal Government's highly successful partnership with state DOTs to build and maintain our surface transportation system. Beginning with the Federal-aid Road Act of 1916 establishing the foundation of a federally funded, state-administered highway program that has been well-suited to a growing and geographically diverse nation like ours, Federal investment in all modes of transportation have allowed states and their local partners to fund a wide range of projects that serve the interest of the Nation as a whole.

The Federal surface transportation program's inherent flexibility defers project selection and investment decisionmaking to state and local governments. And these important decisions are based on extensive public input from local communities and businesses to address their unique needs and ensure goods get access to a larger market than ever before. Formula programs remain the optimal approach to serve all corners of our country, improving mobility and quality of life in urban, suburban, and rural areas.

Congress needs to enact a permanent revenue solution for the Highway Trust Fund.

I'm sure you have already heard these numbers, but they bear repeating. The investment backlog for transportation infrastructure continues to increase—reaching

\$836 billion for highways and bridges and \$122 billion for transit according to the US Department of Transportation's (USDOT) 2015 Conditions and Performance report. Similarly, the American Society of Civil Engineers, upon whose Board of Direction I sit, has identified a \$1.1 trillion funding gap for surface transportation between 2016 and 2025. It is also telling to look where our nation stands relative to global peers in infrastructure quality and economic competitiveness. The 2018 Global Competitiveness Report rankings from the World Economic Forum on infrastructure quality has listed the United States at just ninth place overall.

Yet at the same time, in order to simply maintain the current HTF spending levels adjusted for inflation after the FAST Act, Congress will need to identify \$114 billion in additional HTF receipts to support a 6-year bill through 2026. All the while 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 quarter century. Doubling the Federal gas tax today would bring us back the purchasing power of that tax in 1993. Catching up to late-twentieth century Federal investment levels will not keep the United States competitive moving forward into the twenty-first century.

These dire trends mean that absent a revenue fix by 2020, the HTF is expected to experience a significant cash shortfall leading to an estimated 51 percent drop in Federal highway obligations from the year before, or from \$47 billion to \$23 billion, and a zeroing out of Federal obligations from the Mass Transit Account in 2021 and 2022. In the past, such similar shortfall situations have led to the possibility of a reduction in Federal reimbursements to states on existing obligations, leading to serious cash-flow problems for states and project delays. Simply put, this is a devastating scenario that we must do all we can to avoid.

In addition to the massive cash shortfall issue facing the HTF, the FAST Act included a \$7.6 billion rescission of unobligated highway contract authority to take effect on July 1, 2020, as a means to bring the spending baseline back to the 2015 level on paper. Unfortunately, the contract authority rescission is a budgetary artifice that at best impedes the flexibility of state DOTs to meet their individual infrastructure needs by disrupting transportation planning and timely delivery of projects; and at worst, the cumulative effect of rescissions—with over \$22 billion enacted since 2002—can wipe out the entire balance of contract authority held by states which will lead to hard funding cuts to Federal dollars authorized under the FAST Act.

We in the transportation industry do everything in our power to build important projects as fast as possible, but due to the nature of large capital programs, the lack of stable, predictable funding from the HTF makes it nearly impossible for state DOTs to plan for large projects that need a reliable flow of funding over multiple years. Transportation projects large and small around the country will be put at risk near the expiration of the FAST Act if Congress fails to address both the impending HTF shortfall and repeal of the FAST Act rescission.

Such delays have serious economic consequences both in the short- and long-term, as these projects employ thousands of companies and hundreds of thousands of workers every year. More importantly, these projects are what connect the traveling public to the many facets of their lives. Once completed, they help stimulate economic growth and improve quality of life in every community where they are built.

Federal funding currently covers approximately 20 percent of WSDOT's budget. We use the vast majority of our Federal funds to preserve the National Highway System. While the Federal fuel tax has not been raised since 1993, Washington state has increased its Motor Vehicle Fuel Tax by over 26 cents since 2003 to a total of 49.4 cents. While our state legislature has stepped up to the plate to address the need for transportation investment in Washington, those investments have not adequately provided for the preservation of our roads, bridges, ferries, train sets, and aviation infrastructure. Our current annual unfunded preservation need is approximately \$700 million.

Predictable funding from the Federal Government to maintain the National Highway System in a state of good repair is necessary if we are to compete effectively in a global economy. Washington is one of the most trade-centric states in the Nation, with almost \$600 billion in annual trade-related economic activity. Preserving our transportation system in a state of good repair and managing the capacity of that system effectively are essential to moving products to market. In the next decade, with current funding levels, we are likely to see bridges closed, speed limits reduced, and routes not adequately preserved, significantly impacting the ability of businesses to compete globally.

Based on FY 2018 ending balances, the Federal Highway Administration (FHWA) projects Washington State will be faced with a \$117 million rescission in 2020. If

rescinded, we would be left with no apportionment balances at the end of the FAST Act.

We must take advantage of the short window of time we have right now to head off the dual threat of a HTF funding cliff and a large rescission in 2020. If we miss this opportunity for action, the extremely costly and disruptive scenario for transportation programs all around the country will become all but inevitable.

IMPROVING THE DELIVERY OF PROJECTS TO SAVE TIME AND MONEY

States are eager to find ways to improve the delivery of projects to save time and money, while properly engaging diverse stakeholders in program and project development, upholding environmental safeguards and providing resiliency.

Over the past several decades, significant progress has been made toward the goal of improving the delivery of transportation projects. This progress has been spurred by streamlining measures enacted in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Moving Ahead for Progress in the 21st Century Act (MAP-21), and the Fixing America's Surface Transportation (FAST) Act.

Several of the streamlining measures involve the National Environmental Policy Act (NEPA) and project delivery. Successful measures that WSDOT uses every day:

- New and revised NEPA categorical exclusions (CEs) to expedite routine activities and projects that don't impact the environment;
- Expanded programmatic agreements with FHWA; and
- Combined documents that all Federal agencies can use for their decision-making.

In Washington, we've benefited from each of these improvements. Because the NEPA process is scalable, the vast majority (94 percent) of work in our state is excluded from NEPA through the use of CEs. Since 2005, approximately 90 percent of WSDOT capital projects have been delivered on or ahead of schedule and on or under budget.

As you know, NEPA is not a permit; rather it is a broad, transparent environmental review and decisionmaking process. Our biggest multimodal projects do require detailed analysis under NEPA. Even for these large projects, we find the robust community and agency involvement up front leads to better outcomes, adherence to budget and schedule, and broader acceptance and support.

Each state DOT has its own experience. Speaking on behalf of all AASHTO members, I can tell you that even with the improvements to USDOT's NEPA processes, many feel it still takes too long and is too costly.

AASHTO has outlined the following ideas for future streamlining:

- Continue to expand programmatic agreements within USDOT and with the Federal resource and regulatory agencies;
- Extend the use of USDOT agency NEPA CE's to other Federal agencies when they are engaged in transportation related activities; and
- Make the current NEPA assignment more efficient for those states who are able to use that option.

Multiple laws and regulations are considered in the NEPA process, or as we say they fall "under the NEPA umbrella." To achieve further streamlining, focus must be paid to not only making continued improvement in the NEPA process itself, but also in making the NEPA process work more efficiently with other Federal requirements, all while remaining responsible stewards of taxpayer resources and both human and natural environments.

To make the NEPA process work more smoothly with other substantive environmental requirements, USDOT and state DOTs should work with Federal environmental agencies to develop programmatic approaches to streamline environmental processes.

In Washington, we have a great example of approach. In January of this year, we started implementing a new programmatic agreement for Section 106 of the National Historic Preservation Act. Our partners on this are FHWA and its Western Federal Lands office, Federal Transit Administration (FTA), the Advisory Council on Historic Preservation, and the state historic preservation office in consultation with 34 federally recognized tribes. As a result, my staff is able to undertake Section 106 compliance on behalf of FHWA and FTA.

Programmatic agreements greatly reduce the time and cost needed to meet environmental requirements, while maintaining resource protection and consultation. But development of these agreements requires time and resources. To ensure success in developing programmatic agreements, it is essential that adequate Federal resources be dedicated to this effort, both within the USDOT and within Federal resource agency budgets.

Under current NEPA regulations, each Federal agency adopts its own list of CEs applicable to actions that the agency carries out. If multiple Federal agency approvals are needed for the same project, and only one agency has an applicable CE, then that agency can issue a CE, but the other Federal agencies must prepare an Environmental Assessment, slowing down the process unnecessarily. While an existing law allows any USDOT agency to use any other USDOT's agency's CE, this authority has two important limitations: (1) applies only to USDOT multimodal projects, and (2) it does not apply to agencies outside the USDOT. Allowing CEs to be interchangeable between Federal agencies could significantly streamline projects. I have two scenarios where this would expedite and simplify approvals while still protecting the environment.

- First scenario: If the US Army Corps of Engineers is the only Federal agency involved in a state funded transportation project (bridge replacement), allow the Corps to apply a CE from FHWA's CE list.
- Another scenario: If there are multiple Federal approvals needed for a project, allow the other agencies to defer to the NEPA lead. At present, if a roadway project requires a new lease or land purchase from a Federal land management agency (National Park Service, US Forest Service, BLM), that agency can't use FHWA's CEs. Instead, they have to do an environmental assessment for the property action.

Regarding the formal assignment of NEPA, I need to point out that this voluntary program is not an option for all state DOTs. This is due to state laws and/or different experiences in each state DOT. That said, AASHTO members support the effort to improve the program for those states that both desire them and are willing to be held responsible for Federal authorities.

Currently, Alaska, California, Florida, Ohio, Texas, and Utah are participating in the NEPA assignment program made available to all states in MAP-21. Based on their collective experience, specific changes that will make this program both more efficient and attractive to interested states include:

- Simplifying the assignment application and audit processes;
- Allowing states to assume all of the responsibilities of the USDOT with respect to engineering and other activities related to environmental review, consultation, permitting or other action required under any Federal environmental law for project review or approval;
- Allowing states in this program to be solely responsible for the development of their policies, guidance and procedures so long as Federal laws and the USDOT requirements and guidance are met;
- Removing the pre-condition for a state to have taken on NEPA assignment for highways prior to being able to take on NEPA assignment for rail and transit projects; and
- Adding NEPA assignment authority to Title 49 to allow states to assume the Federal NEPA responsibilities of any USDOT modal administration.

For state DOT's without NEPA assignment, like WSDOT, we have successfully negotiated programmatic NEPA agreements. These agreements allow the state DOT to carry out routine interagency coordination tasks, while maintaining regular communication with USDOT. USDOT retains responsibility for all final decisions. Often these programmatic agreements eliminate confusion, redundancy and frees up USDOT's limited staff resources. We view this as a model for other FHWA approvals.

AASHTO has identified a number of areas where Congress could provide states with additional assignment authority to make determinations in lieu of seeking FHWA approval. Examples include Federal funds obligation management, project agreements, right-of-way acquisition, preventive maintenance, repayment of preliminary engineering and right-of-way costs, and credits toward non-Federal share, among many other possible areas of current Federal oversight. This kind of authority would reduce time-consuming processes while preserving the intent and integrity of Federal policy.

To foster the development and testing of new, innovative practices and approaches aimed at expediting project delivery while maintaining environmental protections, we ask Congress to consider establishing a project delivery innovation program.

Thanks to the states' partnership with FHWA, we're currently working on a limited version of such an innovation program through Special Experimental Project—or SEP-16. Under this initiative which in the past has yielded innovations in contracting and public-private partnerships, FHWA is soliciting proposals for delegation of various FHWA responsibilities directly to States. There is a wide range of potential applications if SEP-16 criteria can be met. Some possible examples include:

- States approving modifications to Stewardship and Oversight agreements without preapproval by FHWA, subject to FHWA's ongoing oversight of the State's compliance with Federal requirements;
- States taking the full responsibility for approving a new or modified access point on the Interstate System; and
- States developing a definition for "high-risk" Interstate projects that allows States to assume the full range of responsibilities for these efforts.

Another innovative practices example WSDOT has embraced is the design-build project delivery method as a "tool in the toolbox." For some projects, design-build can bring innovations to solve challenges more quickly and more cost-effectively. WSDOT is one of many state DOTs that are using design-build more often. We have learned a lot since our first design-build project in 2001, and we've had some great successes. Last year, we used design-build to replace the Wildcat Bridge on U.S. 12 in Yakima County. By using design-build, the creativity the private-sector designer brought to the table resulted in the project being completed with just 17 days of substantial construction, over 13 months ahead of schedule and saved the Department a third of the budgeted cost (\$3.7 million of \$12 million budgeted).

In addition to efficiently delivering our projects, we need resources to build more resilient infrastructure. Many of our existing assets were not designed to meet today's needs, or to withstand the changes we expect in the future. In addition, we know more today than we did in the 1950's and 1960's when much of the national transportation network was completed. We need to retrofit and we need to build in resilience. We're also working to manage stormwater so that our communities are protected from flood events and water-borne pollutants.

In Washington, we're burdened with thousands of undersized culverts, built to the Federal standard at the time of construction, that prevent adult salmon from reaching upstream habitat and/or prevent juvenile salmon from migrating downstream. Our culverts contribute to the decline of salmon runs—which in turn, impacts the economy and cultural heritage of the Pacific Northwest. In response to longstanding obligations under treaties between the Federal Government and Pacific Northwest Native American tribes, we are now under a Federal court order to fix enough culverts to open up 90 percent of the blocked habitat by 2030 at an estimated cost of over \$3 billion.

UTILIZING INNOVATION TO ADDRESS MOBILITY CHALLENGES, INCLUDING SAFETY, STATE OF GOOD REPAIR, CONGESTION, AND UNIVERSAL ACCESS

Federal programs should support state DOTs that take innovative approaches to transportation system management, demand management, and improved mobility.

At WSDOT, we are focused on an actionable path forward in a congested world with limited resources. The Practical Solutions Goal in our Strategic Plan calls for collaborating with our partners to address transportation problems/ opportunities within available resources, making the right investments in the right locations at the right time. It acknowledges that we are stewards of a complex transportation system with a route network that is essentially complete. We have an obligation to the people we serve to bring our multimodal transportation system to a state of good repair, to make sure that it operates safely, that it moves people, goods, and services as efficiently as possible, that we manage demand for limited and expensive system capacity, and that we, at times, add capacity to the system.

WSDOT recently completed a high-level analysis of what highway lane capacity would be required for a person to be able to drive the posted speed limits, at all times, on the Interstates through the three most congested areas of the state (The Central Puget Sound, Vancouver, and Spokane). We determined that it would require an additional 451 lane miles of highway at an estimated cost of approximately \$115 billion. Funding the construction of these facilities over a twenty-year period would require a \$2.25 to \$2.50 per gallon increase in the state gas tax. This analysis assumed no growth in population and employment and no induced demand and did not include the cost of accommodating the resulting increased traffic on other state highways and local roadways or of mitigating the environmental consequences of the investment.

While additional capacity is sometimes the answer in specific locations, we acknowledge based upon the evidence above and the preponderance of data from other states that we cannot build our way out of congestion. We are instead working on innovative approaches to move forward in a congested environment that encompass transportation system management and operations, transportation demand management, addressing the relationships between transportation and land use, providing a more complete suite of multimodal transportation choices, and making targeted

investments in roadway capacity. To make these changes requires a coordinated and leveraged approach. Flexibility and predictability in funding to develop and implement these programs will be more important to our success in the twenty-first century than capital investment made project-by-project without accompanying robust investment in the life cycle stewardship of the transportation system.

Transportation system management and operation projects can be coordinated with transportation demand and active transportation projects to eliminate or at least delay the need for major system expansion. Funding from the Congestion Mitigation and Air Quality (CMAQ) program has been helpful to our efforts to support transportation demands management with innovative local projects. We are transitioning from 25 years of focus on employment at large worksites—our nationally recognized Commute Trip Reduction (CTR) program—to add smaller employers and other trips, including off peak trips. In addition, transportation system management and operation investments like transportation management centers, ramp meters, active transportation management systems, and variable speed limits signs can be used to improve the efficiency of our existing roadways and prepare us for the capabilities of new technology coming our way.

We are also using managed lanes and congestion pricing where appropriate to improve mobility and move more people on the infrastructure we have in place. WSDOT has taken advantage of funding from past and current Federal programs including the 2007 USDOT Congestion Initiative and its Urban Partnership Agreements and the Value Pricing Pilot Program to help us explore and test these concepts. With our Interstate 405 Express Toll Lanes, launched in 2015, we are able to move 35 percent more vehicles in the peak hour when compared to a similar number of lanes and daily travel volumes on Interstate 5. These managed lanes also provide an attractive corridor for bus rapid transit systems and other public transportation investment.

The Federal program must support and provide sufficient flexibility to allow state DOTs to harness innovation and technology.

We are at a global inflection point in the transportation arena that is as significant as when the engine replaced the horse and buggy and Eisenhower's initiation of the National System of Interstate and Defense Highways. Today, there is dramatic change underway as the development and deployment of new technologies are resetting the relationships between the vehicles that transport people and goods and our multimodal transportation infrastructure. Our transportation systems are also responding to societal change, including a reduction in home-based commute trips as a percentage of the total demand on the system, a rapidly growing cohort of our population that do not possess driver's licenses, the urbanization of our metropolitan regions with an increased demand for walkable neighborhoods, a desire to maintain and enhance mobility in rural America, and an increased reliance on our transportation system for home delivery of retail goods and services. These and other factors are fundamentally changing the ways we move goods, services and people on our transportation system.

Concrete, asphalt, and steel are no longer the only important materials for transportation agencies. They have been augmented by data as the new asset that will save lives, provide transportation choice and improved mobility to all of our citizens, enhance program and operational efficiency, protect our environment, and create jobs. It is important now, more than ever, that we not only optimize relationships at local, tribal, state and Federal levels to ensure our transportation system is a steward and not a bottleneck of continued innovation, but expand out partnerships with the private sector, who's value to shareholders and the public is also dependent upon a sustainable, efficient, and reliable transportation system.

Technology creates new capabilities for transportation agencies to effectively manage and operate our roadways. The key to harnessing approaching technology is positioning and funding transportation agencies to leverage new technological opportunities.

State DOTs continue to evolve from highway builders of the last century to stewards of multimodal twenty-first century transportation systems, and we see technological innovation as an important new tool in our nation's transportation toolbox as we strive to provide safe mobility and access to everyone.

To better prepare for and leverage emerging technologies, AASHTO has recently established the Cooperative Automated Transportation (CAT) coalition, of which I serve as co-chair. The goals of this effort include creating a clearinghouse of connected and automated vehicle policy frameworks, bringing new multimodal mobility tools to our nation's communities, identifying funding opportunities and financing models to enable near-term investments, and developing model regulations that will facilitate near-term pilots and deployments.

As the owners and operators of a significant portion of the multimodal transportation infrastructure throughout the country, state DOTs are at the forefront of preparing for deployment of new transportation technologies, including connected and automated vehicles (CAVs) and Mobility on Demand (MOD).

Maintaining and preserving the current infrastructure in a state of good repair that meets the needs of current system users, while preparing for the benefits of the transformative technologies that are being introduced almost daily has given new meaning to workforce development and inclusionary collaboration within and between agencies. In response, many state DOTs are reorganizing or refocusing their project development and business processes to include preparing for multimodal trip planning and ticketing systems, vehicles equipped with Automated Driving System (ADS), and other innovations with the increasing ability to connect vehicles to each other and the infrastructure.

While encouraging consistency in traditional roadway design and traffic control device investments can assist in deployment of new technologies, taking steps to improve roadway pavement markings and signage and protecting the 5.9 GHz spectrum currently reserved for transportation safety and connectivity purposes will have lasting near and long-term benefits for both CAV and MOD.

State, tribal, and local governments remain the primary authority concerning operational safety of our transportation system, regardless of the technologies involved. For CAV this includes regulating the operation of motor vehicles after such vehicles have been constructed, the operators of those motor vehicles, as well as establishing the rules of the road on how motor vehicles can be safely operated on public roadways. I say this because your Subcommittee's assistance in helping to clarify Federal and non-Federal authority over motor vehicle "performance" as Congress deliberates on nationwide CAV policy will be crucial to state, tribal, and local governments.

For MOD this state, tribal, and local government role will encompass new protocols for partnerships between public infrastructure owners and operators and their counterparts in the private sector to ensure that all Americans benefit equally from MOD, that data is shared transparently between service providers, and that public investment in multimodal transportation infrastructure and services is optimized.

Beyond the national-level efforts by AASHTO and its members, Washington State has also placed the development of an enabling, cooperative automated transportation policy at the forefront. Beginning with a Governor's Executive Order and followed by Legislative action, public and private sector decisionmakers and stakeholders from every corner of the state have partnered together to engage in spirited discussion that will impact all aspects of our profession, from redefining long-range planning policies to revisiting and realigning near-term project priorities. WSDOT is an active partner and leader in this effort while emphasizing an inclusive, multimodal and integrated approach to automation and connectivity.

For example, some of WSDOT's near-term priorities include:

- increased use of public rights of way for telecom partnerships;
- infrastructure investments in roadway pavement markings and signing;
- supporting our local transit systems and private partners in providing first and last mile connections to transit; and
- expanding infrastructure investments to enable use of the 5.9 Ghz spectrum in a technology neutral manner.

SUPPORTING GOOD JOBS AND A QUALIFIED TRANSPORTATION WORKFORCE

Congress should continue to fund programs that support the development of a diverse and robust workforce suitable for staffing the development and delivery of twenty-first century transportation programs.

Inclusion and workforce development are two of the three goal areas of the WSDOT Strategic Plan. Like many states, Washington has an increasingly diverse population. By 2050 there will be no majority ethnic group in our state. We approach this demographic reality as an opportunity. A workforce with diverse backgrounds and perspectives to draw from will make Washington more competitive in the twenty-first century global marketplace. Through Inclusion, WSDOT is strengthening our commitment to diversity and engagement in all WSDOT business processes, functions and services to ensure every voice is heard. This goal has both an internal and an external focus to assure that we have an inclusive and diverse workforce while at the same time, meeting our Disadvantaged Business Enterprise goals and creating opportunities for underrepresented populations to do business with us.

Like other AASHTO members, workforce development is a priority in Washington State. WSDOT expects to lose a significant number of our employees through retire-

ment in the next 5 years, including 31 percent of our maintenance staff and 41 percent of our engineers. We also have a significant gap in the available workforce for our contractor and consultant partners. State DOTs can't deliver our programs without qualified personnel. WSDOT wants to be an employer of choice and is creating a modern work environment. We're proactively working to find the best possible talent for the agency, while taking steps to retain our quality workforce. As part of our Workforce Development goal, we listen and act on employee feedback and we provide training and other opportunities for development. At the same time, we evaluate systems to achieve and maintain competitive compensation.

WSDOT and other AASHTO members appreciate Federal interest in and support for our inclusion and workforce development efforts. Initiatives that would benefit from increased Federal support include:

- Science, Technology, Engineering, Arts, and Math (STEAM) programs, including internships for high school and college students at state DOTs;
- On the Job Training Supportive Services (OJT/SS) programs to provide support (day care, transit fare, lunch money, etc.) to people seeking training to enter into apprenticeships in the transportation construction trades;
- Capacity Building Mentorship programs sponsored by State DOTs, the contracting community, and other agencies to bring disadvantaged business enterprises into the transportation sector;
- Programs like the Sustainability in Prisons Project that provide offenders the skills to work with state DOTs when they return to the community;
- Environmental Justice and Cultural Competency training for state DOT employees, managers, consultants, local agency partners, and others; and
- Flexible schedule and open office environment initiatives that improve state DOT employee work environments.

CONCLUSION

State DOTs remain committed to assisting Congress in the development of strategies to ensure long-term economic growth and enhanced quality of life through robust multimodal transportation investments. Just last month, hundreds of state DOT leaders from all corners of our country were only a few blocks away attending AASHTO's 2019 Washington Briefing.

Over 4 days of productive discussions, many of my colleagues were on Capitol Hill meeting with their respective congressional delegations. As they did then, and as I do again now, 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.

Ms. NORTON. Thank you very much.

Next is Mr. Darran Anderson, director of strategy and innovation at the Texas Department of Transportation, who is testifying on behalf of the Texas Innovation Alliance.

You may proceed, Mr. Anderson.

Mr. ANDERSON. Chairwoman Norton and Ranking Member Davis, thank you again for inviting me to be here today. Again, my name is Darran Anderson. I am the director of strategy and innovation at the Texas Department of Transportation, and I am speaking on behalf of the Texas Innovation Alliance today. I appreciate the opportunity to provide testimony before the subcommittee and to share our experience with the alliance.

In short, the Texas Innovation Alliance is an action network of local, regional, and State agencies as well as research institutions who are galvanized to be a capability multiplier for mobility innovation. The mission of the alliance, which includes cities and regions across the State, is to strategically develop, launch, and sustain a portfolio of advanced mobility projects across the State of Texas to improve the lives, safety, and economic prospects of Texans.

As Texas continues to grow, the alliance proactively develops tools beyond traditional infrastructure, including innovative technologies, policies, and processes. The alliance partners include our largest cities: Houston, Dallas, San Antonio, rapidly growing cities such as Fort Worth, Austin, El Paso, Arlington, and Frisco, and regional partners such as Bryan-College Station and the Coastal Bend area. The alliance is open to any Texas locality or region that is interested in pursuing mobility solutions, as well as our research institutions.

Individually, communities have limited capacity and capability to develop mobility solutions and to prepare our infrastructure for the coming transformations. But together we have the ability to leverage our resources and our expertise and share across those cities and regions.

Texas is at a pivotal moment, where the rate of population growth, infrastructure needs, and technological advancement are challenging our ability to provide quality mobility services. Texas population is expected to nearly double by the year 2050. It is critical that we manage this disruption proactively, rather than allow rapid urbanization to stifle our State's economy and reduce our quality of life.

While the alliance is working well, the Federal Government continues to play a critical role in allowing for new technologies. We thank this committee for your work on MAP-21 and the FAST Act to streamline programs and gain efficiencies at the Federal level. Texas has realized time and cost savings because of the flexibility afforded by converting 70 funding silos into today's 6 Federal highway programs, and by providing States the opportunity to assume responsibilities under the National Environmental Policy Act.

The alliance is seeking to mirror those successes by not duplicating each other's initial innovation efforts, through sharing best practices between the alliance members, and through fostering an open exchange of what has and hasn't worked in their communities. The alliance partner members have demonstrated that local and regional governments are a key enabler to achieving our mobility goals, but the Federal authority to resource new technology in our core funding areas is critical.

To help enable the best use of technology to improve transportation mobility, we offer these suggested improvements for consideration in reauthorizing the FAST Act.

First, make technology eligible for Federal funding across all USDOT programs.

Second, clarify that infrastructure-based ITS capital improvements equipment required for the implementation of Vehicle-to-Everything, or V2X, as well as advanced mobility improvements are eligible uses under the State transportation block grant program.

And finally, when a public entity applies for transportation innovation grants with private-sector partners, we would like to have our proposal partners recognized by USDOT as sole-source contractors for the purposes of the grant, if awarded, rather than having to later need to also competitively bid to be part of that project after award, when they were part of the initial proposal.

The current approach stymies, rather than promotes the use of public-private partnerships. I have included more details on these items in my written testimony.

In 2017, Governor Greg Abbott signed the senate bill 2205 in Texas, which cleared the way for driverless vehicles to legally operate on Texas roadways. Laws such as senate bill 2205 encourage safe technology innovation in Texas.

Additionally, TxDOT has coordinated programs that identify, research, review, and test emerging technologies, and those inform the focus of the Texas Innovation Alliance.

As we usher in the next generation of technologies, an entrepreneurial approach is needed for States to take a leadership position, also to advance safety and the quality of life, to enable support for a 21st-century workforce, and to continue attracting and growing business.

On behalf of the alliance I thank the committee for the opportunity to testify today regarding the work we are doing in Texas.

[Mr. Anderson's prepared statement follows:]

Prepared Statement of Darran Anderson, Director of Strategy and Innovation, Texas Department of Transportation, on behalf of the Texas Innovation Alliance

INTRODUCTION

Chairwoman Norton and Ranking Member Davis, thank you for inviting me to be here today. My name is Darran Anderson and I am the Director of Strategy and Innovation at the Texas Department of Transportation (TxDOT) and am here on behalf of the Texas Innovation Alliance (Alliance). I appreciate the opportunity to provide testimony before the subcommittee today, and to share our experience creating and organizing the Texas Innovation Alliance.

In short, the Texas Innovation Alliance is an action network of local, regional, and state agencies, as well as research institutions who are galvanized to be a capability multiplier for mobility innovation. The mission of the Alliance is to strategically develop, launch, and sustain a portfolio of advanced mobility projects across the State of Texas, to improve the lives, safety, and economic prospects of Texans.

TEXAS INNOVATION ALLIANCE OVERVIEW

Building upon the momentum of the USDOT Smart City Challenge, the Texas Department of Transportation and the city of Austin issued a call to action in 2016. Metropolitan regions from around the state stepped forward, uniting as the Texas Innovation Alliance to address the state's most pressing mobility challenges.

As Texas continues to grow, the Alliance proactively develops tools beyond traditional infrastructure, including innovative technologies, policies, and processes. Alliance partners include our largest cities—Houston, Dallas, and San Antonio; small, but rapidly growing cities, such as Frisco; and regional partners, such as Bryan-College Station, and the Coastal Bend area. The Alliance is open to any Texas locality or region that is interested in pursuing mobility solutions (see Appendix A).

Individually, communities have limited capacity and capability to develop mobility solutions and prepare our infrastructure for the coming transformations. Together, we have the ability to leverage our resources and expertise. In fact, as I speak the Alliance is working on submission of an application for the Federal Highway Administration's Automated Driving Systems Demonstration Grant. Texas partners within the Alliance are taking a collaborative approach in offering a robust and diverse set of data, use cases, and deployments to help guide national Automated Vehicle guidance and rulemaking.

The Texas Innovation Alliance uniquely allows for this individualized problem identification and shared solutions. This enables Texas' cities and regions to connect with public and private sector partners; leverage investment to maximize impact at a lower cost; enable rapid deployment and sustainable solutions; develop best practices and lessons learned; and, build awareness and create unified communications.

Texas is at a pivotal moment—where the rate of population growth, infrastructure needs, and technological advancement are challenging our ability to provide quality mobility services. With five of the nation’s 15 fastest growing cities located in Texas and the population expected to nearly double by the year 2050, it is critical that we manage this disruption proactively rather than allow rapid urbanization to stifle our state’s economy.

HOW CONGRESS CAN HELP

While the Alliance is working well from a grass roots basis with state assistance and the resources of our research partners, the Federal Government continues to play a critical role in allowing for new technologies. We thank this committee for your work on MAP-21 and the FAST Act to streamline programs and gain efficiencies at the Federal level. Texas has realized time and cost savings because of the flexibility afforded by converting 70 funding silos into today’s six Federal highway programs, and by providing states the opportunity to assume responsibilities under the National Environmental Policy Act. The Alliance is seeking to mirror those successes by not duplicating efforts, through sharing best practices, and through fostering an open exchange of what has and hasn’t worked in their communities.

To help enable not only the Alliance’s efforts, but for all cities, regions, and states seeking how to best use technology to improve transportation mobility, we offer these suggested improvements for consideration when reauthorizing the FAST Act:

- Make technology eligible for Federal funding across all USDOT programs.
- Clarify that infrastructure-based ITS capital improvements equipment required for the implementation of Vehicle-to-Everything or V2X are an eligible use under the State Transportation Block Grant Program (STBGP). This would include:
 - Data collection and analysis;
 - Maintenance;
 - Integration;
 - Fiber and the data ecosystems to manage transportation operations; and,
 - The costs associated with systems, software, and equipment required for V2X implementation.
- We also support policy under the State Transportation Block Grant Program (STBGP) that would provide funding eligibility for advanced mobility improvements to include data infrastructure and analysis, smart mobility improvements such as smart truck parking, smart work zones, smart pavements, mobility-on-demand platforms, smart fleet, and alternative vehicle charging infrastructure.
- Finally, when a public entity applies for discretionary grants, such as the Advanced Transportation and Congestion Management Technology Development grant with private sector partners, we would like to have our partners recognized by the Federal Highway Administration as sole source contractors for the purposes of the grant, if awarded. It is extremely difficult to bring in a private partner during the application process if they will later need to competitively bid to be part of the project. The current approach stymies, rather than promotes the use of Public-Private Partnerships.

THE NEXUS OF TXDOT, ITS RESEARCH PARTNERS, AND THE TEXAS INNOVATION ALLIANCE

In 2017, Governor Greg Abbott signed Senate Bill 2205 which cleared the way for driverless vehicles to legally operate on Texas roadways. Laws such as SB 2205 ensure that rapidly evolving technology on the whole spectrum of operation remains safe on Texas roadways. To that end, TxDOT has a coordinated effort to research, review, and test emerging technologies that will someday have a great impact on the transportation network, thereby informing the focus of the Texas Innovation Alliance. This effort includes reliance on some of our other state technology leaders, such as:

The Texas Connected and Automated Vehicle (CAV) Task Force was created in January by Governor Greg Abbott and is led by TxDOT. This task force will serve as a repository of information for all on-going Connected and Automated Vehicle projects in Texas and will facilitate progress in advancing CAV technology through hosting industry forums and reporting lessons learned through public and private entities’ efforts to implement CAV technology.

For example, the Southwest Research Institute, located in San Antonio, is working with other academic partners in Texas to collaborate with Texas’ new CAV Task Force. The Institute is a leader in Connected and Automated Vehi-

cle (CAV) research and technologies and has worked with USDOT and Texas universities to provide a full-service test track for these technologies.

The State Transportation Innovation Council (STIC) along with TxDOT's Research Program contributes valued and innovative research ideas with the potential to bring solutions and opportunities to Texas. Areas of focus such as resiliency, improved traffic management systems, predictive analytics, as well as emerging technologies such as the impacts of artificial intelligence to TxDOT operations, and physical innovations or changes needed to accommodate autonomous and connected vehicles on our system are all research areas that inform the Alliance.

The STIC also facilitates the rapid implementation of innovative technology and shares its deployment outcomes at all levels of state government and throughout the private and non-profit sector, including the Alliance, to ensure smart, efficient investment in Texas highway and transportation infrastructure.

The Texas Technology Task Force is directed by the Texas State Legislature to explore all types of emerging technologies, including automated and connected vehicle technologies, and recommend those technologies on which TxDOT should concentrate for future use in Texas' infrastructure.

CONCLUSION

As we usher in the next generation of technologies, a paradigm shift has already begun in transportation. An entrepreneurial approach is needed for Texas to take a leadership position, enabling our state to support a 21st century workforce and to continue attracting and growing businesses.

It is worthy to note that local leadership from the Alliance's regional team partners, including mayors, councilmembers, Metropolitan Planning Organization board members, and transit board members, have all emphasized that the local and regional governments are a key enabler to achieving our mobility goals, but that Federal authority to resource new technology in our core funding is extremely important.

Additionally, our research partners such as those in the Texas Innovation Alliance, including the Southwest Research Institute, the Center for Transportation Research at the University of Texas at Austin, and the Texas A&M Transportation Institute are also key in identifying those technologies that will cause disruption and rapidly change our landscape.

On behalf of the Texas Innovation Alliance, I thank the Committee for the opportunity to testify today regarding the work we are doing in Texas not only to explore technology and innovation to enhance mobility, but to bring them to fruition. With a people-first, problem-based approach partners of the Texas Innovation Alliance are committed to working together to align local, regional, and state priorities for the benefit of our communities. Recognizing the value of collaboration, the Alliance stands together in pursuit of innovation and applies an entrepreneurial approach to be the leading model in developing new mobility solutions.

APPENDIX A

[Appendix A is retained in committee files and is available at <http://ftp.dot.state.tx.us/pub/txdot-info/fed/federal-surface-transportation.pdf>, pages 6–7.]

Ms. NORTON. Thank you very much, Mr. Anderson. I know that two of our witnesses already have been from Texas. I don't know what you are trying to tell us here.

[Laughter.]

Ms. NORTON. But we are listening.

Next I am pleased to welcome Jack Clark, who is the executive director of the Transportation Learning Center.

Mr. Clark?

Mr. CLARK. Thank you. Thank you, Madam Chair, and thank you, Ranking Member Davis, for the opportunity to be here today.

As indicated, my name is Jack Clark. I represent the Transportation Learning Center. You have background on me and the organization in your written materials. I look forward to sharing more on that in the question period. But right now I want to focus on

the core problem I am here to address, and the committee, I believe, needs to address, as well: the workforce crisis in public transportation.

Approximately 400,000 people work in public transportation; 90 percent of them are moving vehicles or maintaining those vehicles and the systems required to keep transit running.

In every transit agency large and small, new technologies are changing the way work needs to be done. I share a small but revealing story from several years back when I was dealing with a general manager in a medium-sized transit agency completing a bus purchase. He heard from the vendor asking, "How many laptops would you like," and he initially thought this was some kind of bonus for his office staff, until he realized that those laptops were key, essential tools for his bus mechanics. Those laptops diagnose and keep track of all sorts of problems in the engine, and they also keep track of advanced electronic and multiplex systems that have been common in buses for more than a decade.

The skills needed for people maintaining railcars, signaling, electrical power systems, and other systems are even more advanced than what bus mechanics need to know. In the face of all those challenges, both the age and the skill mix, transit spends far too little on training.

Taking a look simply at the percentage of payroll devoted to training, the Paris Metro, which is a one-to-one comparison, spends about 8 percent of its payroll. The Federal Highway Administration sets a goal of 3 percent of its payroll for its contractors should go to training. The average transit agency spends between 0.66 and 0.88 percent of its payroll on training.

There are some bright spots. My organization works a lot to develop registered apprenticeship as a solution to the transit skills crisis. We think it makes a lot of sense. There is a lot of support for apprenticeship across both aisles in Congress, and now across two administrations. There is also a lot of support for apprenticeship around the world. It is simply a commonsense solution, which says there is technical training you can learn in a classroom and a lot you can learn in a very highly structured, on-the-job learning environment.

And we are seeing some progress in some areas in developing those apprenticeship programs. We are also seeing some obstacles.

I would note, just in passing, that while we are talking about a transit skills crisis here—and I note Associated General Contractors of America is also on this panel—we won't be hearing about a similar skills crisis on the highway construction side because registered apprenticeship works there. It is a system that the organized building trades and the contractors have developed for over a century, and it delivers a skilled workforce. It also delivers very highly developed pre-apprenticeship programs that allow opportunities for underrepresented populations to come into the workforce and into highly skilled jobs. Transit, and its apprenticeship programs, need to develop similar programs.

The profile of the skilled worker in transit is still older white males. And it is both a moral imperative and a practical necessity that transit develop a more diverse workforce in its skilled ranks.

I would note that the transit—the—other people noted this—the transit workforce is much older than the average workforce. The average transit worker is almost 51, compared to the average worker across all industries being about 40, 41, 42. That means that the skill—the demographic crisis is quite severe.

Thank you for your time. I have more in my written testimony. I would ask that you include human capital and specific metrics in human capital in reauthorization, authorize a national transit front-line workforce resource that could function like the National Transit Institute, and that the mandate that FTA work closely with other Federal agencies, particularly Department of Labor and Office of Career, Technical, and Adult Education, on workforce issues.

And in all the work the Congress is doing, remember that workforce is a key part of what needs to happen in infrastructure. It is not going to happen without a skilled workforce. Thank you very much.

[Mr. Clark's prepared statement follows:]

**Prepared Statement of John Kevin "Jack" Clark, Executive Director,
Transportation Learning Center**

Good morning. My name is Jack Clark. I serve as Executive Director of the Transportation Learning Center (the Center), a not for profit organization with offices in Silver Spring Maryland that does national work in transportation with a particular emphasis on the public transportation sector. The Center focuses its efforts on the challenge of improving training for frontline workers in public transit, the drivers, mechanics, technicians, cleaners and helpers who comprise 90 percent of the transit workforce. Members of our Board of Directors include leaders in management and labor and some major advocates. Amalgamated Transit Union International President Larry Hanley serves as Chair of our Board. American Public Transportation Association President Paul Skoutelas and Community Transportation Association Executive Director Scott Bogren also serve on the Board.

The Center practices labor-management partnership in its daily work. None of us involved in this work is naive. Labor and management do have and will continue to have major differences and conflicting interests, particularly on zero-sum issues such as how resources are distributed between hourly wages and other priorities an agency might have. Those conflicts are not going away; nor should they. Unions represent a very large share of public transit workers, and workers through their unions can, do and should pursue collective bargaining to advance their interests. Likewise, managers can, do and should use the process to assert their rights and interests.

While recognizing the inevitable areas of conflict, the Center has benefited from an insight that former US Secretary of Labor Ray Marshall offered to its Board more than a decade ago. Dr. Marshall noted that in the broad picture of interactions between labor and management, conflict, particularly zero-sum conflict, comprises a small fraction of how the two sides can interact. In areas like safety for the riding public and for the workforce, labor and management should have common interests. Similarly, workers and managers share an interest in improving the overall quality of the riders' experience in transit; both want a strong and reliable system that serves the public well and can count on needed public support for ongoing and expanded funding.

Dr. Marshall knows that even in those areas of shared interest, sharp conflict can and does arise. He was positing, and the Center's Board has generally accepted the concept that common interests do exist between labor and management. Building on those common interests can result in better outcomes for all.

The Center bases its work on just such a common interest: training for the front-line workforce. A more skilled workforce clearly benefits managers. More skilled workers can get the job done faster and better. Improved training offers transit workers opportunities for upward mobility in their careers. Cleaners or helpers, for example, can become skilled mechanics. Training can also enhance skills, knowledge and abilities of highly experienced transit workers who need to learn how advancing

technologies affect how they do their jobs. When really excellent training, developed and executed on a partnership basis, is implemented, the performance of the whole organization improves and the workplace moves to a new culture that values life-long learning.

That ideal picture does occur occasionally. If that dynamic were the rule rather than the exception in public transit, the work of the Transportation Learning Center might not be needed.

Sadly, adequate training for the frontline workforce remains rare in transit.

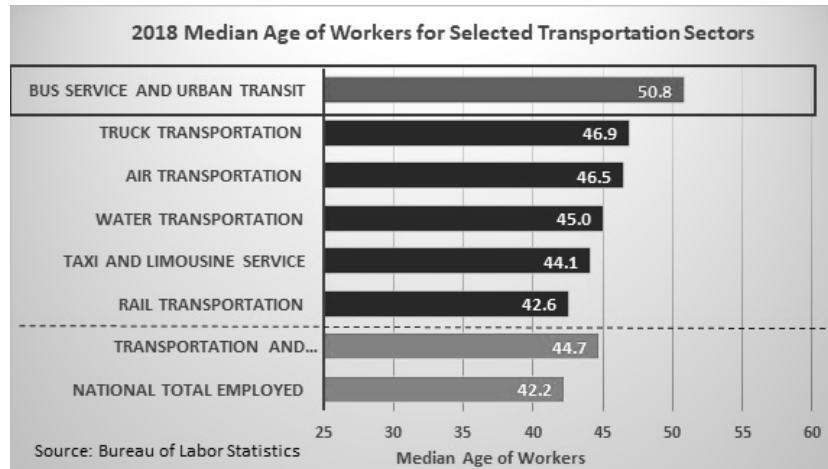
One might posit that training does not occur because there is not a great need. To the contrary, transit is suffering through a skills crisis that will only become worse.

Start by looking at just a simple and easily understood metric: the age of the workforce.

For the economy as a whole, everyone comments on the problem of our aging workforce. Retirements of the baby boom generation no longer loom as a future issue to be confronted. It is happening now across the economy. Finding both the sheer number of workers required and filling the gap left by retirement of skilled workers concerns all employers.

Consider, though, that for all occupations and industries in the US, the median age of workers is 42 years of age. In transportation and warehousing, the median age is over 44. The median age in bus service and urban transit is nearly 51.

Figure 1—Median Age of Workers for Selected Transportation Sectors



We see that the aging workforce issue, widely understood as a crisis for the over-all economy, stands as an even larger challenge for transit.

Looking at only the age distribution understates the workforce challenge for transit. About 400,000 people work in public transportation now. Of that figure, 90 percent currently work in the frontline occupations I referenced earlier. Because of retirements and other exits from transit employment, transit has a very large number of jobs to fill. In 2015, the Center helped research a major study for the US Department of Transportation, the US Department of Labor and the US Department of Education on the future of the transportation workforce. Based on data through 2014, the best estimate at that time was that transit needed to hire, train and retain approximately 126 percent of its current workforce over a 10-year period. No one has done the research to update those estimates, and we are halfway through the 10 years. The Center works closely with a large number of transit locations. We know from daily experience in work with those locations that hiring and training a sufficient number of people provides a continuing challenge.

Most of my testimony will address issues around technical training for skilled maintenance work, but I want to take a moment to address the issue of exits from transit employment other than retirements. In general, transit maintenance workers, particularly skilled maintenance staff, tend to stay in their jobs for a long time. For bus drivers, the picture is more complex.

Hiring and retaining bus drivers poses a major challenge for the industry. Wages certainly are part of the problem. As the “Fight for \$15” movement makes further gains, driving a bus at a starting wage of \$15 per hour looks less attractive. Operator assaults, widely publicized in the areas where they happen, certainly discourage potential applicants from applying in the first place. I wish to state my strong support for H.R. 1139, legislation sponsored by Representative Napolitano and supported by transit labor. This legislation does not mandate any particular remedy for the problem of assault beyond identifying whether there is a need to address the problem, and if there is, bringing together workers and managers to develop a plan. H.R. 1139 also requires that data be collected and analyzed on a national level so that policymakers know what the scope of the problem is. Good data can drive good policy. Lack of data leads to bad guesses.

I will return to the issue of operator training and retention in the context of national work the Center is doing on apprenticeship.

As Members of Congress know, in a number of areas, transit service is expanding. That adds to the workforce challenge. In every transit agency, large and small, new technologies are changing the way work needs to be done. I share an amusing but revealing story from a conversation several years ago with a General Manager at a medium-sized agency. He was completing a procurement for a major bus purchase. In the final negotiations to close the deal, the bus vendor asked how many laptop computers the agency wanted to include. Delighted by this question, the General Manager thought he was getting some kind of bonus for his office staff until he realized that the laptops were a required tool for bus mechanics.

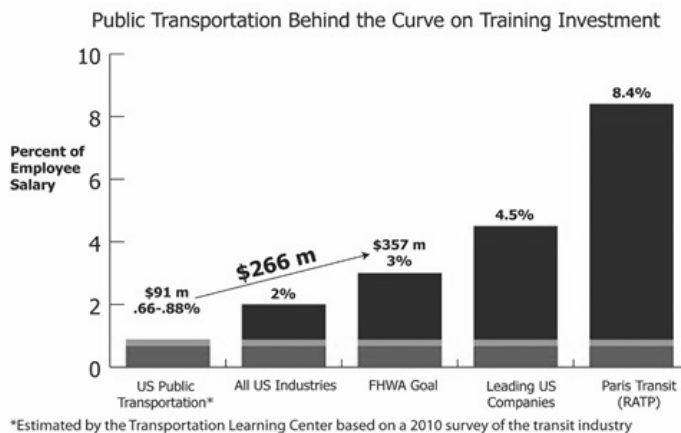
Those laptop computers provide the basic diagnostic tool for bus maintenance. Complex electrical, electronic and multiplexing systems have been commonplace on transit buses for well more than a decade. Buses have hybrid systems that require training on high voltage electricity. Fully electric buses provide a growing proportion of bus purchases.

For railcars, signaling, wayside and power equipment, even higher levels of skill are required to maintain systems properly.

In some locations, training to deal with these advanced technologies occurs regularly and is done well. Sadly, once again, that is the exception, not the rule.

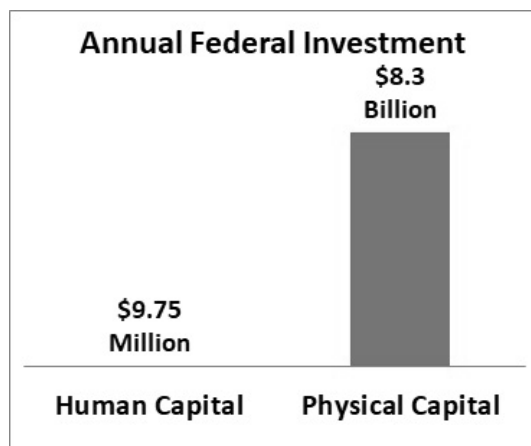
A reasonable measure of the commitment to training by any employer is the percentage of payroll devoted to training. The Federal Highway Administration seeks a minimum of 3 percent of payroll devoted to training for projects it funds. High performance US firms often spend 4–5 percent of payroll on training. In a direct transit comparison, the Paris Metro spends a bit more than 8 percent of payroll. A careful analysis in a study overseen by the Transit Cooperative Research Program shows that the average US transit agency spends between 0.66 and 0.88 percent of payroll on training.

Figure 2—Public Transportation Training Investment



Look at Federal funding for transit. Nearly all the money goes to physical capital while scant resources are devoted to the building the skills of people who will maintain that infrastructure.

Figure 3—Annual Federal Investment in Transit



Note: Physical Capital Investment is based on the 2016 Federal capital funds from the 2018 APTA Fact Book. Human Capital Investment includes annualized funding for the 2015 FTA Innovative Workforce Development programs (\$9.5 million over 2 years) and \$5 million a year for the National Transit Institute in the FAST Act.

Before closing out this testimony, I will review this discrepancy between physical and human capital and recommend action in the reauthorization of the FAST Act.

Having cited multiple problems and shortcomings in transit training, I will highlight an approach that already shows great promise and can deliver sustainable results for training transit workers: registered apprenticeship.

Quite simply, apprenticeship combines classroom instruction with on-the-job learning. Most workers learn most of their skills in practical application. For the highly technical aspects of maintenance, learning basic and advanced principles of electricity, for example, cannot be optional. Applying that learning under the guidance of more experienced workers reinforces and strengthens the apprentice's comprehension of the principles.

The Center, under a grant from the US Department of Labor, is working to develop individual apprenticeship programs in a number of transit agencies. More broadly, the Center endeavors to make registered, joint labor-management apprenticeship programs the new norm for how the transit industry addresses the workforce and skills crisis.

In the rest of the advanced industrial world, apprenticeship has established itself as the norm for training. Germany, which enjoys a substantial trade surplus in manufactured goods, relies heavily on apprenticeship to fill the ranks of its highly skilled workforce. In the US, apprenticeship has enjoyed bipartisan support from successive Administrations and from both parties in Congress.

Specific to this subcommittee's jurisdiction, on the highway construction side, we are not seeing the dire skills shortages spelled out here for the transit workforce. Construction unions have more than a century of experience with joint apprenticeship programs, and those programs work well to address ongoing and future needs. Like all sectors of the economy, construction does face issues with an aging workforce as well as a need to diversify the pool of candidates qualifying for journey level jobs. There, too, the building trades joint apprenticeship programs are demonstrating the capacity to respond to the challenge. The Multi-Craft Core Curriculum (MC3), developed by the building trades apprenticeship directors, serves as a model for effective pre-apprenticeship training.

Apprenticeship for skilled maintenance work in transit clearly makes sense. Well-structured apprenticeship with good mentoring and possibly with some pre-apprenticeship options can also help transit address some glaring problems in its workforce profile. Simply put, the skilled maintenance workforce in transit remains overwhelmingly male and nearly as overwhelmingly white. Transit cannot adequately address its workforce shortages unless it reaches out to the entire workforce. More inclusive outreach and training for the well-paid jobs the transit industry offers is a moral imperative; it is also a practical necessity.

Figure 4—Percentage of Women in the Workforce

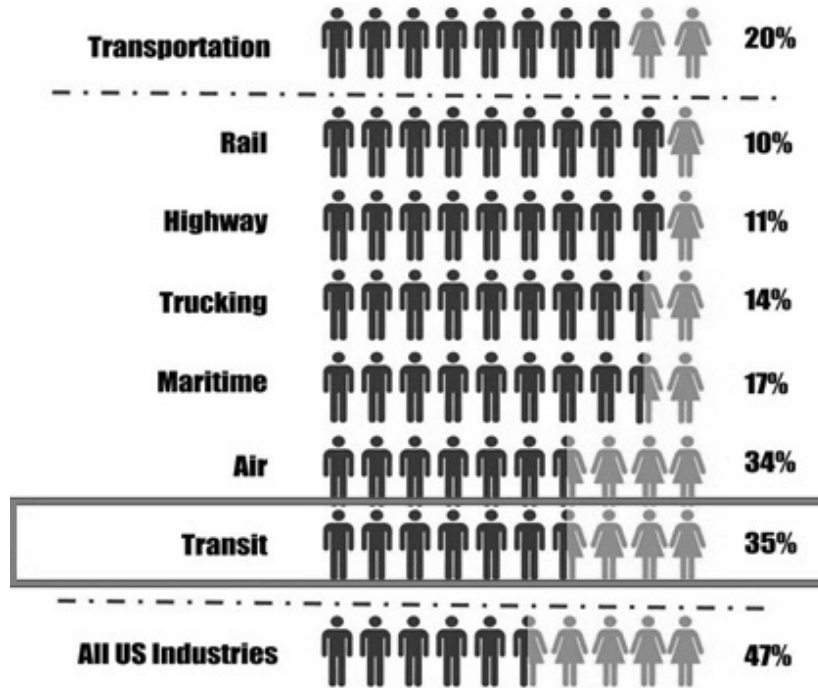


Figure 5—Employment in Transportation Jobs by Race

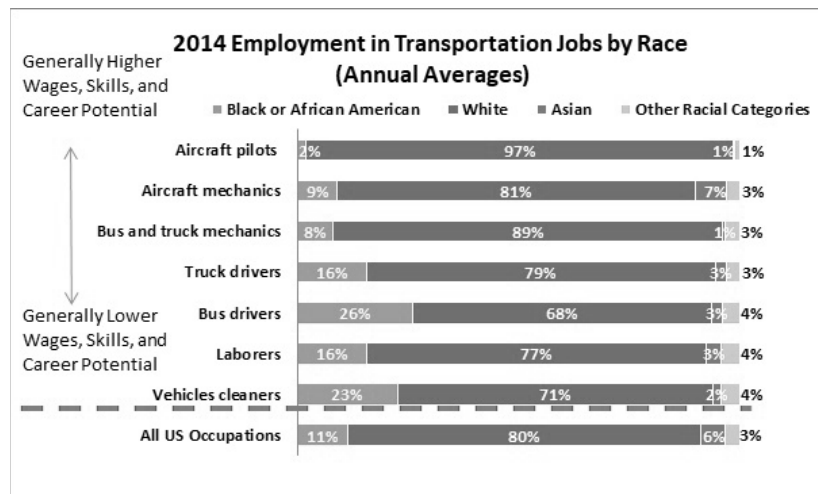
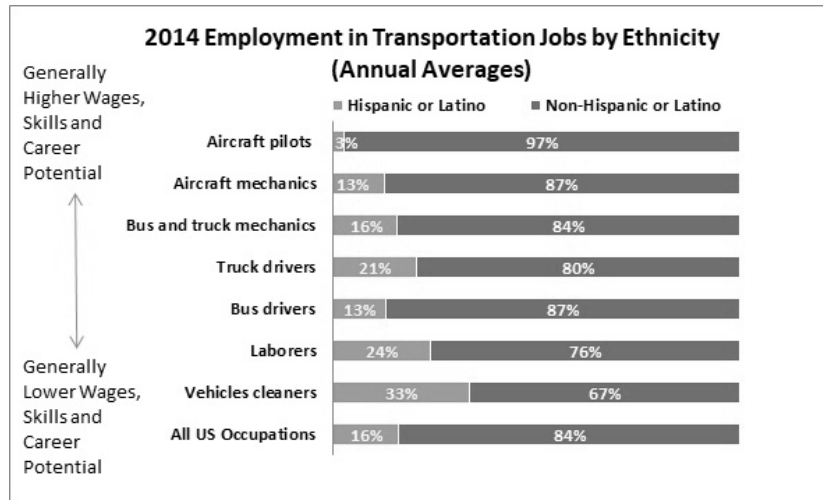


Figure 6—Employment in Transportation Jobs by Ethnicity



Source (Figure 4–6): Data Report on Transportation Workforce Needs by the U.S. Departments of Education, Transportation and Labor.

Having identified apprenticeship as a promising approach, we return to the hard reality that training never rises to a priority level for transit. Bus maintenance is by far the largest maintenance craft. On the bus maintenance side, the Center has identified several small to midsize agencies that have a sincere interest in establishing an apprenticeship program but are severely handicapped because they do not have the time or resources to implement such a program. These agencies typically do not have a training department or have limited training staff barely able to keep pace with refresher and new technology training. Providing classroom instruction to apprentices, which constitutes about one-third of the program, becomes extremely difficult with such limited resources. Making matters worse is that nearly all agencies, large, medium and small, are lacking technicians, putting increased pressure on them to make buses road ready for revenue service. This pervasive condition makes it extremely difficult to spare senior technicians as mentors needed to provide apprentices with on the job training, which makes up the remaining and essential apprenticeship activity.

The Center also works on developing apprenticeship for bus drivers (or as some locations call them, transit coach operators). That may seem counter-intuitive. After all, bus operators do not need to learn advanced electronics or similar technical material. Earlier in the testimony, I referred to high turnover among bus drivers. As noted, operator assaults play a role there. So does the ordinary and grinding routine of driving a bus. New hires work the least desirable shifts in the worst neighborhoods. Training focuses on earning the Commercial Driver's License and on how to handle a large vehicle in traffic. The larger challenge for people aspiring to be bus drivers is how to deal with the public. Turnover among new hires can be very high. One large city gave me an estimate that 50 percent of new hires were still driving a bus a year after completing training. Another city, which has paid a lot of attention to operator training, has about 60 percent retention over that 1-year period. These are not sustainable numbers.

Operator apprenticeship started at Valley Transit Authority (VTA) in San Jose, California. The Amalgamated Transit Union (ATU) Local 265 initiated the program, and its members played a large role in making it work. Mentors, selected by the union and approved by management, volunteer to work with new drivers. They offer their insights and experience, sometimes riding with the new driver, often by phone, a few times every year in a conference setting. By chance, VTA launched its pilot apprenticeship program at the same time as it ran a traditional class. Union and management agreed that the new program required additional resources so that only one cohort would benefit. Eighteen months later, VTA looked at the two cohorts. VTA does a lot better than most on retention as a general rule. More than 70 percent of driver trainees who started in the traditional class were still driving

a bus for VTA. For the cohort that went through the full mentoring and apprenticeship, nearly 100 percent were driving a bus 18 months later.

VTA also saw a rise in customer satisfaction, a drop in absenteeism and improved safety. Those are results we want to replicate across the transit industry. VTA and ATU Local 265 created a Joint Workforce Initiative (JWI) to oversee apprenticeship and training across all occupations. Once again, San Jose provides a model that should be replicated.

By definition, apprenticeship takes place at the local level. Sharing across locations can help people learn and improve what they are doing. The Center has taken that cross-location learning a major step further. Bringing together subject matter experts from both labor and management and from different locations, the Center has developed Consortium work for delivery of instructor-ready courseware for rail car technicians, signals maintainers and transit elevator-escalator mechanics. Agencies, even large agencies, often lack the capacity to develop new and up-to-date courses on their own. Consortium material enhances the training department's ability to deliver courses.

To recap, we have seen some data on the skills crisis facing public transit. Neither the transit agencies nor the Federal Government is addressing the need for training adequately.

What, if any relevance, does all of this have for reauthorization.

I would advance several recommendations:

1. Make human capital count by counting human capital. The FAST Act could require more attention to human capital. Dr. Beverly Scott, an experienced General Manager at several agencies and a major industry leader on workforce issues, proposes that the National Transit Data base be required to include basic workforce measures. She proposed this as part of rulemaking process on Transit Asset Management arguing that human capital needs to be assessed as much as physical capital. She notes that GAO as early as 2001 cited lack of a strategic approach to workforce as a major problem across all public sector entities. If agencies are required to report on human capital and know that it is a responsibility funders take seriously, then human capital will become a higher management priority. Elements of human capital she proposed to include in the National Transit Data Base:
 - a. Total Labor Cost (payroll, contingent and contract worker pay, benefits excluding consultants); % of Operating Expense;
 - b. Workforce Profile—# Total Employees (Full-Time/Part-Time), Major Job Classifications, "Key Positions" (industry-wide by mode), Average Age, Tenure, EEO Profile and Underutilization Target Groups—annual progress;
 - c. Total # Annual Vacancies/3-Year Average ("new" positions; attrition/turnover rates (including promotions)); by "Key positions";
 - d. 5-Year Hire and Retirement Projections (Retirement "Eligibility" and "Likelihood" based on historical agency experience);
 - e. Average Time to Fill Positions—"Key Positions", by Major Job Classification;
 - f. Annual Absenteeism Data by Major Job Classification/Total and Agency Cost;
 - g. Total Training, Apprenticeship & Employee Development Investment; % of Budget;
 - h. Mandatory Employee Training/Completion Rates;
 - i. Annual Safety Training/Certification Completion Rates;
 - j. Employee/Passenger Injury Data (Human Factors primary; contributing factor);
 - k. Prepare a H.R. Risk Registry (5-Year Planning Horizon), which identifies major workforce challenges (current, emerging, and future) and plans to address.
2. Authorize funding (the Secretary shall, not the Secretary may) for a national resource center for frontline workforce training at a level equal to current funding for the National Transit Institute. Naturally, I propose that the Transportation Learning Center play that role. So long as the national workforce center must reflect both labor and management interests, must address diversity of the incoming technical workforce, must focus on apprenticeship, then the Center can compete for the designation. Win or lose, we will know that the issues that need to be addressed are addressed.
3. Require that USDOT coordinate workforce efforts with other Federal entities, particularly the US Department of Labor's National Office of Apprenticeship and the Office of Career, Technical, and Adult Education at the US Department of Education. In numerous instances, particularly at the state level, transit is excluded from Federal training funds because funds are reserved for private sector employers. As documented here, transit under-invests in training, largely because transit is underfunded. The jobs in transit offer career ladders

and family sustaining wages. DOT should advocate with other Federal funders to maximize the opportunity for transit agencies to benefit from workforce funds.

4. This subcommittee and its members will help shape any Federal infrastructure package that may go well beyond the scope of the FAST Act and will almost certainly include funding for upgrading transit infrastructure. I am not addressing in this testimony how infrastructure will be financed, but I do want to emphasize that while infrastructure spending can and will create jobs, there needs to be corresponding increases in workforce funding to prepare people for those jobs.

Thank you.

Ms. NORTON. I thank you for that reminder. There was a time when we thought these people just floated into this industry. That is not the case today.

Next is Therese McMillan, executive director of the Metropolitan Transportation Commission on behalf of the Association of Metropolitan Planning Organizations.

Ms. McMillan?

Ms. McMILLAN. Thank you, Madam Chair. Good morning, my name is Therese McMillan. I am the executive director of the Metropolitan Transportation Commission, the federally designated MPO for the nine-county San Francisco Bay area. And in that role we not only conduct long-range planning and project prioritization for the bay area's 7 million residents, we also are the recipient of the Federal Transit Administration formula and Federal Highway Administration funds.

Put simply, a strong Federal role in our Nation's multimodal transportation system has been essential for the entirety of our Nation's history. But transportation is not just about moving people and goods, as was noted. It is about access to opportunity and quality of life, and we believe it is time for the Federal Government to do more.

We at MTC and the Nation's other MPOs look forward to working with you to reauthorize the FAST Act, to strengthen our economy, and create new opportunities for well-paying jobs that can rebuild our Nation's ailing transportation infrastructure, while continually striving to make travel both safer and more reliable within and across the Nation's diverse communities.

The local State-Federal partnership model enshrined in the FAST Act is a model that works. In the bay area our local commitment to this model includes over \$1.5 billion annually of sales tax and toll dollars dedicated to our multimodal transportation system. All are voter-approved. Even still, our residents recognize that more needs to be done as they continue to experience daily our congested roadways and increasingly aging and crowded transit systems.

In 2017 our State legislature, committed to holding up its end of the partnership bargain, voting by a two-thirds majority a historic transportation funding package comprised of a wide array of user fees that generates over \$5 billion annually. These funds are solely dedicated to rebuilding and improving California's streets, highways, and bridges, and public transit systems. And the cornerstone of that bill was restoring the gas tax to its purchasing power in 1994 and indexing it into the future.

Providing for continued growth in the U.S. economy demands a much larger Federal commitment to the local-State-Federal part-

nership. As a member of the family of MPOs, we especially call upon Congress to expand the share of funds that are invested in the Nation's metropolitan areas, the engines of our Nation's economy. Two programs in particular have been vital to regions' ability to create solutions to challenges we face at the local level across the country.

Specifically, the surface transportation block grant program, which we continue to call STP, and the congestion mitigation and air quality, or CMAQ program, enable the flexibility that creative solutions demand across very different communities.

As an example, in the bay area we are now using this flexibility to direct STP and CMAQ dollars to cities and counties as an incentive to build more housing at or near existing transit stops and other transportation services. This strategy leverages Federal funds by enhancing significantly a transportation project's mobility and access benefits, encouraging those who can now live closer to transit and those projects to actually use it, which in turn helps to curb congestion and reduces longer auto trips and carbon emissions.

Importantly, STP and CMAQ programs deliver funds to an array of projects that improve people's lives at a very local level, giving taxpayers more confidence and visible certainty about how Federal money is being spent and invested in their communities.

Therefore, we urge you to invest more funds in STP, and to directly allocate those block grants to MPOs nationwide, so that their residents can benefit from projects selected at the regional level, consistent with priorities developed in the regional transportation plans.

In addition we would ask you to restore the local distributed share of STP to a historic level of 62.5 percent, if not higher. Directing more dollars to metropolitan areas serves all of our interests. The bay area and other metro areas continue to drive national economic output, and in these areas new innovations are most often made and new technologies are being developed and deployed.

As we look to the future, the field of transportation may be poised to undergo as much change in the next decade as any time since the automotive age. For those of us that have been in the transportation field our entire career, the pace of this change is astounding. Overnight, cities are finding their streets and sidewalks teeming with new e-bikes, or e-scooters, deployed by the latest shared mobility startups. In my home in the San Francisco Bay area, we are seeing these changes up close with the likes of Tesla, Uber, Lyft, Google's Waymo, Apple Car, Cruise Automation, and dozens more.

And as with all technological breakthroughs, there are risks as well as benefits. Building the highway and communications platform necessary for a connected and autonomous future is a fundamental Federal responsibility we would urge this committee to take up.

In addition to the technological change, we are preparing ourselves in the bay area region to be more resilient in the face of a changing climate and, in particular, sea level rise. One visible local example is State Highway 37, which travels through Marin, So-

lano, Napa, and Sonoma Counties in the north of our region. This 20-mile corridor is regularly backed up with traffic and too often shut down due to flooding during the winter season, including twice in the last few weeks. What is more, it is also highly vulnerable to complete inundation, due to sea level rise 30 years from now.

Improvements for the project are designed to improve ecological enhancements upfront, in tandem with reducing the roadway flooding vulnerability. As this committee considers the future of the Federal transportation program, I would encourage you to prioritize projects like this that will help communities across the Nation adjust to a changing climate.

In conclusion, Madam Chair and committee members, America's diverse metropolitan areas are prime to tackle the myriad mobility and related access challenges of the future, be they technical, financial, environmental, or societal in nature. We seek and ask a strong Federal partnership to help support the solutions to address those challenges. And in doing so, to seize the opportunities this country should extend to all of its people.

Thank you for having me here today.

[Ms. McMillan's prepared statement follows:]

Prepared Statement of Therese W. McMillan, Executive Director, Metropolitan Transportation Commission, on behalf of the Association of Metropolitan Planning Organizations

INTRODUCTION

Good morning. My name is Therese McMillan. I am the Executive Director of the Metropolitan Transportation Commission (MTC), the federally-designated metropolitan planning organization (MPO) for the nine-county San Francisco Bay Area. In that role, we not only conduct long-range planning and project prioritization for the Bay Area's 7 million residents, we also are the recipient of Federal Transit Administration formula and Federal Highway Administration funds.

Put simply, a strong federal role in our nation's multimodal transportation system has been essential for the entirety of our nation's history. It is a core federal responsibility. But transportation is not just about moving people and goods around. It is about access to opportunity and quality of life and we believe it is time for the federal government to do more, much more.

We at MTC and the nation's other MPOs look forward to working with Congress to reauthorize the Fixing America's Surface Transportation (FAST) Act—to strengthen our economy, to create new opportunities for well-paying jobs that can rebuild our nation's ailing transportation infrastructure, while continually striving to make travel both safer and more reliable within and across all of the nation's diverse communities.

BAY AREA PERSPECTIVE

With hundreds of miles of interstate freeway and rail lines, thousands of buses and rail cars, three international airports, a major West Coast seaport and a freight railhead that serves both urban and rural America, the Bay Area serves as a complex, multimodal hub, as well as a destination. Providing adequate funding to maintain, operate and expand this transportation system to meet the needs of today and tomorrow is an endless challenge. Local voters have contributed enormously to that endeavor, but we also depend greatly on contributions from our state and federal partners.

The local/state/federal partnership model enshrined in the FAST Act is a model that works. In the Bay Area, our local commitment to this model includes over \$1.5 billion annually of sales tax and toll dollars dedicated to our multi-modal transportation system—all voter-approved. Even still, our residents recognize that more resources are needed, as they continue to experience daily our congested roadways, and increasingly aging and crowded transit systems.

In 2017 the California Legislature committed to holding up its end of the partnership bargain, voting to support—by a two-thirds majority—a historic transportation funding package comprised of a wide array of user fees that generates over \$5 billion annually statewide. These funds are solely dedicated to rebuilding and improving California’s streets, highways and bridges, and public transit systems. The cornerstone of the bill was restoring the gas tax to its purchasing power in 1994 and indexing it into the future.

Though federal dollars account for only 10 percent of the Bay Area’s total transportation investments—or \$29 billion through 2040—they are critical to delivering major projects that will improve connectivity between the region’s population and job centers, and that will continue our outsized contribution to the nation’s economic growth. Seven of the Bay Area’s 10 largest transportation investments through 2040 have received or anticipate receiving billions in federal transit capital grants primarily from the FAST Act’s Capital Investment Grant (CIG) program.¹ Given the scope of these major projects, even with significant state and local matching funds, it is impossible to conceive of how these projects can be built without CIG funds. In addition, Bay Area transit operators are forecast to receive approximately \$2.6 billion in FAST Act core formula funding through 2020, which is prioritized for vitally-needed state of good repair projects. Additionally, as described in the next section, flexible FAST Act highway funding allows Bay Area cities and counties to invest in local transportation priorities that improve safety, spur economic development, encourage construction of affordable housing, and help the region meet climate change and air quality improvement goals.

Accordingly, we recommend that the FAST Act reauthorization grow the core highway and transit programs that have proven effective in delivering essential funds for states and regions to address their pressing capital investment and state of good repair needs.

CASE FOR A BIGGER FEDERAL PROGRAM/(FLEXIBLE INVESTMENT CAPACITY FOR REGIONS AND CAPITAL INVESTMENT GRANT PROGRAM)

Flexible Investment Capacity for Regions

Providing for continued growth in the U.S. economy demands a much larger federal commitment to the local-state-federal partnership. As a member of the family of MPOs, we especially call upon Congress to increase federal investment flexibility directly available to the nation’s metropolitan areas for local mobility needs, an investment strategy that serves all our interests.

The Bay Area and other metro areas continue to drive national economic output, and it is in these areas where new innovations are most often made, and where new technologies are being developed and deployed. Flexible, metro-level funding allows for regions to implement creative solutions to address the myriad challenges that confront different communities across the nation. Two programs in particular have been vital to MTC’s ability to create solutions to challenges we face at the local level. Specifically, the Surface Transportation Block Grant Program, which we continue to call STP, and the Congestion Mitigation and Air Quality—or CMAQ program, provide the flexibility that creative solutions demand across very different communities.

As an example, in the Bay Area, where our housing crisis is contributing to record levels of traffic congestion, we are using this flexibility to direct STP and CMAQ dollars to cities and counties as an incentive to build more housing at or near existing transit stops and job centers. Cities and counties that approve new housing construction and adopt housing-supportive local plans are rewarded with additional federal funds that they may direct to a wide range of transportation projects, from Vision Zero safety improvements to local street and road maintenance. This strategy supports the Bay Area in making progress toward a number of our performance goals: transit and job center-oriented development helps curb congestion and reduce longer auto trips to minimize on-road mobile source emissions and pavement wear and tear.

Two unique elements of the STP and CMAQ programs enable MTC to effectively leverage these federal dollars. First, the programs’ broad project eligibility helps these funds serve as an effective incentive, as locals are able to direct the funds to their highest priority projects. Second, because the funds are distributed at the metro area level, MPOs are able to invest these funds to provide innovative regional solutions that span jurisdictional boundaries. Projects such as the Clipper card (our

¹For the project list, see the “Top 10” Plan Bay Area Capital Projects graphic on page 4 of MTC and ABAG’s 2019 Report to Congress (https://mtc.ca.gov/sites/default/files/2019_Report_to_Congress-MTC-ABAG.pdf)

multi-operator transit-fare payment card) or our regional bikeshare program are harder to pay for with funds that are awarded to specific transit operators or local jurisdictions for specific projects (if voter approved) or for mode-siloed investments.

Importantly, the STP and CMAQ programs deliver funds to an array of projects that improve people's lives at a very local level—giving taxpayers more confidence and certainty about how federal money is being spent and invested in their communities. This combination of flexibility and accountability is the right way to meet the challenges before us now, and to adapt to the uncertain and rapid change we anticipate ahead.

Therefore, we urge Congress to invest more funds in STP and to directly allocate these block grants to MPOs nationwide so that residents living outside of California—where suballocation is provided for in state law—can also benefit from projects selected at the regional level, consistent with the priorities developed in the regional transportation plans. In addition, we would ask you to restore the local distributed share of STP to its historic level of 62.5 percent, if not higher.

Capital Investment Grant Program

The Bay Area has developed an aggressive \$26 billion investment plan to improve transit connectivity between the region's population and job centers. CIG funding—matched 2-to-1 by state and local dollars—is key to advancing priorities that will not only address critical regional core capacity and expansion needs, but will contribute to the nation's economic growth. For example, Caltrain, a vital link in the Bay Area's transportation network connecting San Francisco to San Jose and to the nation's most high-profile tech companies, secured a \$647 million full funding grant agreement in 2017, accelerating an electrification project (PCEP) that has been in the works for more than two decades. PCEP will help create over \$2.5 billion in economic value and address one of the Bay Area's principal barriers to economic growth by relieving traffic on the increasingly congested Interstate 280 and U.S. Route 101 corridors. Modernizing Caltrain will put Americans to work and significantly increase rail commuting capacity to Silicon Valley, one of the most economically productive areas in the United States. In the coming years, Bay Area transit operators will be seeking more than \$3 billion in new CIG commitments for the region's next generation of transit capacity projects, including Bay Area Rapid Transit (BART) Silicon Valley Phase II, Caltrain Downtown Extension and BART Transbay Corridor Core Capacity.

CHANGE IS COMING (PLANNING FOR UNCERTAINTY AND INVESTING IN A TRANSFORMATIVE AND ADAPTIVE TRANSPORTATION NETWORK)

As we look to the future, the field of transportation may be poised to undergo as much change in the next decade as it has at any time since the dawn of the automotive age. For those of us who have been in the transportation field our entire career, the pace of change is astounding. Overnight, cities find their streets and sidewalks teeming with new e-bikes or e-scooters deployed by the latest shared mobility start-up. In my home in the San Francisco Bay Area we are seeing these changes up close, with the likes of Tesla, Uber, Lyft, Google's Waymo, Apple Car, Cruise Automation and dozens more. And as with all technological breakthroughs, there are risks as well as benefits. Building the highway and communications platform necessary for a connected and autonomous future is a fundamental federal responsibility we would urge this committee to embrace.

In addition to technological change, we are preparing ourselves in the region to be more resilient in the face of a changing climate, and in particular, sea-level rise. One visible local example is State Highway 37, which travels through Marin, Solano, Napa, and Sonoma counties. This 20-mile corridor is regularly backed up with traffic and too often shut down due to flooding during the winter season, including twice in the last few weeks. What's more, it is also highly vulnerable to complete inundation due to sea-level rise 30 years from now. Improvement projects are designed to provide ecological enhancements up front in tandem with reducing the roadway flooding vulnerability.

As this committee considers the future of the federal transportation program, I would encourage you to support communities across the nation in making our transportation networks responsive to the technology-fueled transformation in how people and goods move, and to the changing climate.

Planning for an Uncertain Future

New technologies are expected to transform how people will connect, travel and transport freight. Extreme weather and rising sea levels challenge us to adapt and develop more resilient infrastructure. Like states and regions throughout the nation, the Bay Area is grappling with how to best incorporate the uncertainties posed by

climate change and transformative transportation technologies into our planning and near-term investment decisions.

MTC has recently undertaken Horizon, a new effort to plan for—and help shape—a range of possible futures. By expanding beyond traditional long-range scenario planning, which holds fixed certain transportation and land-use assumptions, Horizon will help inform big questions facing the transportation industry, such as:

- How might automation help solve the first-mile/last-mile transit challenge, reducing barriers to transit ridership? What type of investments are needed to get us there?
- What roadway investments could maximize the opportunities associated with the shift to connected and autonomous vehicles, and expedite short-term safety benefits?
- How do we prepare or adapt our transportation systems to be resilient against rising sea levels?

Ultimately, this effort is designed to enable planners to analyze a potential project's performance across a range of different futures and lead to better decision-making by policy makers with regard to project prioritization. Though the benefits may be significant, this planning effort requires substantial time and resources. Because it is a break from traditional planning, Horizon is a wholly separate effort that MTC will complete in advance of developing the region's federally mandated Metropolitan Transportation Plan update.

This committee could consider expanding the scope of the long-range planning process to include new mobility-related technology considerations, and increase planning funds to help regions and states better address complexities around transformative transportation technologies and climate change. Increased planning funding will also support states and MPOs in fulfilling current performance-based planning mandates, which were added in the 2012 transportation authorization without a commensurate increase in planning resources. Importantly, we recommend retaining existing flexibility for planners to innovate, specifically in how they incorporate new mobility-related technology considerations into the planning process.

The committee could also consider creating a pilot program to generate best practices for states and MPOs to be responsive to a new mobility paradigm and to uncertainties posed by climate change. The United States Department of Transportation could provide state and regional pilot program participants with tools (e.g., data sets and case studies) to incorporate the transportation system impacts of mobility-related technologies and to incorporate climate change considerations into transportation system performance evaluations.

Investing in a 21st Century Transportation Network

Metro areas drive the nation's economy, house much of the nation's critical infrastructure and will be the test beds of large-scale deployment of new mobility-related technologies that are expected to transform how people and goods travel. These areas will require substantial investment to adapt our infrastructure to be resilient to a changing climate and to be responsive to a new mobility paradigm. Federally supported, near-term infrastructure improvements will provide the dual benefit of immediately mitigating carbon-emitting congestion while preparing our nation for the future. For example, a high-speed communications infrastructure backbone would support near-term congestion-reduction and air quality improvement strategies like smart traffic signal operations while laying the foundation for future vehicle-to-vehicle and vehicle-to-infrastructure communications.

The committee should consider creating a new flexible program to make our transportation networks more resilient in the face of a changing climate and more responsive to the technology-fueled transformation in how people and goods move. To be most effective, the program should be highly flexible, mode-neutral and include formula and discretionary components. Eligible projects should include capital and operational investments that improve both near-term and long-term system safety and performance. Examples include programs to support deployment of autonomous vehicles, including vehicle-to-vehicle, vehicle-to-infrastructure and vehicle-to-everything (V2X) communications technologies; priced managed lanes; transportation demand management programs; strategic micro-transit investments; advanced parking freight delivery and incident management systems; alternative fuel charging infrastructure and other advanced technologies to support a clean transportation system; and climate mitigation/resiliency improvements. The formula component of the program should be allocated to large metropolitan planning organizations (MPOs), the nation's population and job centers with the most immediate needs. Discretionary grant funding should additionally support states, local governments, transit agencies and ports in efforts to upgrade freight corridors and other

critical infrastructure. The discretionary component should have a rural set-aside to ensure such communities also have access to program funds.

In lieu of a new program, the committee could also consider providing resources for 21st century transportation investments through existing FAST Act programs, including STP, a revised Nationally Significant Freight and Highway Projects program, and a significantly expanded and revised Advanced Transportation and Congestion Management Technologies Deployment program by expanding project eligibility within these programs.

In conclusion, Madam Chair and Committee members, America's diverse metropolitan areas are primed to tackle the myriad mobility and related access challenges of the future—be they technical, financial, environmental or societal in nature. We ask for a strong federal partnership to help support the solutions required to address them—and in doing so, to seize the opportunities in this country that should extend to all of its people.

Thank you.

Ms. NORTON. Thank you, Ms. McMillan.

Al Stanley, vice president of the Stanley Construction Company, on behalf of the Associated General Contractors of America.

You may proceed.

Mr. STANLEY. Chairwoman Norton, Ranking Member Davis, and members of the subcommittee, thank you for inviting me to be part of today's hearing. My name is Al Stanley, and I am a highway site work and civil construction builder from Huntsville, Alabama.

Stanley Construction Company was established in 1961 by my father. At that time the major emphasis was on landscaping for residential and commercial clients, and there were only three employees. Today our company has grown into a diverse business enterprise, completing numerous commercial projects as well as State and Federal projects.

I am here today representing the Associated General Contractors of America and currently serve on AGC's board of directors. I also served in 2009 as the president of Alabama AGC's State chapter. AGC is a national organization representing 26,000 businesses involved in every aspect of the construction industry.

Madam Chairwoman, in AGC's written testimony we have pointed out the conditions and needs facing our Nation's transportation infrastructure, both urban and rural. As we approach the expiration of the FAST Act, Congress must address today's upkeep, maintenance, and expansion, while also looking to the transportation needs of the future.

Choices must be made to advance transportation to the next level by modernizing the system by making the best use of available and upcoming technology. The transportation network is on the cusp of technological change that will impact how we plan, design, and build our projects; how we inventory and plan maintenance in our transportation assets; and how vehicles that use the system are driven, and how they interact with each other, with the infrastructure.

Indeed, Madam Chairwoman, the future of transportation is exciting. However, nothing is guaranteed, and the gravest threat to the advancement of transportation infrastructure is the long-term solvency of the Highway Trust Fund.

Shortly after the FAST Act expires, additional revenue of some \$18 billion per year will be needed just to maintain current funding levels. Failure to address the funding's ongoing revenue shortfall undermines the ability to advance our infrastructure to the next level.

AGC believes the Highway Trust Fund revenue sources should be real, reliable, dedicated, sustainable, and derived from users and beneficiaries of our surface transportation system. They should be sufficient to end the chronic shortfalls, and support increased investment, and they should be dedicated solely to surface transportation improvements. Increasing the Federal motor fuels tax is the simplest and most effective way to achieve this goal, but several other viable options do exist.

AGC is part of the Mileage-Based User Fee Alliance. We believe that user fees based on road usage in the future is the most fairest way of collecting the revenue needed for road improvements and transportation technology advances. We urge you to continue supporting the State pilot programs that were initiated in the FAST Act, and hope that you will also institute a national trial program to advance the concept from the beta stage to reality.

While the Federal Government fails to act, States continue to make significant commitments to investment and transportation infrastructure. Currently, in my own State of Alabama, the Governor's Rebuild Alabama plan increases funding for roads and bridges by raising the State's gasoline tax 10 cents per gallon. The Federal Government must do their fair share, as States rely on Federal aid funding for the majority of their capital improvements.

While funding is critically important, AGC also believes this legislation should improve project delivery by removing impediments that slow down planning and design and construction of needed infrastructure.

AGC is very appreciative for the work this committee has done in helping enact bipartisan environmental reforms in MAP-21 and in the FAST Act. But more can be done, and improvements upon those enacted reforms can be made. We have included some recommendations in our written testimony that has been submitted.

In addition, we urge this committee to consider two issues that cause construction delays.

First, transportation improvement projects that interface with railroad properties are often subject to significant restrictions and delays imposed by railroad owners. Obtaining fair and equitable railroad agreements, as well as ensuring that commitments are made in a timely manner are often a struggle, and add time and cost to transportation projects. My written testimony includes recommendations to improve this process.

Second, relocating underground utilities and highway right-of-way continues to be one of the leading causes of delay in completing projects. Underground utilities that are incorrectly marked poses a significant safety risk to workers, and can impact third-party business operations. AGC participates in the Common Ground Alliance that grew out of a study directed in TEA-21 to look at the issue of utility relocation. AGC encourages the CGA best practices be used more universally.

In conclusion, the needs of our transportation infrastructure are clear. Now is the time to act in a bipartisan way to provide a stable and growing revenue source for the Highway Trust Fund, while enacting a surface transportation reauthorization that meets the need of our growing economy and our growing population, as well.

Thank you for this opportunity to present our position, and we look forward to questions. Thank you.

[Mr. Stanley's prepared statement follows:]

Prepared Statement of Al Stanley, Vice President, Stanley Construction Company, Inc., on behalf of The Associated General Contractors of America

Chairwoman Norton, Ranking Member Davis and members of the House Transportation and Infrastructure Subcommittee on Highways and Transit, thank you for inviting me here today. My name is Al Stanley. I am a highway, site work and civil construction builder from Huntsville, Alabama. I am currently serving on the Board of Directors of the Associated General Contractors of America (AGC). AGC is a national organization representing 26,500 businesses involved in every aspect of construction activity in all 50 states, Puerto Rico and Washington, DC. AGC members build the highway, bridge, airports, transit systems, rail facilities and other transportation projects that keep America running.

Infrastructure in general, and transportation infrastructure in particular, is an issue that has no partisan bounds. Transportation impacts our daily lives whether we live in rural American communities or in our great urban meccas. It impacts everything from our ability to get to work, the cost and availability of the products we rely on both in our personal lives and in our businesses, to the global competitiveness of our nation's economy.

LOOKING TO THE FUTURE WHILE ADDRESSING TODAY'S NEEDS

The vision of transportation and political leaders in the mid-20th century to imagine and invest in the Interstate Highway System (IHS) has paid and will continue to pay significant benefits to generations of Americans. The IHS was the leading factor in America's growth since World War II and made the United States the world's economic leader that it is today. The IHS has grown to not only provide the primary corridors for passenger and freight movement within large urban centers and between metropolitan and rural areas but it also provides the necessary connections between state and local roads systems and other transportation modes including, railroads, marine ports, airports, and public transit.

Today's transportation and political leaders are faced with new choices that can equally impact future generations. The first choice is to address the need for upkeep, maintenance and expansion of the existing transportation system to meet today's needs.

But just as important, choices need to be made to advance transportation to the next level by modernizing the system making the best use of available and upcoming technology developments. The transportation network is on the cusp of technological change that will impact how we plan, design and build projects; how we inventory and maintain our transportation assets; and how vehicles that use the system are driven and how they interact with each other and with the infrastructure.

Transportation investment drives these technology advances. Advances made in autonomous vehicle technology is driven by transportation needs and, once available commercially, will rely on a good transportation network to operate safely and efficiently.

There has been a technology boom in transportation construction that is increasing productivity and enhancing quality. Contractors are making widespread use of drones, estimating and project management software, automated machine guidance systems on equipment, 3D modeling, paperless projects, e-construction, precast-slide in bridges and the list goes on. States are managing construction projects through e-construction and keeping track of asset conditions through electronic models. Most of this technology is developed and manufactured in the United States. New materials and treatments are being developed to lengthen the life of the infrastructure once put in place.

In the longer-term, these improvements will enhance economic competitiveness and improve quality of life by reducing travel delays and transportation costs, improving access and mobility, improving safety, and stimulating sustained job growth.

AGC commends Congress for its leadership in enacting into law the Fixing America's Surface Transportation (FAST) Act in December 2015. The FAST Act provided 5 years of stability that our Federal-aid highway and transit programs had not seen since 2008. As we get closer to the expiration of the authorization, our nation's transportation infrastructure needs continue to grow. As a result of sustained economic growth, increased population, emerging technologies and aging infrastructure,

it is critically important that the next reauthorization bill not only looks to the future but does not fail to address the needs that we are facing, and—in some cases—ignoring today.

THE U.S. TRANSPORTATION INFRASTRUCTURE SYSTEM'S NEEDS CANNOT SUSTAIN A STATUS QUO APPROACH TO INVESTMENT

Despite the importance of transportation investment to the U.S. economy, there remains a significant need for improvement and growth. The 2015 AASHTO Transportation Bottom Line Report found that annual investment in the nation's roads, highways and bridges needs to increase from \$88 billion to \$120 billion and from \$17 billion to \$43 billion in the nation's public transit systems, to improve conditions and meet the nation's mobility needs. The investment backlog for transportation infrastructure continues to increase, reaching \$836 billion for highways and bridges and \$122 billion for transit according to the U.S. Department of Transportation. The American Society of Civil Engineers (ASCE) has identified a \$1.1 trillion funding gap for surface transportation between 2016 and 2025.

The Road Information Program (TRIP) reports that increases in vehicle travel since 2000 have resulted in a significant increase in wear and tear on the nation's roads. Vehicle travel growth, which slowed significantly because of the Great Recession and the subsequent economic recovery, has since returned to pre-recession growth rates. From 2000 to 2016, vehicle travel in the U.S. increased by 16 percent. The rate of growth in vehicle miles of travel has accelerated since 2013, increasing by 6 percent between 2013 and 2016. Travel by large commercial trucks, which place significant stress on paved road and highway surfaces, continues to increase at a rate approximately double the rate for all vehicles. And, it is anticipated to continue to grow at a significant rate through 2030. Travel by large commercial trucks in the U.S. increased by 29 percent from 2000 to 2016. The level of heavy truck travel nationally is anticipated to increase by approximately 56 percent from 2018 to 2045, putting greater stress on the nation's roadways.

From coast to coast, major streets and freeways in most U.S. communities are showing significant signs of distress. Reports provided by the Federal Highway Administration (FHWA), based on data submitted annually by state departments of transportation on the condition of major state and locally maintained roads and highways show that forty-four percent of America's major roads are in poor or mediocre condition. One-third of the nation's major urban roadways—highways and major streets that are the main routes for commuters and commerce—are in poor condition. These critical links in the nation's transportation system carry 70 percent of the approximately 3.2 trillion miles driven annually in America. Forty-five percent of America's major urban interstates experience congestion during peak hours.

Based on Texas Transportation Institute calculations, TRIP estimates that traffic congestion in the U.S. in 2017 resulted in 7.3 billion hours of delays—an average of 45 hours annually per commuter—and costing the Nation \$176 billion in the value of lost time and wasted fuel. The nation expects to add another 60 million people over the next 20 years. Meanwhile, the value of goods shipped annually (in inflation adjusted dollars) is expected to increase by 104 percent by 2045—and by 91 percent for goods shipped by trucking. Without additional capacity, congestion can only be expected to increase. Americans rely heavily on motor vehicles for mobility. Travel in private vehicles accounts for 88 percent of all person miles of travel. Air travel accounts for 8 percent of all person miles of travel, while transit (including buses and trains) accounts for 1 percent.

In fact, a 2017 global traffic congestion report by INRIX found that 16 out of the 100 most congested urban areas globally are in the U.S., with the most congested urban areas in order being Boston (8th), Washington, DC. (19th), Chicago (23d), New York (40th) and Los Angeles (47th).

Driving on roads in need of repair costs U.S. motorists \$130 billion a year in extra vehicle repairs and operating costs, amounting to \$599 per motorist. Nine percent or 54,259 of America's bridges are structurally deficient, meaning there is significant deterioration to the major components of the bridge. And most troubling, we have seen a significant increase in traffic fatalities, which have gone up 14 percent between 2014 and 2017 from 32,675 to 37,133. And the traffic fatality rate on the nation's non-Interstate rural roads is nearly two-and-a-half times higher than on all other roads.

Our transportation infrastructure needs do not discriminate between rural and urban America. Many of the transportation challenges facing rural America are like those in urbanized areas. However, rural residents tend to be more heavily reliant on their limited transportation network—primarily rural roads and highways—than their counterparts in more urban areas. Residents of rural areas often must travel

longer distances to access education, employment, retail locations, social opportunities and health services. America's rural heartland plays a vital role in our economy as home to a significant share of the nation's population, many of its natural resources, and popular tourist destinations. It is also the primary source of the energy, food and fiber that supports America's economy and way of life.

US DOT reports that in 2015, 15 percent of the nation's major rural roads (arterials and collectors) were rated in poor condition, 21 percent were rated in mediocre condition, 16 percent were rated in fair condition and 48 percent were rated in good condition. In 2016, 10 percent of the nation's rural bridges were rated as structurally deficient.

A concern in the rural areas of our country is motorist safety. As TRIP points out, "The higher traffic fatality rate found on rural, non-Interstate routes is a result of multiple factors, including a lack of desirable roadway safety features, longer emergency vehicle response times, and the higher speeds traveled on rural roads compared to urban roads." Many of the safety deficiencies on rural roads can be fixed. These include narrow lanes, limited shoulders, sharp curves, exposed hazards, pavement drop-offs, steep slopes and limited clear zones along roadsides.

THE ECONOMIC BENEFITS OF TRANSPORTATION INFRASTRUCTURE INVESTMENT ARE WELL-DOCUMENTED

The positive relationship between transportation capital investment, economic output and private sector productivity has been well documented for decades by business analysts, economists and the research community. A safe, reliable and efficient transportation network helps businesses increase access to labor and materials, increase market share and expand their customer base, reduce production costs, access global markets and foster innovation. A 2017 study performed for NAIOP—the Commercial Real Estate Development Association—by Professor Stephen Fuller of George Mason University found the \$1.16 trillion in construction spending in 2016:

- Contributed \$3.4 trillion to U.S. GDP.
- Generated \$1.1 trillion in new personal earnings.
- Supported a total of 23.8 million jobs throughout the U.S. economy

Enhancing critical transportation assets will boost the economy in the short-term by creating jobs in construction and related fields. In the longer-term these improvements will enhance economic competitiveness and improve the quality of life by reducing travel delays and transportation costs, improving access and mobility, improving safety, and stimulating sustained job growth.

A SUSTAINABLE, LONG-TERM SOLUTION TO FUNDING THE HIGHWAY TRUST FUND MUST BE A PRIORITY

Prior to the expiration of the FAST Act next year, Congress must take the opportunity to fix the Highway Trust Fund and look at ways to enhance the existing Federal transportation infrastructure programs. While the FAST Act was a welcome reprieve from the uncertainty created by the many delays and short-term extensions of authorization that led up to its passage, it still left a great deal of uncertainty about future surface transportation investments. The FAST Act temporarily stabilized Federal highway and public transportation investment by transferring \$70 billion from the general fund of the U.S. Treasury to supplement an estimated \$208 billion in HTF revenue from existing sources over the 5-year duration of the bill.

When the FAST Act expires, the Congressional Budget Office estimates that \$159 billion in additional funding would be required to maintain current spending levels plus inflation from fiscal years 2022–2029. Failing to address the fund's ongoing revenue shortfall leaves open the possibility of disruptive uncertainty for states and the construction industry once the FAST Act expires. Without an extension and new revenue, AASHTO estimates that states will see about a 50 percent reduction in highway funding from FY 2020 to the following year and \$47 billion to \$23 billion in FY 2021. We urge you to act sooner rather than later. In the past failure to meet the deadline resulted in numerous short-term extensions that caused project cancellations, higher costs and delay of improvements affecting safety, efficiency and economic development.

With the hope that the legislation will not just keep the country treading water but will instead provide the kind of investment needed to propel our economy into the future, AGC urges you to provide real, reliable, dedicated and sustainable revenue sources derived from the users and beneficiaries of the system for the Highway Trust Fund that supports increased Federal surface transportation investments. AGC's preferred method to address the solvency of the trust fund is an increase in the Federal motor fuels tax—something that has not been done since 1993. Recog-

nizing the growing number of electric and hybrid vehicles, we also recommend Congress consider imposing an annual registration on electric and hybrid vehicles.

In 2009, the National Surface Transportation Infrastructure Commission concluded that the U.S. needs a new approach to transportation infrastructure financing, stating that “Direct user charges are the most viable and sustainable long-term, user pay option for the Federal Government.” The commission recommended moving to a vehicle mile traveled (VMT) fee or mileage-based user fee (MBUF). The VMT is a user charge based on miles driven in a specific vehicle as opposed to the current excise tax on fuel consumed. At its simplest, the fee would be cents per mile. A VMT would ensure that all users are paying their “fair share” to keep roads and bridges in a state of good repair regardless of the type of vehicle they drive.

To make it work on a national scale, a VMT system needs to be tested, piloted and refined at the state and local level. In the FAST Act Congress provided some \$95 million to states to undertake pilot programs to look at implementation of a VMT fee. Thus far, 11 states have been awarded funds to enter into pilots, with many more states exploring VMTs. Many lessons are being learned from these pilots including privacy protection, equity by income, geography and vehicle type, cost of administration and complexity of implementation. If we are to transition to a VMT as an eventual replacement for the motor fuels tax it is imperative that a robust national pilot program is included in a reauthorization bill.

Public Private Partnerships (P3s) have been given much emphasis in the past few years. Clearly, there is a place for P3s in addressing current and future transportation needs. P3s bring additional financing options to the table to address transportation needs that would not be there without Federal encouragement. In addition, P3s shift risk away from state DOTs and bring new players into the operations and maintenance mix. However, P3s are not the universal answer to the funding shortfall. Only certain types of projects are attractive to P3 development. These are primarily revenue generating projects and largely in dense urban areas. While encouragement for P3s should continue, it must be understood that they are an enhancement and not alone the solution to the funding shortfall.

CONTINUED FEDERAL, STATE AND LOCAL PARTNERSHIP IS CRITICAL TO THE SUCCESS OF OUR NATIONAL TRANSPORTATION SYSTEM

The partnership between Federal, state and local governments is critical to our transportation infrastructure. This partnership is as important as ever and must be continued for our country to meet the transportation needs of our growing economy. As such, state and local governments have taken it upon themselves to raise revenue to supplement their respective programs.

According to the USDOT’s *2015 Conditions and Performance* report, state and local governments provided 80 percent of \$217 billion invested in state and local road-related programs and 74 percent of \$43 billion invested in transit-related programs compared to 20 percent and 26 percent, respectively, contributed by the Federal Government. States continue to make significant commitments to invest in transportation infrastructure as evidenced by successful enactment of transportation revenue packages in 33 states since 2012. Unfortunately, the Federal Government has not kept up its end of the bargain by failing to adjust the user fees that provide funding for much of our Federal surface transportation investments.

Federal leadership and commitment are crucial ingredients for ensuring the continued success of this long-standing partnership. The certainty of Federal investments help state departments of transportation (DOTs) make needed investments in the major freight corridors that drive national and regional economic growth. The 1 million miles of roadways eligible for the Federal aid highway program account for 25 percent of total miles but carry 84 percent of all traffic. The 48,000 miles of the Interstate Highway System, which is the backbone of the U.S. economy, carries 25 percent of all traffic, including over half of the miles driven by freight trucks delivering goods across the country. Federal investment also accounts for 82 percent of rural and 64 percent of urban transit agency capital outlays, in infrastructure and rolling stock. Federal-aid funding remains critical to state-level capital investment in highways and bridges, averaging 52 percent of that state investment in recent years.

Highway accessibility was ranked the No. 1 site selection factor in a 2017 survey of corporate executives by Area Development Magazine. Labor costs and the availability of skilled labor, which are both impacted by a site’s level of accessibility, were rated second and third, respectively. Seventy-three percent of the \$27.7 trillion worth of commodities shipped to and from sites in the U.S. is transported by trucks on the nation’s highways. An additional 14 percent is delivered by rail, water, parcel, U.S. Postal Service or courier, which use multiple modes, including highways.

The formula-based distribution of funds through the Federal-aid highway program has worked well over the years and should be maintained. In order to have a strong national system, it is important that all segments of the system receive support. The formula-based funding also garners political and public support. Support for transit investment has also come from the Highway Trust Fund. With the growing use of transit in many communities, the traditional 80–20 share of Highway trust Fund revenue between these two transportation modes should be maintained. However, additional revenue sources must be found to support transit infrastructure needs.

FURTHER IMPROVING THE ENVIRONMENTAL REVIEW AND PERMITTING PROCESS

AGC is very appreciative for the work this committee has undertaken in helping enact bipartisan environmental reforms in MAP–21 and the FAST Act. But more work can be done and improvements upon those enacted reforms can be made.

AGC members have pointed to a host of technical and procedural problems that government agencies face, in general, during document preparation and interagency reviews: they inevitably lead to inconsistencies in the environmental approval process, schedule delays and costs overruns. Such uncertainty spurs legal challenges, which can ultimately threaten the viability of the project. AGC has worked closely with the administration and supports its efforts to further improve the environmental review and permitting process. Additionally, we have shared our extensive environmental recommendations to the House and Senate in testimony or statements for the record.

Three of these reforms that would have substantial positive impacts are:

- First, require a merger of the National Environmental Policy Act and Clean Water Act 404 permitting processes with the U.S. Army Corps of Engineers issuing permits at the end of the process, using the NEPA-generated information;
- Second, allow the monitoring, mitigation and other environmental planning work performed during the NEPA process, and included the final Environmental Impact Statement / Record of Decision, to satisfy Federal environmental permitting requirements, unless there is a material change in the project; and
- Third, develop a reasonable and measured approach to citizen suit reform to prevent misuse of environmental laws.

IMPROVING PROJECT DELIVERY DECREASES COSTS

Transportation improvement projects also face delays from a host of third-party impacts that occur leading up to or during construction. There is much room for improvement in this arena.

Coordination with Railroads:

Transportation construction projects that interface with railroad properties are often subject to significant restrictions and delays imposed by railroad owners. Obtaining fair and equitable railroad agreements as well as ensuring the commitments are made in a timely manner are often a struggle and add time and cost to transportation projects.

AGC recommends that USDOT be authorized to establish consistent requirements, commitments, and timeframes with all public and private railroad owners to facilitate transportation work within and across railroad rights of way and provide USDOT the authority to enforce those provisions with the railroads. As such, we ask Congress to require USDOT to establish model agreements for standard activities conducted by the state DOTs in railroad right-of-way (and vice versa) and provide guidance on the establishment of agreements for special or more complex activities.

Utility Relocation:

Relocating underground utilities in highway right-of-way, while undertaking road improvement projects, continues to be one of the leading causes of delay in completing projects once the construction phase has started. Underground utilities that are unmarked or incorrectly marked pose a significant safety risk to the construction workforce, DOT employees and the public. Damage to utility facilities can be costly to all parties to the contract and negatively impact the collaborative spirit on jobs and lead to litigation. Current rules allow for states to be reimbursed with Federal funds when the state pays for utility relocations for project construction. The Common Ground Alliance (CGA) is an outgrowth of a study conducted by USDOT—as directed by Congress—that has best practices in place nationwide to address these concerns.

AGC believes there are measures that can be taken to improve this situation including:

- Allow utility relocation to take place after a preferred alternative is identified but prior to NEPA completion with appropriate limitations to ensure the integrity of the NEPA process.
- Encourage state DOT involvement in efforts such as the CGA to promote shared responsibilities for utility protection and adopting their recommended best practices.
- Grant authority for state DOTs to participate in their local one-call systems or develop in-house capabilities to locate DOT owned facilities within the right-of-way (ROW).
- Look for ways to encourage that utilities located in highway ROW participate in preconstruction meeting with the DOT and contractor.
- Look at ways to maintain a repository of electronic “as built” 3D data of completed highway improvement projects to begin compiling an index of utility locations for future road improvement uses.

Simplify Buy America Requirements:

Buy America requirements have been part of the procurement process for construction projects funded through the Federal-aid highway and the Federal Transit Administration’s (FTA) grant program since the early eighties. FHWA has applied Buy America requirements to steel and iron products.

Generally, Buy America regulations require a domestic manufacturing process for steel and iron materials that are permanently incorporated into a federally assisted construction project. The requirement interprets domestic manufacturing process to include melting, rolling, cutting, welding, fabrication, and the process of applying a coating.

The FTA is also subject to Buy America and requires that for manufactured products, regardless of the material they are made from, the manufacturing processes must take place in the United States and all components of the product must be of U.S. origin regardless of the origin of its subcomponents.

While the industry has been able to meet these requirements and produce high quality projects Buy America requirements can significantly delay projects and add to overall cost because of their complexities.

AGC recommendations for Buy America implementation include:

- Manufactured products that consist of 90 percent or more of steel should be U.S. produced. Waivers should be available for commercially available off-the-shelf (COTS) products with iron and steel components and manufactured products that contain a variety of different components made of a variety of different materials, including steel, and in different amounts.
- Small, incidental products such as bolts, screws, connectors, etc., should be considered *de minimis* and excluded from the requirements. The cost and time required to trace and document these products can far outweigh their *de minimis* financial impact to the project’s total value.
- Allow for the minimum use exclusion as currently implemented by FHWA to increase from one tenth of 1 percent to 1 percent or a ceiling of \$20,000 from the current \$2,500 limit.
- Buy America requirements should be limited to steel and iron products and not expanded to other construction products not generally manufactured, such as cement.
- The waiver application process with FHWA should be timely and should not become a barrier to efficient project delivery or related decisionmaking by the owner and contractor.
- Utility and railroad facilities relocated as part of a Federal-aid highway project should not be covered by the project.
- On FTA funded projects, the construction industry and grant recipients are looking for clearer and more consistent direction from the FTA. Clear cut guidance on how to categorize end products, components and subcomponents is needed. FTA needs to provide guidance clarifying how Buy America content in the end project, components, subcomponents and sub-sub components is to be determined. Directing FTA to develop a standardized audit or certification program for suppliers may help resolve these issues.
- A standardized template to assist suppliers in providing relevant product information and accurately calculating percentage costs might help, especially related to Rolling Stock materials.

BUILDING RESILIENCE IN INFRASTRUCTURE

In 2014, AGC was one of 21 building-related national organizations and professional societies to sign the Industry Statement on Resilience, which defines resilience based on National Research Council work as the ability to prepare and plan

for, absorb, recover from, and more successfully adapt to adverse events. That group continues to look for ways to address the issue. But, simply put, in the design of infrastructure, resilience to natural disasters that hit in specific areas should be part of the design criteria. Retrofitting structures where possible should be considered. Resilient adaptation decisions for roadways can include elevation, decisions on bridge size and elevation, material choices, and drainage. Rebuilding substandard infrastructure is an opportunity to address resilience.

WORKFORCE

Workforce shortages have been a problem facing many industries and the construction industry, in particular. AGC worked with FHWA and AASHTO on a highway construction worker pilot program to identify, train and place workers in highway construction careers. The Department of Labor cooperated in encouraging local and state work force development boards to participate as well. For the pilot program the group identified 12 areas, six states and six urban areas where the state DOT, FHWA Division office and the AGC chapter can work with the local or state Workforce Investment Board to identify individuals with the interest and motivation to work in highway construction. FHWA has made grant funds available to support these pilots. Using the lessons learned from these pilots and providing additional grant funding to support the initiatives could pay big dividends for workers looking for well paying career as well as supporting the workforce needed to deliver the transportation infrastructure projects.

CONCLUSION

Madam Chairperson, thank you again for convening today's hearing and for allowing AGC to participate. The role of our national transportation system in supporting U.S. competitiveness and our quality of life cannot be understated. Transportation impacts the daily lives of citizens and businesses in every state in the Union. The American public recognizes the need to improve our system and bring it back to world class status. A golden opportunity is before you. At a time when it seems there is little we all agree on infrastructure may prove to be the missing link. I urge you to take advantage of this opportunity.

An important step Congress can take is to fix the Highway Trust Fund. Providing a reliable, dedicated and sustainable revenue source derived from the users and beneficiaries of the transportation system to not only address the annual shortage but allow for robust future investments is key. Please do not put off this debate until later. The longer you wait the more difficult the solution becomes. You have shown great leadership in not waiting until the new Congress convenes before holding this hearing. Continue that leadership and allow the legislation to move forward. Again, thank you for your time and consideration.

Ms. NORTON. Thank you very much, Mr. Stanley.

And finally, Michael Terry, president and CEO of IndyGo, Indianapolis Public Transportation Corporation, on behalf of the American Public Transportation Association.

You may proceed, sir.

Mr. TERRY. Thank you. I first wanted to thank Congressman Carson for his very kind introduction earlier.

Chairwoman Norton, Ranking Member Davis, members of the Subcommittee on Highways and Transit, I just thank you for this opportunity to testify on behalf of the American Public Transportation Association. My name is Mike Terry, I am president and chief executive officer of IndyGo, which is the Indianapolis Public Transportation Corporation.

IndyGo is the largest public transportation agency in the State of Indiana. Our service is 100 percent bus operations. As a county agency, we serve more than 820,000 people, operating approximately 160 vehicles over 400 square miles. Last year we invested in additional service frequency on our busiest routes, and we were able to increase monthly ridership by an average of 4 percent.

As this subcommittee considers what Federal policies should be modified in the next surface transportation authorization, APTA is

in the process of consulting with its members and finalizing recommendations on how Federal public transportation policy can be enhanced to meet the needs of the 21st century.

APTA's top legislative issue is ensuring the solvency of the Highway Trust Fund. We have long supported increased dedicated Federal revenues to the Highway Trust Fund. It has been more than 25 years since Congress last raised the Federal fuel taxes that primarily support the Highway Trust Fund, and the purchasing power of this revenue has decreased by more than 40 percent over that time.

APTA strongly supports the U.S. Chamber of Commerce's proposed plan of increasing the Federal motor vehicle fuel user fee by 5 cents per year for 5 years. We also support any other reasonable, bipartisan plan to increase dedicated revenues to the Highway Trust Fund, and we are ready to work with Congress to advance this critical priority.

APTA continues to advocate for increased investment in public transportation from all levels of Government. But the Federal partnership remains absolutely critical. IndyGo can attest to the importance of ensuring a Federal role in public transportation. Our voters locally passed a local income tax referendum to support a transit plan that will provide expanded frequency of hours of service on our fixed-route bus network. Without a Federal partnership we would not be able to efficiently operate the increased local network in three rapid bus transit corridors. Several U.S. Department of Transportation grants have been critical in the success of this transit plan.

The capital investment grants, the CIG, are vital public transportation investments for APTA members, including IndyGo. We received a Small Starts grant last year for our red line bus rapid transit, and we have two more projects in the CIG pipeline: our purple line and blue line BRTs. IndyGo is building an enhanced bus network that will upgrade to rapid service to ensure an even more seamless travel experience for our riders.

The importance of public transportation capital program cannot be overemphasized. Unfortunately, the CIG program has shifted from an efficient public transportation capital program that can build good projects while protecting taxpayer dollars to a grant program that has requirements above and beyond that of comparable modes, such as highway grant programs.

We believe Congress must change the program to make it more efficient. APTA anticipates endorsing a zero-base review of the CIG program to eliminate unnecessary statutory, regulatory, or policy requirements.

APTA is leading the charge to support public transportation agencies' efforts to implement innovative mobility management strategies, including introducing cutting-edge technologies and integrating new service delivery approaches.

At IndyGo we have embraced the new mobility paradigm. Many areas outside the core of Indianapolis are not developed in a way that is ideal for public transit. To better reach these sprawling neighborhoods, IndyGo is collaborating with the multisector collective to integrate multiple modes of transport to enhance access beyond where transit will be successful.

We envision a connected, on-demand network of car-sharing, ride-hailing, bike-sharing, and other new mobility options to create first- and last-mile connections. Last year IndyGo partnered with Lyft and BlueIndy, which is an electric car-share program, on a program to incentivize Indianapolis residents to utilize several mobility options into their daily lives to a great success.

As president and CEO of IndyGo for the past decade, I have seen tangible, equitable, and very real benefits that public transportation provides to residents, communities, and our Nation. It is imperative that a continued Federal partnership with a dedicated source of funding remain a core principle of the next surface transportation authorization.

Thank you very much, Chairwoman Norton, Ranking Member Davis, and other members of the committee. I look forward to answering your questions.

[Mr. Terry's prepared statement follows:]

Prepared Statement of Michael Terry, President and CEO, Indianapolis Public Transportation Corporation (IndyGo), on behalf of the American Public Transportation Association (APTA)

INTRODUCTION

Chairwoman Norton, Ranking Member Davis, and Members of the Subcommittee on Highways and Transit, on behalf of the American Public Transportation Association (APTA) and its more than 1,500 public- and private-sector member organizations, thank you for the opportunity to testify on Aligning Federal Surface Transportation Policy to Meet 21st Century Needs.

My name is Michael Terry, and I am the President and Chief Executive Officer (CEO) of the Indianapolis Public Transportation Corporation, also known as IndyGo. I joined IndyGo in 2003 as the Vice President of Business Development and have served as President and CEO for more than a decade.

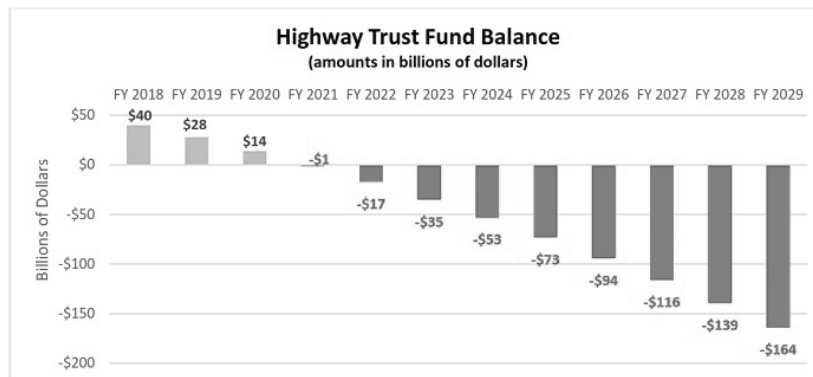
IndyGo is the largest public transportation agency in the state of Indiana. Our service is 100 percent bus operations. As a county agency, we serve more than 820,000 people, operating approximately 160 vehicles over 400 square miles. Our paratransit service provides critical curb-to-curb service for residents with disabilities anywhere in the county. We leverage Federal and local dollars to enhance frequency and grow capacity, reliability, and efficiency. Last year, we invested in additional service frequency on our busiest routes, and were able to increase monthly ridership by an average of 4 percent. We are grateful for the Federal and local partnerships that are making IndyGo's expansion possible.

Today, I would like to share with the Subcommittee some of the important concepts that APTA is considering as we look to the next surface transportation authorization that will succeed the *Fixing America's Surface Transportation Act* (FAST Act) (P.L. 114-94). While APTA is still in the process of finalizing its recommendations, here are some important considerations for enhancing Federal public transportation policy:

The Solvency of The Highway Trust Fund

APTA's top legislative issue is ensuring the solvency of the Highway Trust Fund. The backlog of transit state-of-good-repair needs is more than \$90 billion and growing. APTA has long supported increased dedicated Federal revenues to the Highway Trust Fund for programs that support the national transportation network, cost-effectively address the problem of deferred maintenance, and enable public transportation agencies to meet growing demands for increased mobility.

It has been more than 25 years since Congress last raised the Federal fuel taxes that primarily support the Highway Trust Fund, and the purchasing power of this revenue has decreased by more than 40 percent over that time. Current revenues deposited into the Highway Trust Fund are insufficient to support the existing Federal highway and public transportation programs without significant general fund contributions. This status quo is unsustainable and tough choices need to be made by Congress.



Source: Highway Trust Fund estimates based on Congressional Budget Office data (January 2019) and include funds necessary to maintain account “prudent balances” for cash management purposes, as estimated by the U.S. Department of Transportation.

The Government Accountability Office (GAO) recognizes the urgency and critical importance of long-term, sustainable surface transportation funding. Last week, GAO noted, in its 2019 High-Risk Series report, that “the nation’s surface transportation system—including highways, transit, maritime ports, and rail systems that move both people and freight—is under growing strain . . . the cost to repair and upgrade the system to meet current and future demand is estimated in the hundreds of billions of dollars.”¹ Although funding the nation’s surface transportation system has been on GAO’s High-Risk list for more than a decade, Congress has not provided the necessary resources or dedicated funding to address these critical issues.

In January 2018, the U.S. Chamber of Commerce proposed a plan to increase the Federal motor vehicle fuel user fee by five cents per year over 5 years (Total: 25-cent increase). APTA strongly supports this plan and our Board of Directors has specifically endorsed it. We also support any other reasonable, bipartisan plan to increase dedicated revenues to the Highway Trust Fund. Our most important issue continues to be the long-term solvency of the Highway Trust Fund, and we stand ready to work with Congress to advance this critical priority.

Dedicated Federal Funding for Public Transportation

Public transportation represents a \$71 billion industry that directly employs 430,000 people and supports millions of private-sector jobs. Public transportation supports economic development, produces a safer, more efficient transportation system, connects people with jobs and employers with potential workers, and supports national priorities. APTA continues to advocate for increased investment in public transportation from all levels of government, but the Federal partnership remains absolutely critical. States and public transportation agencies need predictable Federal funding to support long-term planning and multi-year capital projects.

Dedicated and sustained Federal funding for public transportation complements the unprecedented contributions already made by states and local governments to operate and maintain these services. In recent years, several states have raised motor fuel taxes and localities have raised other taxes that help pay for surface transportation, including public transportation. In 2018, voters approved 82 percent of transit ballot initiatives, which increased or secured revenues for public transit investment. However, the success of these local initiatives depends on a strong Federal partnership.

IndyGo can attest to the importance of ensuring a Federal role in public transportation. In 2016, Marion County voters and leaders passed a local income tax referendum of 0.25 percent to support the implementation and operation of the Marion County Transit Plan (Transit Plan). The Transit Plan is transforming IndyGo by laying the foundation for expanded frequency and hours of service for our fixed-route local network, which will amount to a 70 percent increase in service. Without a Federal partner, we would not be able to effectively operate the increased local

¹ Government Accountability Office, HIGH-RISK SERIES: Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas, March 6, 2019, 86–90.

network and three rapid transit corridors that will provide this high-quality public transportation service. Several core capital improvements are necessary, and U.S. Department of Transportation grants have been critical to the success of our Transit Plan.

Capital Investment Grants

Capital Investment Grants (CIG) are a vital public transportation investment for APTA members, including IndyGo. The CIG program provides grants for fixed-guideway investments, such as new and expanded subways, light rail, commuter rail, streetcars, bus rapid transit (BRT), and ferries. We are extremely grateful for Congress' continued recognition of the importance of the CIG program by providing appropriations higher than the \$2.3 billion provided in the FAST Act in each of the past three fiscal years (Fiscal Years 2017–2019).

IndyGo has accessed the critical CIG program to build an enhanced bus network—the Red Line. The Red Line received a Small Start grant, one of four categories of projects in the CIG program, in May 2018. IndyGo will operate full battery-electric BRT vehicles on these critical, high-volume corridors. Further, IndyGo also has two BRT projects in the CIG pipeline—the Blue Line Rapid Transit and the Purple Line Rapid Transit. These projects are along two corridors that currently are among IndyGo's most productive, frequent, high ridership routes. The BRT projects will upgrade service on the corridors to rapid service to ensure an even more seamless travel experience for our riders.

The importance of this public transportation capital program cannot be over-emphasized. Unfortunately, the CIG program has shifted from an efficient public transportation capital program that can build good projects while protecting taxpayer dollars to a grant program that has requirements above and beyond that of comparable modes—such as highway grant programs.

We believe Congress must change the program to make it more efficient. Currently, CIG project sponsors must navigate a bureaucratic maze over multiple years to receive a grant agreement. Beginning with enactment of the Transportation Equity Act for the 21st Century (TEA 21) in 1998, both Congress and the Federal Transit Administration (FTA) have repeatedly layered additional requirements on the CIG program. APTA anticipates endorsing a zero-based review of the CIG program to eliminate unnecessary statutory, regulatory or policy requirements.

We urge Congress to adopt provisions that will strengthen the CIG program and ensure that these critical public transportation projects across the country are delivered in a timely manner.

Safety

Safety is the public transportation industry's top priority. Research shows that modest increases in public transportation ridership in a metropolitan area can cut traffic fatalities by 40 percent. Today, traveling by public transportation is 10 times safer for passengers than traveling by car. Providing more and improved public transportation is one of the most powerful traffic safety tools that a community can employ to help reduce the more than 37,000 traffic deaths per year on our nation's roadways.

Our members view safety as an essential and primary component to ensuring customer satisfaction and providing seamless service. The FTA's State Safety Oversight (SSO) Program outlines minimum safety requirements for passengers and agency employees. APTA is proud that 30 states have achieved their SSO Program certifications well before the statutory deadline. The FTA is reviewing the final, multi-state certification (Metrorail Safety Commission) and we are very hopeful that the Commission will receive its certification prior to the April 15, 2019 deadline.

Moreover, our commuter railroads are committed to making rail travel even safer with full implementation of Positive Train Control (PTC). As a result of this commitment, some commuter railroads have completed PTC implementation and others are on the path to fully implement PTC by the end of 2020. While implementation of PTC is a critical safety overlay, the industry takes a comprehensive approach to safety that includes multiple essential safety countermeasures. Those measures include reducing operator fatigue, implementing new safety monitoring equipment like inward- and outward-facing cameras, addressing grade-crossing and trespassing incidents, and conducting rigorous safety audits.

The public transportation industry has an incredibly strong safety record. We are grateful for the work that this Subcommittee has done to make our nation's surface transportation safer.

The Evolving Mobility Landscape

Advances in technology have allowed vehicles to operate with increased autonomy and efficiencies. Data capabilities have evolved and enable effortless trip planning

and streamline information sharing, and new business platforms have supported the explosion of ride-hailing and bike-sharing services. According to a recent APTA study, *The Transformation of the American Commuter*, 77 percent of Americans say public transportation is the backbone of a multi-transit lifestyle.² APTA is leading the charge to support public transportation agencies' efforts to implement innovative mobility management strategies, including introducing cutting-edge technologies and integrating new service delivery approaches.

At IndyGo, we have embraced the new mobility paradigm. One of our core strategic principles is to advance mobility as a catalyst for success. Many areas outside the core of Indianapolis are not developed in a way that is ideal for public transit. Many suburban neighborhoods built in the 1960's through the 1990's are extremely car-centric in design—single family, detached homes on large lots in cul-de-sac developments. To better reach these sprawling neighborhoods, IndyGo is collaborating with a multi-sector collective to integrate multiple modes of transport to enhance access beyond where transit will be successful. We envision a connected, on-demand network of car sharing, ride hailing, bike sharing and other new mobility options to create first- and last-mile connections. For example, in fall 2018, IndyGo partnered with Lyft and BlueIndy (an electric car service) on a program to incentivize Indianapolis residents to utilize several mobility options into their daily lives. It was a great success. In addition, leveraging an FTA technical assistance grant, we are building a new account-based fare system, which in the future will serve as the financial infrastructure to facilitate seamless connections to other modes.

IndyGo is an early adopter of electric bus technology. IndyGo has leveraged \$10 million in Federal funding to acquire 21 fully electric vehicles, with operating costs one-fourth the amount of a traditional diesel bus. IndyGo plans to substantially upgrade its aging fleet (of which 44 percent have surpassed their useful life), replacing all of its diesel buses with electric vehicles by 2032. It will also install bus charging infrastructure along its routes. Another Federal grant was leveraged to install a solar array on the roof of its main garage. This solar infrastructure is generating enough power to offset the increased electric demand from charging requirements—13 of the existing 21 electric bus fleet are being charged by the power generated by the solar array.

Given the rapid changes in technology and mobility, public transportation has a key role in the transportation network. With an upcoming surface transportation authorization bill, Congress needs to ensure that public transportation agencies have the flexibility to meet changing mobility needs.

CONCLUSION

As President and CEO of IndyGo for the past decade, I have seen the tangible and very real benefits that public transportation provides to residents, communities, and our Nation. Public transportation not only spurs economic growth, but reduces congestion, improves air quality, saves time and money, and advances an equitable and better quality of life for our communities. It is imperative that a continued Federal partnership with a dedicated source of funding remains a core principle of the next surface transportation authorization act.

On behalf of APTA, thank you for including us in this important discussion as the Subcommittee begins developing the next surface transportation bill. As APTA continues to move forward with finalizing its surface transportation authorization proposal, we very much welcome the opportunity to continue the conversation and stand ready to assist in advancing our mutual objectives.

Ms. NORTON. Thank you very much, Mr. Terry. We are now going to move on to Members' questions, and each will have 5 minutes.

Mr. Terry, I got a hold of your testimony where you indicated that you have, by adding service frequency, been able to get a 4-percent increase in ridership. Now, we see ridership going down in transit in other cities. Just by having more frequent service you got an increase in transit ridership? Is that the problem?

Mr. TERRY. I think that is one of the problems. It is actually focusing on where mass transit has the highest and best use, the

²American Public Transportation Association, *The Transformation of the American Commuter*, December 2018, 1–3.

highest productivity. In our realignment that we are doing, incorporating rapid transit as well as our regular bus network, people want reliable, dedicated, and frequent service. And we are finding increasing that frequency and expansion of hours of service, where people can rely on that, is increasing ridership.

Ms. NORTON. So it is not just trains should run on time, there should be more frequent trains. And then people will get off the road and get on the train.

Mr. TERRY. Yes, ma'am. That is the way we feel.

Ms. NORTON. Well, this is very important information.

Ms. McMillan, I am interested in your testimony that speaks about expanding the share of funds which go to what you call the Nation's metropolitan areas. So who would control these funds? How would that work? Would there be conflicts among the parts of the region?

Ms. MCMILLAN. Well, and certainly I can speak in the bay area, where the funds do come to the Metropolitan Transportation Commission, as the MPO. But we work extremely closely with a bottoms-up approach with our cities and counties to determine how those funds would then be distributed—

Ms. NORTON. So who does that?

Ms. MCMILLAN [continuing]. If we are talking about STP—

Ms. NORTON. Who controls that? Who do you talk to if you are working on an area-ride basis—perfectly understandable, because of the way people cross county lines just to get to work or to shop. But who is in charge of deciding where the funds go?

Ms. MCMILLAN. The Metropolitan Transportation Commission, within our region, as the MPO, would ultimately be the one that would make this—but I would stress that on our board is represented the local entities of the counties and cities. And so getting their input about what the needs are, and then working with us to determine how to distribute those funds to the relative needs in the different areas of this county is very important.

So I think that cooperation among us to determine how investments should be made, and particularly in those areas where a problem is not located in one city or another, but does cross, you know, boundaries, we need to recognize that the riding public often doesn't recognize those boundaries, and we need to come up with a solution, collectively, to address their overall journey, wherever that may start or end.

Ms. NORTON. Well, I would really also like to ask Mr. Clark and then maybe others of you—Mr. Stanley—who could speak to this. Very concerned about the differences in how people now look at the workforce for transportation. Mr. Clark spoke about registered apprenticeship.

Now, you know, young men whose fathers or grandfathers were in the industry, you know, sitting at computers, they don't even have to be very skilled to do that. Don't we need to do more than look at registered apprenticeship? Because they don't even get to the apprenticeship in the first place.

How do we draw people to this very important industry to do the work that needs to be done?

Both of you, I would like to hear what you have to say on that.

Mr. CLARK. I will start. I think one of the things—several things we need to do. One thing that we clearly need to do is talk differently about what the workforce looks like. Quite often, when we have discussions about the workforce—and I focused very much on the frontline workforce—and in rooms full of people, one of the things I often do is ask how many people here have a bachelor's degree or more. And usually in those discussions, almost all hands go up.

Actually, only about one-third of adults have a bachelor's degree. And if we keep communicating to young people that the only way you get ahead is by getting a 4-year college education, it is a self-defeating strategy. The jobs, skilled jobs in transit, are good, family-supporting jobs. That is true of jobs in highway construction and a lot of others. They tend to be neglected, because people just don't think about them, they think they are going away.

The same is true of a lot of high-tech manufacturing. We need to be communicating that there are abilities to get those jobs. We also need to be equipping people with the skills to function in those jobs. The jobs are no longer simply heavy lifting. They are extremely skilled jobs with a lot of diagnostic skills, a lot of mental work. People need to come in with strong math abilities.

People have referred to STEM, career technical education, and I mentioned specific peer apprenticeship for people who are a little bit older and need to make up some skill deficits to make this work. But I think there are strategies that can get people there. We need to start rethinking about how we communicate to people about what the labor market actually looks like.

Ms. NORTON. Well, my time has expired, so thank you very much. I am going now to the ranking member, Mr. Davis, for his 5 minutes.

Mr. DAVIS. Thank you, Madam Chair.

Mr. Mayor, the mayor of San Antonio, right? You served on the city council before that?

Mr. NIRENBERG. Yes, sir.

Mr. DAVIS. Can you tell me how many times my colleague and good friend, Joaquin Castro, tried to sit in for his twin brother at city council meetings?

[Laughter.]

Mr. NIRENBERG. No, sir, I can't. He was busy up here.

Mr. DAVIS. I will ask him about that. But thank you. Welcome, and thanks for being here.

Mr. Millar, I pinch-hit for Leader Graves today at the ASCE event this morning just across town. They told me you were coming here on behalf of them, too, and to take it easy on you. But I will not do that today. I am going to start you with a question. Actually, it will be a question I think will provide a lot of us on this committee some information that expands a little bit on your opening statement.

You mentioned expanding categorical exclusions across Federal agencies. Can you expand on that a little bit? And in particular, how do we make them more interchangeable?

Mr. MILLAR. Yes. Again, as I mentioned in my opening remarks, about 94 percent of the work that we do happens through categorical exclusions. The categorical exclusions are a provision in the

National Environmental Policy Act that allow for projects to move forward that have been demonstrated to have no significant impact on the environment—the environment being the economy, social and the natural environment.

Different agencies have different rules for that. We found in the work that we do that the key to moving forward is making sure that the resource agencies are adequately funded to respond to our requests for, you know, permits, for approvals, for reviews and the like. That is what works for us.

There are some in AASHTO that would like for transportation-related projects for other agencies to be able to use a list of categorical exclusions that the Department of Transportation, Federal Highway Administration has adopted. We don't have to do that in Washington State because, again, we find that by working with the resource agencies upfront, we don't have that problem.

Mr. DAVIS. Well, thank you. My 6½ years on this committee, any chance we can reduce what I call the paperwork process to get to construction faster to make the Federal dollar stretch further, I am always interested in that. So thank you for your testimony and your responses.

Mr. Stanley, thank you. Are you aware that your Representative on the Hill had his ribs broken in a congressional hockey game by our colleague on this committee, Mr. Katko?

[Laughter.]

Mr. STANLEY. I have heard rumors. Yes, sir.

Mr. DAVIS. Have you? You may want to rethink your representation there.

[Laughter.]

Mr. DAVIS. Can you tell me, Mr. Stanley, how do we balance the surface transportation investments needs that we are experiencing today with what we may need in the future?

Mr. STANLEY. I think the balancing is a balancing act, as you said. The funding has got to be short-term and it has got to be long-term. A lot of your State DOTs don't do long-term projects because of short-term funding.

So in the past, the continuing resolutions have delayed projects caused for cost increases and things like that. So we definitely need to look at the short-term needs, but then look further out in the future. Because as different types of transportation come online with automated cars, potentially, and things like that, we have all got to share the road.

We have got more large trucks that are transporting more goods each year by year. So we have to work on multimodal corridors, as well. So basically, that money needs to be looking at a lot of different modes of transportation, as well as expanding capacity and advancing new technologies, as well.

Mr. DAVIS. Great, thank you.

Mr. Anderson, I know you represent the great State of Texas. Thank you for being here today. I ask you the same question.

Mr. ANDERSON. Well, yes, in our priorities relative to the FAST Act we also echo stable, predictable, and sustainable funding streams. We ask for updated data relative to lane miles and census data as it relates to our core funding programs.

But we are also very fortunate in Texas because we have passed prop 1 and prop 7, and our people then identified additional transportation needs that they wanted to have, and they looked at the State to provide funding for those. So we looked, you know, both at the Federal Government, but also to our State to identify ways to achieve better funding revenue, and then put that towards the priorities of our local and regional partners.

Mr. DAVIS. Great. Well, thank you all for your time today. Thanks for your testimony and your responses. I look forward to hearing more.

I yield back.

Ms. NORTON. Thank you very much, Mr. Davis.

Chairman DeFazio?

Mr. DEFAZIO. Thank you, Madam Chair.

Mayor Nirenberg, you talked here about ConnectSA. And I would be interested in hearing a brief description of how you are going to do that.

Mr. NIRENBERG. Yes. Well, we are working on an integrative strategy that takes all of the different planning elements in place, from our land use strategies to our bus routes, to our pedestrian pathways, even our linear creekway systems, and tries to create an effective and intermodal transportation system.

On top of that we are looking at developing our first-ever advanced rapid transit system. And San Antonio is a 500-square-mile city, fast-growing city. We have an underfunded bus system that needs to increase frequency. And all the elements in place are the only way we believe we can keep our economic vibrancy and be able to meet the demands of moving San Antonians around inside of our city.

Mr. DEFAZIO. OK, thank you.

Secretary Millar, you talked about how you couldn't build your way out of it. So what are the tools that we should highlight, incentivize, or create in the next transportation bill that would give people what they need to look at more innovative ways to mitigate congestion?

Mr. MILLAR. Thank you, Mr. Chairman, for the question. Yes, we can't build our way out of congestion. When I was first appointed secretary I got an email from a constituent, "Congratulations. By the way, your speed limit signs say 60 miles an hour. I can't drive 60 miles an hour on your freeways. Your agency is a failure."

[Laughter.]

Mr. MILLAR. I thanked that constituent and then I asked, "What would it take to be able to drive 60 miles an hour all the time on our freeways?" A \$115 billion investment. Doing that over 20 years is a \$2.50-a-gallon gas tax. And that did not accommodate any growth in our region, it didn't accommodate any growth in the local road system, and the like.

The fact that we cannot build our way out of congestion is not a failure of Government, it is an economic and environmental and demographic reality. So we are talking about moving forward in a congested world, and that involves first taking care of the system we have in place. So preservation is hugely important to us.

We have today in Washington State a \$700 million-a-year unfunded preservation backlog.

Mr. DEFAZIO. OK, basically state of good repair.

Mr. MILLAR. State of good repair.

Mr. DEFAZIO. OK.

Mr. MILLAR. Then safety—

Mr. DEFAZIO. OK.

Mr. MILLAR. When you look at the \$3.5 billion that is—impacts our economy, congestion costs our economy in Washington State about \$3.5 billion. The deaths and serious injury accidents in Washington State cost our economy \$8.5 billion. We talk about congestion all the time. We are not talking about the safety issues on our roadways. So making our transportation system safe is important.

Transportation system management and operations, recognizing that if you think about the transportation system that is going to be in place 20 years from now, most of it is there today. But we need to get more throughput out of the system we have through things like express toll lanes, managed lanes, automated transportation management systems, investing in incident response to clear crashes and get roads back open. Investing in the relationships between land use and transportation, so we don't continue to make stupid decisions that necessitate investments that we can't afford to make any more.

And then, as a last resort, targeted system expansion. Typically, in our world, you see a problem, the answer is "more." That should be the last thing we do, not the first thing we do. And that is the progression of decisionmaking that we are making in Washington State.

Mr. DEFAZIO. OK, thank you. Any suggestions any of you have that are specific to ways Federal funds are restricted that don't allow you to take reasonable steps to get better throughput on our existing infrastructure would be very welcome in this committee.

And then I just want to observe, Mr. Terry—thanks for your testimony about Indianapolis. But when you talked about—and a number of other people have recommended the 55555. The fact is if we do 55555, it is 6½ years before we increase spending above the current levels, which I think is too long to wait. We need to be looking at leveraging whatever we do with gas and diesel tax with bonds, so that we get that money upfront more quickly.

I would observe—and you probably—I don't know how old your bus fleet is, but part of the reason in some places people are abandoning transit is because it is not reliable because it is worn out. And just bringing transit up to a state of good repair, I believe would attract a lot of people back to the system. Do you agree?

Mr. TERRY. Very much so. The rider experience is very important. Our fleet is—44 percent is past its useful life. So you are exactly correct. State of good repair is extremely important.

Mr. DEFAZIO. OK, thank you.

Thank you, Madam Chair.

Ms. NORTON. Thank you.

Mr. Balderson?

Mr. BALDERSON. Thank you, Madam Chair. Good morning, everyone, and thank you to the panel for being here this morning. My first question is for Mr. Anderson.

Mr. Anderson, according to the most recent census data, Columbus is the fastest growing major city in the Midwest, which is in my district. As a result, Columbus has undertaken major initiatives to reduce such congestion, such as the CMAQ bus line, which I have gone and visited, which syncs buses with traffic signals to improve efficiency and reduce traffic.

As the winner of the Department of Transportation's Smart City Challenge, Columbus is also implementing smart mobility hubs and state-of-the-art multimodal trip planning apps for residents. How has the Texas Department of Transportation collaborated with its colleagues in other States to share and build on emerging technologies and ideas?

Mr. ANDERSON. Well, through a number of measures: the AASHTO committees, the transportation research board organization.

We also—our Texas Innovation Alliance, along with a number of other smart cities, including Columbus, are in a larger smart city consortium. And those cities and regional partners are sharing the best practices and the capabilities that they are developing, real time. And it runs the gamut. It looks at data management, it looks at what is a better integrated traffic management system, what additional ITS sensors or technologies better enable them to manage that system or to provide information out to the public.

And then in the case of multimodal, you mentioned, you know, multimodal integrated applications that make it easier for a person to move between modes and know what the optimum movement is for them. Those are all being shared across multiple cities, not only in Texas, but in a larger nationwide capability.

Mr. BALDERSON. OK, thank you very much. My next question is for Ms. McMillan.

Good morning, Ms. McMillan, thank you for being here today. Like most planning organizations, the Mid-Ohio Regional Planning Commission is currently working on their 2020 to 2050 transportation plan to identify deficiencies, strategies, and projects the group will oversee for decades to come.

In your experience, how does the uncertainty at the Federal level impact regional planning organizations when developing these long-term plans?

Ms. McMILLAN. Well, I think you hit the nail on the head, that certainty of funding is critical when you are trying to anticipate very difficult resource choices. And with all sources of funding, you know, having some sense of what exists today and how it may be growing into the future as reliable—it is hard to do a 40-year plan when you are only looking at Federal funds in 6- or 5-year increments. And that puts you in a position of having to extrapolate some pretty significant assumptions with respect to that partnership.

But I would add that, you know, another part of the funding picture there is knowing at the Federal level what flexibilities you have to use those dollars, knowing it is going to be a piece of a leverage package for almost any major infrastructure that is going to go forward.

So some sense of where the dollars can be used, how they can be used, the timing that is available to them, the restrictions that

may be attached. If we can build more flexibility into that, it also helps us in looking to those uncertain areas of where we might put them, and how they can be best leveraged with a State or Federal dollar.

Mr. BALDERSON. Thank you very much.

Madam Chair, I yield back the remaining time.

Ms. NORTON. Thank you.

Mr. Lowenthal?

Dr. LOWENTHAL. Thank you, Madam Chair.

Mr. Millar, I have a question for you. I represent the Long Beach side of the L.A.-Long Beach Port complex. And I am really pleased that you are here, because in many ways Washington is a great model for the country, in terms of the importance of strategic freight investment, and I really want to talk about freight.

You have had in your State a freight investment program and a freight mobility strategic investment board to oversee these investments in freight, especially dealing with the linkages, the intermodal linkages. And as I understand, because of the coordination between all the freight stakeholders, your DOT, your local government, Washington has been able to leverage State investments in freight infrastructures by more than six to one. But that doesn't mean your State doesn't have major challenges.

And so this is what I want to ask, also. You have identified Washington—a pipeline of highway, rail, grade crossings in congested corridors that are really going to need separation to manage the flow of people and goods. And your Northwest Seaport Alliance continues to set records for cargo volume being up, I believe, 27 percent, from January of 2018 to January of 2019. So this is going to stress any freight infrastructure, as it is.

What I am getting to is I am going to be reintroducing my freight legislation that provides a dedicated revenue stream for needed freight improvements, and a yearly dedicated revenue stream that has both formula funding and also competitive funding. It makes critical multimodal and intermodal investments. Just in the formula funding, Washington State would get over somewhere between \$120 and \$150 million a year in just formula funding, and with great anticipation of that going up as freight volumes will continue to go up.

What kind of investments, the question is, would your State be able to make if there were additional dedicated revenues for freight infrastructure? What would you need now to help accelerate your freight investments that are going on already in Washington?

Mr. MILLAR. Thank you for that question. It is a great one. And I do sit on our Freight Mobility Strategic Investment Board. I am also—just stepped down as the chair of AASHTO's Special Committee on Freight. So these are issues that are important to States other than Washington.

More money would be great. How would we spend it? First-last mile connections are hugely important, enhancing those. Changing the make-up of our fleet. One of our principal sources of greenhouse gas emissions in Washington State is the transportation industry. It is 40 percent plus. Our drayage. Converting it to something that was electric or alternative fuel would be a great enhancement to make.

Grade crossings, we are a part of the Great Northern Corridor Coalition between the ports in Washington and Oregon and Chicago and all the States in between, working with Burlington Northern Railroad and others. Being able to move freight fast and safely on our system, those grade crossings are important.

Preservation is hugely important. Interstate 90, Interstate 5, if we have to low-grade bridges so that full trucks can't operate, we have got a problem. If we have to reduce speeds because pavement quality doesn't allow us to run that speed, we have got a problem. Those are things we are looking at.

Truck parking is a huge issue. The safety of our citizens, the safety of our truckers, they are required to stop and sleep. They need a place to stop. There aren't in those places. And you mix that with our ports and warehousing and distribution facilities kind of working bankers hours, we have got all these trucks around the region waiting to come into town in the morning when the gates open with the commuters. So we need to work on that.

We also need to work on the whole issue of freight logistics. Our departments typically do interchange-to-interchange planning for freight. And what we need to do is door-to-door and think about what is in those trucks.

If I have 1,000 trucks leaving the Port of Seattle or the Port of Tacoma and all of them are half full, I have the opportunity to move that same freight with half the trucks, or move twice the freight. And so working with the private sector on optimizing freight logistics is something that Washington State DOT is looking at, and something that DOTs around the country are looking at.

Dr. LOWENTHAL. Thank you. And I just—as I end, and just before I yield back, I would like to thank Ms. McMillan for really talking about the impact of climate change—and you talked about that.

And any of our investments—those roads may not be there in 30 years, and we—you were the first panelist to really identify that, and talk about that. And so at some point I would like to talk to you about—also, about more investments in this. But I don't think I have enough time, so I am going to yield back. Thank you.

Ms. NORTON. Good question.

Mr. Pence?

Mr. PENCE. Thank you, Chair Norton, Ranking Member Davis, and the panel, for being here today. The discussion of a surface transportation reauthorization bill can be sorted into two buckets: what the needs of the system are, and how the Nation will pay for them.

It is no secret that our Nation's infrastructure is in critical need of repair, expansion, and modernization. However, in Indiana, the crossroads of America, we have always recognized the importance of modernizing and investing in our aging infrastructure, and we have made progress that we are proud of.

For the most part, we can all agree on the needs of our transportation system. It is how our Nation will pay for them that Hoosiers are particularly concerned about. The National Academies committee estimates that renewing and modernizing the interstate will require doubling or tripling the amount of current spending on interstates. In Indiana we have used State and Federal dollars as

seed money to encourage additional infrastructure investments by localities like IndyGo and private partners.

I ask whoever wishes to comment on this. If we are to consider new sources of revenue, it is my fear that Hoosiers will not receive a fair share of funds, as Ms. McMillan stated. How can we ensure States like Indiana, who have been good stewards of Federal and State tax dollars, get their fair share, their fair slice of the pie?

Mr. NIRENBERG. I will go ahead and start. I would say that formula funding at the Federal level has, I think, justifiably encouraged infrastructure investment in the most populated centers. The most congested highway corridors in our Nation are located in population centers, and that is very much needed.

I think we should continue to incentivize local communities and local decisionmaking, providing local investments, and that is what we have done in Texas with investments of local bond programs, for instance. We have passed sales tax revenue projects that fund transportation. But we need a balanced approach that has a Federal partner that makes long-term investments in our community.

Mr. MILLAR. Congressman, I would add to that that the key to us is the flexibility of the program. It is a Federal program administered by the States. Whether it is a gas tax or a road user charge or some other means of funding the system, that funding needs to come to the States so that it can be allocated again between State needs, local needs, and the like, as we have done successfully in the past.

So I would encourage the Congress, regardless of the mechanism of raising the funds, that we maintain the partnerships we have between the Federal Government, State government, and local governments moving forward.

Mr. TERRY. If I could add, too, thank you, Congressman Pence. And, as a Hoosier, I appreciate those comments.

I think it does start with planning, too. But what is the highest and best use of the funds, how we can work collaboratively across all modes to make sure these are good plans. And also, land use. As Ms. McMillan had pointed out, that is very important.

But I think we want to make an effective transportation network across all modes, and I think the formula grants that are going into the rule providers is of critical importance, and particularly in some of the areas that you represent. And in the urban areas, as well, how do we create the most effective transportation in multimodal?

Mr. PENCE. Thank you.

I yield back, Madam Chairman.

Ms. NORTON. Thank you.

Ms. Davids?

Ms. DAVIDS. Thank you, Madam Chair. I represent the Kansas Third Congressional District, which has a lot of—we are the heartland for a lot of reasons. One of those is that we are a major hub for transportation of goods, particularly, across the country.

And Mayor, I thank you for making sure to acknowledge the National League of Cities is going on. I have had the chance, not just because of that, but over the course of the couple of months I have been serving I have had the chance to meet with a lot of the local county and city officials because I think it is really, really impor-

tant to have those voices involved, as we are here making decisions about funding—and hopefully we will make some decisions about funding.

You know, I can tell you that the folks from Kansas City, Kansas and Olathe and Lenexa and Shawnee, I mean, everybody is coming in, as soon as they sit down, “Infrastructure.” First thing they say. And, you know, it is because we have a lot of needs.

And I read through everyone’s testimony. I appreciated the fact that, you know, we have to acknowledge that we have got to be investing in infrastructure, and we have got to do it now.

So putting—taking the view of—actually, Ms. McMillan, I appreciated the comments you were making earlier about addressing the disconnect between having to make these long-term, 10-, 20-, 30-year plans on infrastructure when we, as a body, are providing, you know, 5-year authorizations and shorter appropriations than that.

So you brought up flexibility. And then, Mr. Millar, I would like to come to you after this. Can you talk a little bit about what does that flexibility look like, and how do we make sure that the local and State-level governments are giving us the information we need to make it as flexible as possible?

Ms. MCMILLAN. Thank you so much for the question. You know, in representing the metropolitan planning organizations around the country, there are 408 of them. And I think the one thing we can say is that each one of them is different.

And so a core part of the flexibility is recognizing that you first start with—at least, you know, in the metropolitan planning partnership model—you work with your cities and counties, and you come up with a plan that deals not only with very localized impacts and needs, but also those that, again, cross across those boundaries and impact the regional economy that is going to lift everyone, if it is well invested in. And so that is really the beginning of that.

But once you have the plan, if the funding sources aren’t flexible enough to invest in the solutions you have identified, then it makes it really difficult to actually take a plan into implementation and do improvements on the ground.

So the notion of the flexibility is not only multimodal going across, you know, the different investments—you may need transit heavily in a particular area, you may want to invest in bike and pedestrian in another. Freight, of course, in your, you know, arena is incredibly important. But I think it is also necessary to be flexible enough to adapt to changes as they happen.

So, taking a look, as some of the speakers pointed out, is the regulatory framework that wraps around those needs—you want things in place to make things as safe as possible, for example, all the time. But then there is under areas where perhaps we need to think about the dollars being flexible enough and nimble enough to invest in something that wasn’t evidenced 5 years ago. And I think we are seeing those kinds of technological and other changes happening that quickly.

Ms. DAVIDS. OK, thank you.

And then, Mr. Millar, you mentioned flexibility. And you also, I—in the testimony, when I was reading through it, one of the things that popped into my mind, partly because Mr. Clark’s testimony included a listing of metrics that we could be thinking about, and I

think that is a place where we miss out and could figure out ways to be more flexible—do you have any kind of ideas or thoughts on metrics that we should be thinking about that can help us move toward a more flexible system?

Mr. MILLAR. This is a great question. And I think the metrics that have been put in place with MAP-21 and the FAST Act have just been put in place. The rulemaking has just been completed. And we need a little time to work with those rules before we look at changing them.

Something that I look at in Washington State, the Federal funding that comes to our State makes up approximately 20 percent of our State transportation budget. And it goes primarily to preservation, because that is not a particularly flexible source of funding. We allocate the Federal funding that comes to the State—to our organization and the cities and counties.

Something that we are looking at—you know, we talk about trucks, and trucks—you know, freight is really important to your community. We anticipate we are going to have 30 percent more truck traffic in Washington State in the next 20 years. We are not going to have 30 percent more places to put those trucks.

So we are thinking about it kind of like the energy industry thinks about it. What is the best source of power to sell to industry? Well, power that residential customers don't use. So how do we come up with a transportation equivalent of CFLs and low-flow shower heads to encourage people to try something different?

And to have funding coming from the Federal Government that could be used for stuff other than the good old-fashioned adding capacity to the system, to be used on transportation system management and operations, to be used on demand management, to be flexed, as we do today, to other modes when that makes more sense—if you think about most of the trips that people take today, 40 percent of the trips that Washingtonians take are less than 1 mile in length. Of those trips that are less than 1 mile in length, 60 percent of them are taken driving a car. And the reason people drive a car is it is the only safe way they can make that trip, because we haven't invested in the pedestrian infrastructure, we haven't invested in the bicycle infrastructure, we haven't invested in the transit infrastructure to make that possible.

So I can't tell you how many people jump on the freeway for one exit, because we haven't made the investment in other ways to get around that don't involve getting behind the car seat and turning the key. That kind of flexibility would be very helpful to us.

Ms. NORTON. Thank you very much.

Ms. DAVIDS. Thank you, I yield back.

Ms. NORTON. Mr. Gallagher?

Mr. GALLAGHER. Thank you. I think there is a shared sense on the committee that we need to do more to invest in our infrastructure. There is disagreements about how we pay for it, dramatic disagreements at times.

I tend to think one of the fundamental divides that I am trying to wrap my head around is how we incentivize or get the balance right between new projects versus maintenance of existing projects. And CBO suggests that 73 percent of Federal spending goes to-

wards new projects, and a lot of maintenance over time is left to State and local governments.

So if our infrastructure is crumbling right now, which we all seem to agree upon, and the Highway Trust Fund is insolvent, what can we do to get this balance right? How should the Federal Government think about incentivizing new projects versus maintenance of existing projects?

And I just would love the local and State perspective on that question. I don't even know where to begin, though. So any takers?

No one wants to be the first student to raise their hand?

Mr. MILLAR. I will start—

Mr. GALLAGHER. Sir, I appreciate that.

Mr. MILLAR [continuing]. Congressman. I think you have to start with good data. I mean the performance measures that were put in place, again, in MAP-21 and in the FAST Act are just now coming into place. We are going to be reporting for the first time, many of us, on those measures.

So knowing what is actually happening out there, knowing what the condition of our National Highway System is, the condition of our bridges, we have some of that. We need to keep reporting that. Rather than directly connecting performance to funding, though, for us in Washington State we are making the decisions that make sense for our State, our economy, our community, our geographic uniqueness.

I wouldn't want to see Federal money tied strictly to performance. I think, though, having those performance measures gives us the data we need to make those smart decisions.

As I indicated, most of our Federal money goes into preservation. And where we add to the system, we are adding to the system with State dollars. And that preservation investment is hugely important to us. If the Federal Government were to double the gas tax today, we would have the purchasing power we had with that gas tax in 1993.

So we would love to see significantly more investment, we would love to see it come to the States through the formula program. And each of us has unique situations that we would not want to have a one-size-fits-all, you know, Federal prescription get in the way of.

Mr. GALLAGHER. Sure. Ms. McMillan and then Mayor Nirenberg was—quickly, because I am going to run out of time, but—

Ms. McMILLAN. Yes, just very quickly, the only thing I would add there is that we also need to think about not just how the Federal money gets split, but the capacity of States and locals to partner to bring additional money to the table to put together what needs to be delivered.

So, in that case, that capability may also dictate—it could be very different in California than it might be, say, in Minnesota. And so thinking about how the Federal dollar could also respond to helping in combination with other sources—

Mr. GALLAGHER. Sure.

Ms. McMILLAN [continuing]. To bundle together to deal with that could be one way of thinking about a way forward.

Mr. GALLAGHER. Thank you.

Mayor Nirenberg?

Mr. NIRENBERG. Diversify the revenue streams, allow for local options, and also encourage and build in resiliency as we move forward. That is the reason why many urban communities like ours, which is 300 years old, are emphasizing transit.

Mr. GALLAGHER. I appreciate that. And I think the bottom-up perspective is critical as we consider big action here at the Federal level.

I confess, I am still trying to wrap my head around this and get the balance correct. I understand the outcry at the local and the State level in the White House's plan, which should increase the financial burden on States and local governments, but I also think the intent behind it is one that we shouldn't reject out of hand, right?

To the extent I understand it—and I don't speak for the White House—it was to force us at the State and local level to prioritize projects and think on a 30-year time horizon about how we maintain projects effectively, or fix the projects that are crumbling right now.

And so I really appreciate your perspective. Thank you for being here.

Ms. NORTON. Mr. Pappas?

Mr. PAPPAS. Thank you very much, Madam Chair, and thank you to our panel for the expertise that you provided for us all today. And I think you all see a broad commitment in this committee to getting something done this year.

One of my concerns—and we heard this at an earlier hearing as we talked about the cost of doing nothing—is the incredible downshifting that we have seen from the Federal Government to States and municipalities when it comes to transportation spending over the last many years. We have seen a 19-percent decrease in the Federal share of transportation investment since the early 2000s, and I think that is alarming. So I think we have got to make sure we create some predictability, and make sure that the Federal Government has some more skin in the game here.

I am wondering, as I talk to regional planning commissions, my own State DOT, I hear concern about how they are going to be able to plan for the future in fiscal year 2021 and beyond. I am wondering, at the State level for those States that are represented here, how you are handling this. How are you handling the uncertainty of what will happen beyond the FAST Act?

We are all assuming something is going to get done here, but there is the reality that potentially there could be less money available from the Federal Government for States, going forward.

Mr. ANDERSON. I will answer for Texas. We work with our State comptroller, we work with all of our local and regional partners, and we talk about what is a reasonable projection. We don't want to be overly conservative, because then we find ourselves at times facing a huge need and not being prepared enough to deliver on a long-range transportation program.

By the same token, we don't want to overplan and overpromise, and then find ourselves short. So it is an art, working with the comptroller and working with other elements of the State to actually look at what are all the funding sources that we have available to us currently, what is in the toolbox, and then which ones do we

have most confidence in to the least confidence, and then establish projections for each one of those.

Mr. MILLAR. And from Washington State's perspective, again, Federal funding is about 20 percent of our program. It is vitally important to us, but it is—most of the money that we are spending is generated right there in the State. And the State of Washington has stepped up. Our gas tax has gone from 26 cents a gallon to 49.4 cents a gallon. And that has made a significant difference.

For us, as we plan, you know, we look at these 6-year increments. The problem with the 6-year increments is more in the programming and the short-term spending of the money. We can look back 50 years at trend. In Washington State, when you look at our transit investment, the voters passed and we are building a \$54 billion transit investment in the central Puget Sound area. During that same 30-year period where we are going to be spending that \$54 billion, if historic trends play out, we are going to be spending \$90 billion at the State level.

What we are looking for from the Federal Government is, again, the strong Federal partnership that we had in the 1960s and the 1970s to give us the capacity to catch up with our economy and take our transportation system from where it is today to the 21st-century system that we need to really be globally competitive.

Mr. PAPPAS. And if there is an increase, on the flip side, in State highway dollars, are there projects in the short term that are prepared to move more quickly and advance in the plan?

Mr. MILLAR. Absolutely, absolutely.

Mr. PAPPAS. Great. I don't see that is a problem anywhere I travel.

One further question for Mr. Millar. I know that there will be a \$7.6 billion rescission of unobligated highway contract authority on July 1, 2020. I have heard about this from my own State DOT, who tells me this is going to make their budgeting more difficult, reduce their ability to move money between accounts, as projects are ready between different pots of money.

I am wondering if you can walk me through the real-world effects of these rescissions in your State, and how AASHTO feels about this.

Mr. MILLAR. Well, the—not in—it would take the day to get through the details of that. And I think the folks on AASHTO's staff would be happy to meet with you and your team to get into the details of it.

But basically, the concern we have is we are moving projects forward in a complicated world, and some projects advance and some don't. And at the end of the fiscal year, we have to balance the books. So the projects that advance, we are moving monies around. And it takes obligation authority to be able to do that.

Rescission ties our hands. And what that can mean for us is that, even with the actual appropriation being available, we are not able to flex it and get work out the door. And what that means is projects don't get built. What that means is contractors don't get employed. What that means is that the people we serve don't see the benefits of the investments we are making.

Mr. PAPPAS. Thank you very much.

I yield back.

Ms. NORTON. Thank you.

Mr. Woodall?

Mr. WOODALL. Thank you, Madam Chair, and thank you all for being here. I represent the Metropolitan Atlanta area. We have been out to Texas more than once, Mr. Anderson, to check out the DART system, to see how it is we can build mass transit in the middle of an already-thriving metropolitan area.

I want to pick up where Mr. Pappas left off on financing. New Hampshire is a donor State. Texas is the only true donor State in the transportation sense of the word, sending more transportation taxes than you get back in transportation dollars. But every single State represented here today is a donor State once you factor in the general fund revenues that are subsidizing the Highway Trust Fund. So it is a different conversation we have today than we did in the 1990s, because everybody is getting back more than they think that they are paying in, with the exception of Texas.

I can't find an account that my local DOT or my local mayors or my local county commissioners tell me they receive from the Federal Government that they find easier to spend than those dollars that they raise locally. But I have got a very diverse panel here, so can someone tell me about a pot of money that you get from Washington that you find easier to spend than the matching funds that you are raising locally?

And I only ask that because, since the Federal commitment hasn't increased since 1993, you have been doing more and more and more and more locally, and our estimation in Georgia is we are doing it better and better and better locally. We just passed a new transportation tax in Georgia, too, to the tune of about \$1 billion a year. And we are succeeding in ways that the Federal Government would not have allowed us to succeed.

And I ask that question—if nobody has got a particular pot, I ask that question to question the merit of raising the Federal commitment. If the only place I have to receive those Federal revenue dollars are from your citizens, and you are already raising taxes on your citizens—I heard it from Indiana, heard it from Alabama, heard it from Washington, heard it from Texas—you are already raising additional revenues from your citizens. What is the merit of me placing Federal burdens on them, only to give you your own money back again?

I want to keep the Federal commitment that we have got. I don't want to weaken the Federal commitment at all. I want to be a partner, and a stable partner. But I want to understand the merit of taking money from your citizenry to return it to you.

You said from Washington State's perspective, Mr. Millar, you are doing the same thing that Florida is doing and Georgia is now doing: committing those dollars to maintenance, because these are inflexible dollars you are getting back from Washington, and you are using them in the most efficient way that you can. But it might not be your first priority if you had more flexible dollars.

Who can help me? Why should I take 20 more cents a gallon from your citizens to give it back to you is my question. I am happy to do it if you ask me to.

[Laughter.]

Mr. MILLAR. Well—

Mr. WOODALL. I just want to understand why it is meritorious.

Mr. MILLAR. And, Congressman, I would ask you to do it.

What we are looking at in our State is addressing our problems. But we got to also think about the Federal role in transportation. The Federal role in transportation from the 1950s to, basically, today has been building out the Eisenhower Interstate System. We are done.

Something that we need to think about as a people is what is the Federal role in surface transportation, moving forward. And for me, I look at the containers that come in to the Port of Seattle and the Port of Tacoma. Most of those are not going to Washington State. They are going somewhere else. But they are going somewhere else on an interstate highway that we operate and maintain and preserve.

We need more capacity there. Moving that freight from our ports to other States may involve getting some of our citizens out of the way by incentivizing them to take transit or do something else. There is a key Federal role in this. And we need, one, the policy guidance from the Congress, and the revenue stream to keep that Federal role in play.

Mr. WOODALL. Yes, my experience is policy guidance is easier to provide than revenue stream. So let me commit to the first, and we are going to start working on the second.

Mr. Nirenberg?

Mr. NIRENBERG. What I would say is it requires a partnership. It requires a partnership from the local level to the State level, from the State level to the Federal level. And I don't think that we are suggesting that anyone can do it alone.

In fact, what we are providing is ways that we can do it better. It has been since——

Mr. WOODALL. Well, because——

Mr. NIRENBERG. Yes.

Mr. WOODALL [continuing]. You are so close, you are the closest to the people here——

Mr. NIRENBERG. Sure.

Mr. WOODALL [continuing]. Let me just drill down on that. We are going to raise more money for transportation, as a Nation.

Mr. NIRENBERG. Yes.

Mr. WOODALL. The Federal commitment to your community is rock solid. What is the merit of taking an additional dime from your city and bringing it to Washington before sending it back? Does that improve the plight?

And if it does, I want to partner with you on that.

Mr. NIRENBERG. Well, if the dime that was taken out in 1993 were worth the same amount that was taken out in 2019 I would say you are right. But the fact is that those revenue streams have not scaled up as time has gone on. So we have had to fill in the gaps. And we know that there is an extraordinary gap with the Highway Trust Fund.

But that is not where it ends, either. We are suggesting also in local communities that we can't continue to do the same thing over and over again and get different results. What we are trying to focus on is now moving people in high-density, urban communities, which includes multiple modes: transit, bicycles, pedestrian path-

ways, and, of course, our roadways. And we have more and more infrastructure need, but less and less dollar power at the Federal level and the local level to deal with that.

We have funding constraints at the local level, as well.

Mr. WOODALL. I will be interested to hear what those restraints are.

Thank you for your indulgence, Madam Chair.

Ms. NORTON. Thank you.

Mrs. CRAIG?

Mrs. CRAIG. Thank you so much, Madam Chairman. I wanted to start by just saying I represent a district that is probably one-third suburban, one-third exurban, and one-third rural, from a voter perspective, constituent perspective. But over half of my District in Minnesota's Second Congressional is rural.

So I wanted to start with Mr. Stanley, and just ask you. You spoke in your testimony to higher highway fatalities on rural, non-interstate routes because of things like narrow lanes or limited shoulders, et cetera. How can Federal funding be structured to better target the needs of rural Americans?

And how can we better consider small communities that often don't have the necessary resources or grant writers, or things like that to be as successful as other communities?

Mr. STANLEY. Excuse me. I think it is a partnership with the Federal level, as well, the planning organizations and things like that, to get those resources out to those communities that need them.

The problems are readily identifiable, as we point out in our written testimony, that are causing the problems: narrow lanes, shoulder drop-offs, things that are easily rectified with proper finance and then proper design, and things like that. But too often-times those revenue dollars don't stream down to those communities for the reason that you provided.

So I think that we, as a Nation, we just need to figure out how to disseminate those dollars down the pipeline, and then give them the tools they need, whether it is a Federal help center for smaller communities, or something like that, to actually help them see where the dollars are and address them to the specific issues. But that would be helpful.

Mrs. CRAIG. Thank you very much. And I wanted to address my next question to Mr. Clark.

So my background is in corporate HR. I spent 4 years as the head of HR for a major U.S. company. And I was interested in the section of your testimony that spoke to workplace training as a percentage of payroll. According to studies you cited, transit agencies spend significantly less than suggested.

Can you speak to the efficiencies that could be created if transit had a better trained workforce and more opportunities? And what do you think the Federal Government should do to help?

Mr. CLARK. Thank you very much for that question. And I should have expanded on that more in my testimony. I think that there is substantial evidence that better training leads to better results, that more training leads to better on-time performance, fewer accidents.

A lot of people have talked about state of good repair and the maintenance of the system. It is hard to keep all that stuff up if you don't have the skills of the workforce at the level you need to have them. And I actually have some data I could provide on that. There are some great anecdotes, but also some very solid data, in terms of Albany reducing its need for spare buses, for example, or SEPTA getting over 700 percent return on its investment over a 4-year period by increasing training. I think there are very, very substantial benefits there.

And as I indicated, I think part of the Federal role here is that the Federal Government spends a lot on capital, but doesn't spend nearly as much as it needs to on human capital. Secretary Millar talked about metrics and people just starting to pay attention to them. In my testimony I said Dr. Beverly Scott, who is a former chair of APTA and a leader in the industry—and one of the mantras she often comes back to is if you are not measuring it and if you are not holding people accountable on it, it doesn't happen.

So one of the things that the Federal Government clearly can do is say we want some good data on what is happening with your workforce. What are your projected retirements? How many people do you have in apprenticeship? What is the period of time it takes to get people trained? And getting—it is going to take some time for that data to accumulate and be a useful tool, but good data is a good tool.

I would also urge that something—National Transit Institute does some very good work. By their own admission, they focus almost entirely on the white collar side of the workforce. I think some kind of Federal resource for the frontline workforce could make a big difference. Thank you.

Mrs. CRAIG. Thank you so much. I couldn't agree with you more. I think as we are investing in the infrastructure in this country, part of that has got to be work skill development.

And the apprenticeship institute idea and a partnership between the Government and the private sector is something that is very, very appealing to me, and long overdue. So thank you so much.

Madam Chairwoman, I yield the remainder of my time.

Ms. NORTON. Mr. Babin?

Dr. BABIN. Yes, ma'am. Thank you, Madam Chair. Thank you, witnesses, as well.

Mr. Terry, let me start off with a little history lesson. Almost 100 years ago most major cities began implementing motorized coach buses to provide their citizens with affordable and reliable public transportation. It worked like this. The rider pays a single flat fare to board a bus that goes around all day in a big loop, sometimes with 5 people aboard, sometimes overflowing with 50 or more. And to reach their final destination, riders have to either walk great distances or switch to another bus line, costing them time and productivity on a daily basis.

Fast forward to today, and this model pretty much remains the very same. A number of cities and transit agencies are deploying new services powered by innovative technologies that hold the promise of improving economic mobility at a much lower cost to the American taxpayer than a traditional public transit.

For example, in my home State of Texas, Arlington, Texas has become the first city in the country to run a transit service comprised exclusively of on-demand, dynamically routed shuttles, otherwise known as microtransit. According to the mayor in Arlington, the city has “hit on something that is tremendously successful, that is getting the ridership that we have all been hoping for at a fraction of the cost of traditional transportation like buses or light rail.”

Mr. Terry, how can the Federal Government encourage public-private partnerships to bring innovation to the public transit sector?

Mr. TERRY. I would say in Indianapolis, which is an urban area, densely populated, we are focusing on where mass transit is the highest and best use, the highest productivity. Sprawl can be a problem. We don't have the topography or geography that limits that.

The microtransits are, I think, proving to be very successful. The ones I think would work very effectively integrated into a more robust regional transit plan, especially for our edge communities.

I think the operating costs that we have now that are funded mostly on the local and State level, and the investments we are doing from mostly the Federal capital dollars that we are receiving are utilizing the technologies from fare modernization to make a more account-based system for multimodal use, integrating not just our transit system, but a—we have an electric car-share program, utilizing Ubers or Lyft, or bike-shares to maximize the mobility options for individuals, and not making mass transit a one-size-fits-all.

Dr. BABIN. Thank you very much.

I would also like to welcome—we have two fellow Texans here, I see, Mr. Anderson and Mayor Nirenberg. Thank you for being here. Welcome to DC.

But Mr. Anderson, you work for TxDOT. Thank you for being here. As you may know, my district, 36, I represent 9 counties, from Houston over to Louisiana. We suffered greatly from the devastation of Hurricane Harvey just a couple of years ago. All nine of my counties were Federal disaster zones.

Are there ways that new and innovative transportation technologies can help during disasters like Hurricane Harvey?

Mr. ANDERSON. Texas Innovation Alliance members, as well as TxDOT, have been working on a number of those, not only post-Harvey, but prior to that.

And as an example, during the Hurricane Harvey event—we have a DriveTexas.org website that maintains our system that—you know, the part that TxDOT is responsible for, and the conditions on that system, be it construction or water on the road. And that map became the de facto map, the operational map, for the Federal agencies and for all the State agencies to bring logistics into the affected areas, as well as to evacuate across the entirety of that swath, which was roughly 300 miles wide and 150 miles deep.

Dr. BABIN. Right.

Mr. ANDERSON. And that same tool, or the information that feeds that tool, we are looking to expand over the coming years, based

upon lessons learned, to incorporate the State and city roads, and then bring that data and share it more broadly to other solutions, such as—

Dr. BABIN. OK. And then, to follow that up, what can Congress do to assist the State departments of transportation in preparing for extreme weather like we suffered during Hurricane Harvey?

Mr. ANDERSON. They can work with us to examine what are the challenges that we most likely expect, especially at a regional and local level. What are the extreme weather events that are the ones that we are most concerned about, and then what are our plans to deal with those? And then, how can we work with them to develop a national strategy and address those within our formula funding?

Dr. BABIN. I am sure everybody out there on the panel could answer that in some form or fashion, but I am running out of time. So I need to yield back. Thank you very much.

Mr. ANDERSON. Thank you, Congressman—

Ms. NORTON. Thank you.

Ms. Titus?

Ms. TITUS. Thank you, Madam Chairman. As we look at surface transportation as an opportunity to see what we focused on in the past and what we need to focus on in the future, and one of the things that seems striking to me is that we have not paid much attention to the movement of people. And by people I mean tourists.

We considered road miles, we have looked at population, we look at freight movement, all when we are considering resources or revenue, but not actually the movement of people. Now, this is important to me. I represent the heart of the Las Vegas Valley. We welcome over 42 million tourists every year. Now, some of them drive from Utah, Arizona, southern California. Some of them fly into McCarran, which is the seventh-busiest airport. Hopefully, some will be coming by speed train some time in the future.

So we have to deal with getting them there, and then moving them around, once they get there. Our MPO and the Las Vegas Convention Authority RTC all work together to try to plan how to accommodate them. So it is part of our planning process, but we don't have the resources to take into account all these visitors.

So I would ask Mayor Nirenberg and Ms. McMillan to address this. I know, Mayor, I have had the pleasure of welcoming the Visit San Antonio folks. They have come to my office. I cochair the Congressional Travel and Tourism Caucus. So they describe some of the same problems—I believe I saw you had 37 million visitors a year. And then San Francisco welcomes about 26 million visitors a year, and that doesn't count Napa Valley. So again, you have some of the same kind of problems.

So I would ask you two to talk a little bit about how you meet the needs of moving visitors around, and if you would support including visitors as a metric for determining funding. That is the first question.

And then, question, what do you think about the possibility of having a national travel mobility program, kind of like we have the freight mobility program, that takes into account some alternative projects that enhance travel and moving tourists around, and look at connectivity among major tourist destinations?

Mr. NIRENBERG. Well, thank you very much for making that note. Visitors are—and the visitor industry, certainly, is a bedrock of San Antonio's economy, and will remain that way, and has impacts on our transportation system. I think that is an extension of how we are trying to build a multimodal transportation system for the future that actually—our vision for success is how we move people around and give consumers choice in how they move around.

We are integrating last-mile transit, as the gentleman said earlier, from scooters to bike-share to other elements, and being able to build walkable communities and plan our land use around that. But we also have to give people options on how they can move from the main halls, whether it is via public transportation, transit lines, a rental car, Uber and Lyft rideshare types of modes. But we are trying to integrate everything. Our philosophy on transportation for the future, whether it is a visitor or resident, is all of the above.

Ms. TITUS. Well, you didn't answer my question, though. Would you support including visitors as part of a metric for funding?

Mr. NIRENBERG. Absolutely would. Yes, ma'am.

Ms. TITUS. And you think it is a good idea to have a national travel plan, as well as a freight plan?

Mr. NIRENBERG. Obviously, we would have to learn more about that, but it sounds good to me.

Ms. TITUS. Thank you.

Ms. MCMILLAN. You know, I agree with a lot of what was observed and said here. I think I would note that, actually, under the FAST Act, one of the things that changed under the planning rules was that we need to look at tourism—

Ms. TITUS. Yes.

Ms. MCMILLAN [continuing]. Part of the—

Ms. TITUS. That was part of my bill. I remember it very well.

[Laughter.]

Ms. MCMILLAN. Right, OK. Well, I am coming back to it, so I apologize, and give you—

Ms. TITUS. Glad you noticed.

Ms. MCMILLAN [continuing]. Kudos for adding that in. But I think one of the things that is—you know, that whole idea of choice is really important, particularly for tourists. Because, unlike the type of planning we would do when we can anticipate who has jobs, and where the jobs are located, at least to some degree have a predictability about where they want to go, I think with our tourist community that is really different.

So things that we are beginning to tackle now, and have to think about how funding dollars can best accommodate it are the very information-driving improvements that we are thinking about. We have all these choices, but how do we get the information out to people to use it, in terms of the apps and the new technologies related to that?

What—I am beginning to see, certainly when I was with FTA, is these new needs of how we use what we have differently, and particularly, again, the choices and availability and nimbleness to move or adjust them to peaks that might, you know, accommodate seasonal or tourist travel is something that is a very different funding source than building a lot of infrastructure. And sometimes our

Federal, as well as State, you know, dollars have been designed on eligibilities that are linked to that more traditional infrastructure structure. And we have to rethink that, in terms of overlays on infrastructure that are much more nimble and fast-moving.

So this is something I think, overall, we need to look to in our investment programs.

Ms. TITUS. Thank you, and I yield back.

Ms. NORTON. Thank you. Mr. Spano?

Mr. SPANO. Thank you so much, Madam Chair, and thank you for being here. We appreciate your presence and your expertise. You have been very helpful for us. I have a couple questions for Mr. Anderson, specifically.

You all have really served as a model, I think, for the rest of the country. And we are grateful for that, number one. There are a couple programs you guys—and projects you guys have undertaken, and I would like you to just explain and tell me what benefits you have derived from those programs.

The first is the Texas connected freight corridors project, and then the second would be the truck platooning demonstration. If you could, just detail those projects, and then maybe tell us how you think the rest of the country could benefit by implementing similar programs.

Mr. ANDERSON. The connected vehicle freight program is actually an ATCMTD grant that we received about a year ago. And it is focused on what we call a Texas triangle, running from Houston up to Dallas and then back down to Austin, San Antonio, and on to Laredo, and then connecting over between San Antonio and Houston. And that is a preponderance of a lot of the freight movement in our State coming from both our land and gulf ports.

And so the focus there is to enhance the movement of freight along those corridors, and then to expand those lessons learned to a lot of our east-west corridors, such as I-10 and I-20. And in doing that, we are going to look at different connected vehicle systems and the information it provides to freight that could help freight be more safe and to move more effectively and efficiently across the system. And then, as we find which ones are most successful, we are going to scale that across the State. And we begin to implement it, we are working with Federal highways on the project, and we believe we are going to have a lot of success with doing that.

Related to that, then, we did do research on truck platooning. We maintained that for several years, looking at the capability of full 18-wheelers and their ability to platoon and, in some cases, to be automated and share operations between the two. And looking at the safety of that, and looking at the impacts as a passenger vehicle interacts with that. And all of those have been successful and have begun to feed the department—and not only our department, but agencies such as the DMV and the DPS, to inform them about how those might operate on the system.

And recently, last session, the House passed a bill that allowed a certain version of truck platooning in the State. So the capability exists now, and a number of companies are looking to start doing that.

Mr. SPANO. And then I would also ask you if you could just give us your opinions on how other States might be able to replicate what the Texas Innovation Alliance is doing.

Mr. ANDERSON. Well, I mentioned earlier the larger organization. It is called the Smart Cities Lab. And we teamed with a number of the other cities that applied for the smart cities grant back—almost 4 years ago now. And we share that information amongst each other as each city or region develops these smart technologies.

And as I mentioned earlier, both the Texas Innovation Alliance, but with the Smart Cities Lab—and I think any other State could do this organically—I mean it was a grassroots effort. This is not something that was directed by the State. This followed the smart cities competition.

And a number of the mayors said, you know, they had supported Austin's proposal, even though they weren't the winner. And following that, they said, "You know, we had something really working well, in terms of teaming, and we want to continue that." So with their lead and with their staffs and combined with TxDOT and some of our research institutions, we agreed to just, you know, federate, essentially, and work on it together in a combined effort.

And we have spread that to other States and talked to them. I believe Colorado actually announced last week that they have something similar to that. I think it is focused more in the Denver area. But I think it is replicable and it can be done not with a lot of top-driven demands, but more from a group effort.

Mr. SPANO. Thank you, Mr. Anderson.

Madam Chair, I yield the remainder of my time.

Ms. NORTON. Thank you, Mr. Spano.

Mr. Espaillat?

Mr. ESPAILLAT. Thank you, and thanks to the witnesses for being here. We have the opportunity today to have our first hearing on a major part of our infrastructure, just as the Trump administration released a budget that will divest the Federal Government from infrastructure.

And, in fact, the administration had the gall to say that a major project of regional and national significance, and perhaps of even national security importance, such as the Gateway Project and the replacement of the Hudson River Tunnels, is a State issue. And, therefore, that the Federal Government should not be involved.

Despite a chilling recent report by the Regional Plan Association showing that if the tunnels had to be shut down it would cost the Federal Government \$1.5 billion in tax revenue, and it would rob the national economy of \$16 billion.

Madam Chair, I ask unanimous consent to enter the RPA report titled, "A Preventable Crisis" into the record.

Ms. NORTON. So ordered.

[The information follows:]

A PREVENTABLE CRISIS: THE COSTS OF A HUDSON RIVER RAIL TUNNEL SHUTDOWN

[The report is retained in committee files and is available at: http://library.rpa.org/pdf/RPA-HRT_Impact_Study_20190225.pdf]

Mr. ESPAILLAT. Thank you, Madam Chair. Now, this is just one area where the administration is failing to meet our infrastructure needs, but there are many more.

For example, the Trump budget, again, calls for eliminating capital improvement grants. This program includes the New Starts and Small Starts, provides critical Federal funding to help get major local projects underway.

In New York City, funding through the New Starts program is absolutely vital for extending the Second Avenue subway into my district in East Harlem. The project would tie a new line of the subway system into the Metro-North Commuter Rail, alleviating the long, overcrowded Lexington Avenue line, as well. It would also better connect the East Side to a direct bus to LaGuardia Airport. So the project has regional and multimodal significance, and it would eliminate a serious transit desert that has persisted in the Nation's largest city for decades.

My question to the panel is how critical have the capital improvement grants such as New Starts and Small Starts been in making sure projects get off the ground, and in helping local governments cope with growing population?

[No response.]

Mr. ESPAILLAT. Anybody from the panel? Yes?

Mr. TERRY. So—Mike Terry—yes, we have been awarded recently a CIG grant, and it is under the Small Starts, for our first electrification of a bus rapid transit corridor, it is 13 miles. And it is the beginning of the spine for our whole transit system. We don't have subways, but this is as close as we are getting right now. And it is vital for the density, to support the density. It is already proven corridors.

So, from the Federal Government's side, I think these are competitive grants going through a very rigorous and lengthy process. But it is vital to our success of our build-out of our transit system in Indianapolis.

Mr. ESPAILLAT. Additionally, these efforts are not only good for transportation and infrastructure, but they are also an important window of opportunity for economic development in our cities and across our country. And I have a question for Mr. Clark.

I know that you have mentioned programs, training programs that you have seen work for—apprenticeship programs and also minority- and women-owned business opportunities. What model is there out there that we can rely on to ensure that folks would be ready at the starting line?

I mean often what happens is these projects take off, and the local population is not ready to compete for these jobs. So what training programs will you advocate for that will help people be ready at the starting line?

Mr. CLARK. I think you start early, and the—working on career technical education and good contextual learning skills as early as middle school, and career arenas, and all that kind of stuff helps.

I think there are some really good models. Los Angeles did some really dramatic work in increasing its transit capacity. And they did that some time ago. Using tools like the multicraft core curriculum that the building trades have developed, and working with organizations like the Los Angeles Alliance for a New Economy,

there was really dramatic impact in terms of reaching impacted communities. There were tough targets to make sure that people from historically disadvantaged groups got represented. And it got down to zip code levels, in terms of trying to get people into those jobs. And there was great success.

I think Los Angeles had some unique advantages in doing that, but I think there were a lot of elements of that that can be implemented nationally. And I think the building trades, nationally, I think, deserve a lot of credit for the multicraft core curriculum, which has been an extremely successful apprenticeship program. And I don't have the numbers at my fingertips, but a very large majority of the people graduating from those MC3 programs are women and people of color.

Mr. ESPAILLAT. Thank you so much. Thank you, Madam Chair.

Ms. NORTON. Thank you, Mr. Espailat.

Mr. García?

Mr. GARCÍA. Thank you, Madam Chair Norton and Ranking Member Davis, for organizing this hearing to begin the work of addressing our urgent surface transportation needs. And I want to thank all of the panelists who have presented this morning.

As the testimony thus far has made clear, we need to establish a more stable, long-term, and sustainable revenue source to both meet the needs of our growing economy, adapt to the adoption of more energy-efficient vehicles, and close the growing funding gap to bring our current assets to a state of good repair.

Madam Chair, as we endeavor to draft a FAST Act reauthorization, I look forward to working with you, Chairman DeFazio, and all the other colleagues to seek more equity for historically underserved communities and populations like the ones that I represent. To add to the testimony today I submit just some of those needs specific to the Chicago region.

According to the Regional Transportation Authority, which oversees the Chicago land transit systems, we need an additional \$32 billion just to bring our assets to a state of good repair. The Illinois Department of Transportation estimates that we will need another \$30 billion, fully, to maintain our road and highway network.

Today I would like to focus on two specific issues: one, the need for better transit-oriented development that breaks down the silos in which planning for transit and housing projects currently occur; and two, the need to address our transit workforce safety and training needs, and especially for front-line workers like the bus drivers for Pace and the Chicago Transit Authority in Chicago.

Director McMillan, Director Anderson, and Secretary Millar or others, a neighborhood in my district, Logan Square, has lost over 23,000 long-term Hispanic and African-American residents, due to the rising home costs, increasing problems in transit access, and increasing congestion. Some of this is rooted in poor planning that ultimately results in gentrification, or displacement.

The National Association of Counties—and mind you, I was a former county commissioner—produced a 2018 report entitled, “Planning Ahead,” and I would like to request unanimous consent to enter that report into the record.

Madam Chair?

Ms. NORTON. So ordered.

[The information follows:]

PLANNING AHEAD: COUNTY PLANNING, LAND USE AND ZONING STRATEGIES FOR
AFFORDABLE HOUSING

[The report is retained in committee files and is available at: <https://www.naco.org/sites/default/files/documents/Planning%20Ahead%20-%20County%20Planning%2C%20Land%20Use%20and%20Zoning%20Strategies%20for%20Affordable%20Housing.pdf>.]

Mr. GARCÍA. Thank you. The report describes many of the pressures that counties and local authorities face to attract higher tax bases to increase revenues. The result is higher home costs, rents, and gentrification. This unintended and sometimes intended consequence can be avoided by better land use planning.

If affordable housing is an after-thought in transit-oriented development, cost per square foot increases and affordable housing construction can become cost-prohibitive. In title 23 of U.S. Code 134, and title 49 of the U.S. Code section 5303 MPOs are instructed to consult with various local agencies for responsible land use. Is there something that we can adjust to more explicitly require the consideration of low-income for affordable housing as part of the planning process?

And a brief answer would be very welcome.

[Laughter.]

Ms. McMILLAN. Well, I will be—maybe I can start representing the MPOs and the planning processes you just cited. And I think there—very briefly, a couple of things.

One, we need to get much better in data, particularly in our underserved communities, understanding what is happening on the ground in those communities, in terms of socio-demographics and availability of—you know, housing vulnerability and those type of things is really important.

I think we also need to work very closely on these intersecting issues. Transportation and housing, at least certainly in the bay area—and I would say across California—you can't solve one without the other at this point in our metro areas. And we are working very aggressively to do the type of coordinated planning and then coordinated investments—and this is where we could explore more of how Federal programs, for example, at HUD and Federal flexible transportation programs under USDOT can recognize joint criteria or performance metrics to allow those investments to work better together. That might be one area to explore.

Mr. GARCÍA. Well, thank you.

I am about to run out of time, so I will submit some additional questions for followup. I yield back, Madam Chair.

Ms. NORTON. Thank you very much, Mr. García.

Mr. Carbajal?

Mr. CARBAJAL. Thank you, Madam Chair, and welcome to all the witnesses today.

Ms. McMillan, thank you for your testimony. As many of us are aware, the administration released their so-called infrastructure proposal last year. It would have required States and local governments to pay a larger share of the costs of infrastructure—80 percent, to be exact. However, States and local governments are already financing infrastructure projects at higher levels than the

Federal Government. And, let's face it, if the locals had 80 percent of the funds, they would already be doing a lot more.

As a matter of fact, when I served in local government in Santa Barbara County, county residents voted in support for renewing a self-help tax in order to finance larger regional infrastructure projects.

So I have a couple questions: one, how can the Federal Government be a better partner for local governments to bring our infrastructure to a state of good repair; and two, what are the pros and cons for local governments to have access to different financing tools, such as the infrastructure bank or an infrastructure corporation?

Ms. McMILLAN. Well, I would like to comment first—observe, Congressman, your observation that is really important. While State and local governments—I think particularly in our home State of California—have stepped up with a greater share of investment, it was never to replace the Federal dollar, it was to augment the Federal dollar in a continuing partnership. At no point have we ever, in stepping forward, not recognized that our Federal investment needs to remain and needs to remain robust.

And so I think, you know, your observations there of partnership are so critical. And I think that theme needs to carry forward in whatever discussions we have associated with reauthorization.

With respect to financing, I think we generally—given the complexity of the problems we have, maybe one overarching view is that the more tools we have, the more we are going to be able to apply them to whatever problems may arise—again, avoiding that one-fits-all scenario. Financing is incredibly important to deliver our projects faster and, you know, allow for improvements to get to the public more quickly.

But financing is not funding. There always needs to be a revenue stream that is underlying whatever financing we do. And so I think that is a key reminder, as we talk about the value of those tools we would like to see in place.

Mr. CARBAJAL. So a public infrastructure bank would be a good tool to have, nonetheless?

Ms. McMILLAN. I think any amount of tools available to us is something we should explore. More tools are better than fewer.

Mr. CARBAJAL. Thank you so much.

Mayor Nirenberg, thank you for your service in local government, and thank you for being here on behalf of the National League of Cities. We all know that congestion is a huge issue for commuters, an issue I also experienced in my district. It takes a toll also on our economy.

Our committee's website, under Chairman DeFazio's leadership, estimates that congestion has cost our economy over \$342 billion since 2017. What are some of the ways that we can leverage different modes of transportation, such as regional rail, to minimize congestion?

Mr. NIRENBERG. Well, thank you very much for that question. I think you are absolutely right. We need to provide people options. Not everyone would choose to get behind a single-occupancy vehicle if they had other choices, which is why, in San Antonio, we are working on a comprehensive, multimodal strategy that allows peo-

ple options from the first mile to the last mile, and everything in between.

Many people will choose to continue to drive their own vehicle, but we need to make sure that we have a fully funded public transportation system for people who don't have the choice have now an option to get to and from work, get to and from school.

And then, from a regional standpoint, providing, you know, ways to move around what is now the fastest growing corridor in the country, and probably the spark of Texas economy right now, which is the I-35 corridor. And largely, the Texas Triangle, which will be home to about 40 million people by 2050.

So the bottom line for us is we need to provide options, we need them to be multimodal, and that requires a broad partnership with the Federal Government, the State government, and the local government to provide diverse revenue streams and, really, as many tools as possible to fund them.

Mr. CARBAJAL. Thank you, Mayor.

Madam Chair, I yield back.

Ms. NORTON. Mrs. Miller?

Mrs. MILLER. Thank you, Chairwoman Norton, and thank you all for being here today.

Improving our Nation's roads and bridges is imperative to increasing safety, as well as connecting our Nation. My own district faces issues connecting our rural communities with larger, more populous areas. Good infrastructure helps us preserve the all-important rural way of life, while also ensuring my constituents in small towns can have easy access to goods and services in our larger cities. I believe, if we invest in our Nation's roads now, we will see long-term economic benefits, nationwide.

The King Coal Highway and the Tolsia Highway in my district have been under construction since 1999, and are nowhere close to completion. Finishing this highway would increase safety and cut travel times in half in the mountainous southern West Virginia, and bring much-needed economic development to this region. For 20 years there has been talk of completing this project, but no action.

I also have a bridge to nowhere in my district, where construction has been stalled since 2007. It is totally unacceptable that the bridge has been completed for over a decade, but is still wholly unusable, since there are no paved roads connecting it to my State's highway system. When completed, this bridge will be a shining example of infrastructure connecting communities. But until then it represents the millions of dollars wasted on incomplete projects across the country.

Further, the Coalfields Expressway abruptly changes from a paved, four-laned highway to a dirt road. This is another example of a highway that has been in the works for far too long. Route 2 and Route 10 also need enhancement and modernization. These projects, when taken on, will breathe commerce, jobs, and economic growth into our southern counties, connecting West Virginia to Virginia and beyond.

West Virginia is in dire need of infrastructure investment. I was sent here to Congress to improve the lives of my constituents in West Virginia who are forced to commute for hours on dangerous

and damaged rural mountain roads, just to get to work in the nearest town. Building and maintaining our major road system is essential for exporting West Virginia's abundant resources, and encouraging economic prosperity. I do hope that this subcommittee is able to find solutions for the Highway Trust Fund in order to promote West Virginia's economic development.

Mr. Millar, the Highway Trust Fund allocates billions of dollars every year. What kind of oversight does the Federal Government have over how money from the Highway Trust Fund is used to make sure it is not wasted?

Mr. MILLAR. Congresswoman, that is a great question. In the State of Washington I work closely with the Division Administrator for the Washington division of the Federal Highway Administration, which provides oversight of everything we do with Federal highway dollars. I also work with the Region Administrator of the FTA region, region 10, on the transit dollars that get spent.

The oversight is in place. I think the nature of our transportation investment, where you have a Federal program that is administered by the States, gives each of the States the individual authority to make decisions about how the Federal money that comes to that State gets spent.

So in Washington State we have a great relationship with our Federal partners. The money comes to the State, the money gets spent, the projects get built, our people move.

Mrs. MILLER. Thank you. With increased traffic volume overall, as well as increased ownership of high mileage and electric vehicles, what are we doing to properly fund the Highway Trust Fund? What more could we be doing? And please be as comprehensive as possible.

Mr. MILLAR. Back at me, great.

Mrs. MILLER. Yes.

Mr. MILLAR. Yes, Congresswoman. The way we are funding the Highway Trust Fund now is with fuel tax and our grandchildren's money. We are borrowing. The fuel tax, because of the more efficient vehicles we have because of alternative fuels coming on to the market, it is a flat funding source. And it does not have a sustainable future.

The alternatives to the motor fuel tax are all unpopular. But how many popular taxes do you know of?

Whether it is a road user charge or congestion pricing or some other way of funding the transportation system, I think what all of us agree on is that it should be user-based, it should be a fee for service. It should be—you know, that is the notion behind the fuel tax, it is the notion behind what we should do, going forward.

We are testing these ideas around the country. I am the vice chair of the Western Road Usage Charge Alliance. States all over the American West are looking at how they would administer a road user charge, the mechanics of it. Taking this on nationally is something we are going to have to do at some point. We are looking forward to continuing the conversation.

Ms. NORTON. Thank you very much.

Mr. Brown?

Mr. BROWN. Thank you, Madam Chair. It is clear to me that the—and so many—that the Federal Government must invest in a

resilient, modern infrastructure that communities around our country desperately need, and Congress needs to act.

But additional investments, I believe, will be meaningless without a capable workforce prepared for tomorrow's shovel-ready projects. Congress has acknowledged our workforce challenges and the need for more apprenticeships, internships, and vocational training for our manufacturing and construction sectors.

The private sector has struggle to provide the job training necessary, and we cannot depend solely on our high schools, community colleges, and universities to train and sustain a modern, competitive workforce. That is why we must bring both industry, labor, and education to the table and ensure that we are working hand in glove to meet the workforce demands of tomorrow.

Mr. Clark, a question for you. In your testimony you talk about the value of registered apprenticeship. I have a bill called the Hard Hat Act that would require 20 percent of workers on a federally funded construction project to complete a registered apprenticeship program. You spoke about the idea of utilizing this model for maintenance and other skilled labor positions in the industry.

Can you elaborate on your comments as to why it makes sense to have these high-standard, joint labor-management apprenticeship programs for all aspects within the transit industry? And what are some pre-apprenticeship options that can be used to help address workforce pipeline challenges?

Mr. CLARK. Thank you. You have answered much of your own question, but I welcome the opportunity.

Mr. BROWN. As long as it looks good on camera.

Mr. CLARK. It does.

[Laughter.]

Mr. CLARK. The—apprenticeship really does involve—the technical learning needs to be there. You don't go out and deal with high-voltage electricity without learning something in the classroom about principles of electricity. But to work well in those blue collar settings—and, indeed, in most settings—people learn most of what they do by doing it, not by passively absorbing information.

An apprenticeship takes that principle of learning and implements it fully. And that works very well. I think your bill is a great idea. We also have some experience starting these apprenticeship programs in some places in transit, and the results are phenomenal. People pick up the skills.

And, as I indicated in my testimony, if you get to the highest end of this—and I think Southeastern Pennsylvania Transportation Authority in Pennsylvania, in Philadelphia, has reached some of this at times—we get engineers and front-line workers taking on a problem, seeing something, and saying, hey, we are paying a lot of money to get this particular element from a vendor. We can do that in-house if we re-jigger the systems a little bit.

There are, really, a lot of benefits here, including the workforce becoming more engaged, people enjoying their jobs more, but also just delivering better, more efficient service.

Mr. BROWN. Thank you.

Secretary Millar, in your testimony you talk about the need for Congress to support initiatives that create new opportunities for high school and college students, including internships in STEAM

fields to ensure an adequate workforce pipeline. I have a bill that looks at dual enrollment programs with a focus on private-sector buy-in.

How can we better prepare the high school junior and senior that is about to graduate for a family-supporting career in the transportation industry? And what are ways that State departments of transportation are engaged in the next generation of workers? And what can we learn from them?

Mr. MILLAR. That is a great, great question, Congressman.

We are doing a lot in Washington State. We could do more, if we were resourced to do more. We are reaching out in high schools and middle schools across the State to engage those children in thinking of the construction trades as a way forward. As we talked about earlier today, a lot of folks figure that 4-year degree is the way to go.

I have a friend in the development industry that said, "What I tell kids is go to community college, get some skills, go out, do an apprenticeship, learn a trade. By the time your friends graduate from college, you will be ready to hire them as employees."

[Laughter.]

Mr. MILLAR. So we require today 15 percent of our labor hours worked on our contracts be done by apprentices. We are at 18.6 percent, as an agency. And 44 percent of those apprentice hours are worked by women and people of color.

Providing a pipeline to that apprenticeship program through pre-apprenticeship support and on-the-job training is the place where we need help. We have a State-funded program—it started at \$750,000, it is up to \$3 million—that we are spending on things like daycare and lunch money and equipment, tools, so that young men and women can get into these apprenticeship programs.

We are not doing that work, we are getting that money out to labor, to faith-based groups, to community groups to bring people from the community in.

Another thing I am doing—to wrap this up—is working with the secretary of corrections in Washington State in the prison population to bring that same set of pre-apprenticeship skills together, so that people can leave the prison population—when they come back into their communities, they come back into the community with a full-time job with the Washington State DOT.

Mr. BROWN. Thank you to the panel. Thank you, Madam Chair.

Ms. NORTON. Thank you, Mr. Brown.

Mr. Malinowski.

Mr. MALINOWSKI. Thank you, Madam Chair.

Mr. Anderson, you mentioned in your testimony the experience of Texas with autonomous vehicles, the experiment that is just beginning. And I wanted to ask you to leap forward a bit and imagine the brave new world.

Imagine a day, you know, a few years from now, when you and I own a vehicle that we can summon at any time, we can jump into it not having to drive it. We can read a book, watch a movie, eat a meal, take a nap. It can take us wherever we want to go. We don't have to worry about parking it, because we can let it circle the block or go somewhere else while we are doing our thing, and we can summon it back any time.

In that world, what incentive do you and I have to take public transportation or get on a bike? And if I am right about the answer to that question, what is the impact on congestion? What is the impact on pollution, especially if some of these vehicles are not zero-emissions vehicles? What is the impact on some of the bigger challenges that we are already facing in our transportation system?

Mr. ANDERSON. So we have talked a lot about this with both startup-level autonomous vehicle companies, as well as the OEMs and the transit community, as well, because they are looking at AV buses and other solutions similar to that—microtransit was mentioned earlier.

I don't think it is a one-size-fits-all solution. There has been discussion of having services, almost like you have cable subscriptions. You subscribe to a particular manufacturer's vehicle, or its system and its service that it provides, and you don't own that car whatsoever. It shows up when you need it, and delivers you to where you want to go. But where you want to go may not be, you know, door to door. It may be door to a multimodal hub that might involve other transit services, as well.

So the mix and the solutions that are being driven, you know, back to the Texas Innovation Alliance are locally identified. The problems that they have—and each region has disparate—you know, they have similar problems, but they have regional challenges that are different, and each transportation system is different. So they are looking at what fits best with what they project over the next 20, 30 years, what they currently have, and how they can get to that point. And a mix of those solutions, typically, is what they are seeing as the first best option, rather than trying to select what the only option is going to be in the near future.

Mr. MALINOWSKI. OK. So I am wrong to be worried about that?

Mr. ANDERSON. I am not saying you are wrong to be worried. I think that there are a lot of people, including the mayor's team and others in the State—and I mentioned the Smart Cities Labs and a number across the Nation in ITS America, and AASHTO, and the Transportation Research Board have communal discussions on this on a regular basis, and are looking at what can be done to address that specific challenge, and what is the reliability, the safety, the security, the privacy, which are all concerns that we have, and that we communicate regularly to the industry that is developing it to make sure that all of those things are addressed, and deliver the quality of life that would be imagined in that kind of future.

Mr. MALINOWSKI. And what is—what do you see—and I will invite anybody to answer this question—is the Federal role in regulating, overseeing driverless vehicles with respect to the questions I raised: safety, privacy, other issues that you mentioned?

Mr. ANDERSON. Well, the Federal Highway Administration has had a number of meetings, national-level dialogues, and they have published autonomous vehicle guidance over the past several years. And that has served as a catalyst and an enabler to the States, especially those States that have moved forward on passing autonomous vehicle and connected vehicle-related laws. And I think that that has been a positive and natural relationship between the two.

And to date, the regulation hasn't been necessary. However, the work that was being done on the previous autonomous vehicle bill

mirrored, in many cases, our State's laws, and Michigan DOT's State's laws, and several others. There were very common themes in those, and it seemed like that was going in the right direction before. That didn't make it through the last session.

Mr. MILLAR. And Congressman, if I could add to it, I am on the board of the Intelligent Transportation Society of America. And at AASHTO I cochair with the secretary from Delaware, the Cooperative Automated Transportation Coalition Executive Committee, which is a joint effort of AASHTO, ITS America, the Institute of Transportation Engineers, and FHWA and FTA are at both of those tables.

When you look at the automated vehicle, the SAE level 4, level 5 vehicle that is 99.9 percent of the way there, a colleague of mine from Germany points out that—imagine you are climbing Mount Everest. If you fly to New Delhi, you are 99 percent of the way there. If you fly from there to Kathmandu, 99.9 percent. Go to the base camp, you still have to climb the mountain.

Something that we are looking at, in terms of mobility, is the notion of mobility on demand, and the ability to say I am here, I want to go there, what are my options? You have trip planning done for you, you pick the trip you want to take, knowing the cost, knowing the time, knowing perhaps the environmental consequences or the health benefits, what have you. And then that app does the transactions for you and gives you the permissions to go where you are going.

ITS America is standing up a mobility on demand alliance next month—in Seattle, because I am cochairing that effort. That kind of work is going on, and the Federal Government has been a great partner in that and in developing policy. We are working together to determine what are the questions that need to be asked and answered.

We are hearing a lot from our friends in industry that—you know, start with a light touch, and that is what we are doing.

But the conversations are ongoing. The Federal role is much appreciated. The seed money, the mobility on demand sandbox and other things that agencies are doing are helping make our jobs easier as we enter into this brave new world.

Mr. MALINOWSKI. Thank you.

Ms. NORTON. Mr. Payne?

Mr. PAYNE. Thank you, Madam Chair.

Mr. Stanley, in your testimony you discuss the economic benefits of transportation infrastructure investment. How can we better ensure that infrastructure projects benefit local economies?

You know, I would specifically like your opinion on how we can ensure the inclusion of minorities, women, veterans, and other small businesses, as primes or subcontractors on these infrastructure projects, thereby creating a more diverse workforce.

Mr. STANLEY. Thank you, sir. Transportation projects are often—if you look at the breakdown of our members as associated general contractors, we are made up of some large companies, but a lot of them are smaller, family-owned or individual-owned businesses. A lot of those businesses will go out and are investing in capital and infrastructure to actually get those projects done.

There is structure in place in the Federal projects right now, as you are aware, with the DBE program for disadvantaged business enterprises, and that has tended to work well in some areas. There are some improvements that we think that can be made to make it more accessible to others.

There are some issues with the registration and situation with the DBE program. The cost, if you are a startup company to go into the registration process and to get certified, some of those things tend to be cost-prohibitive to some of those communities, as well.

The second thing that we think needs to be done is—and we definitely advocate, there is diversity and inclusion through all levels of the construction process, not only just in the prime contract or the subcontractor, but what we see and what is—my experience personally has been—is that a lot of your DBEs haven't experienced the mid-level and high-level jobs in your major corporations. A lot of construction companies are actually started by people who have worked for larger businesses for 5, 10 years, learned the planning, the financial expertise, the scheduling expertise that are needed to make the process and the job go smoothly.

So when minorities and people that are disadvantaged aren't in those positions in majority corporations, when they go out to start new companies, a lot of those skills aren't there. So I think the DBE supports services—things that the—that are in the Federal program now need to be taken advantage of more to help people that start the businesses with the tools to be successful.

But then I think the diversity inclusion, which—AGC has a document that our board of directors has voted on and approved that calls for diversity inclusion throughout the process, not just meeting our DBE goals, but let's diversify our companies. Let's get more disadvantaged people or constituents through all levels of the construction process, from engineers to architects to business owners to project managers. And I think that will help the program be more successful over the future.

Mr. PAYNE. And how do we—you feel the Federal Government can bolster and support that effort to ensure that the disadvantaged can meet the criteria needed in order to compete?

Mr. STANLEY. Right. So I think the oversight that is being done now through the DBE program is a good starting point. I mean, obviously, you need to have certain financial stability, and things of that nature. So that would be one of my main ways, I think, that—I would suggest that.

Mr. PAYNE. OK, thank you.

And Ms. McMillan, given all the new technological advances in transportation, such as with ride-sharing companies, how do we balance the new technology with local community needs, specifically with the potential displacement of local workforces?

Ms. McMILLAN. Yes, I think that is an excellent question, Congressman. And part of certainly what we are doing in the San Francisco Bay area is aggressively bringing that consideration of impact on our historically underserved communities at the forefront of our planning.

One of the things that we have recently engaged in, importantly, was a very detailed, 10-point plan housing analysis. Referring back to what I observed before, that the housing and transportation de-

mands in our communities are inextricably linked, including the challenge of gentrification or displacement around a new piece of transportation infrastructure that suddenly makes a neighborhood much more viable.

One of the things included in there were tenant protections and policies to—you know, to specifically speak to that need. The idea of identifying and preserving naturally affordable housing and not seeing it flip, in terms of that—of development that is happening around the areas, ensuring that affordable housing is incorporated not, you know, as a target, but a requirement as part of the development that happens in the areas around our transit stations. All of those elements need to come into play, I think, importantly.

We are also recognizing a one-size-fits-all doesn't really work in those circumstances, understanding each community. We are seeing higher levels of poverty in our suburban areas, as well as traditionally urbanized pockets of economic distress.

So I think maybe the answer to your question is bringing this in at the front end of the planning process, not at the back end, is the best way of identifying the problems and coming up with the solutions, and bringing the tools to bear to solve them.

Ms. NORTON. Thank you very much.

Mr. PAYNE. Thank you, I yield back.

Ms. NORTON. Mr. Rouda?

Mr. ROUDA. Thank you, Madam Chairman.

Hi, I am Harley Rouda, I am from Orange County, California's 48th District. And I appreciate all of you being here. And I also apologize that—we serve on multiple committees, so if I ask questions that have already been asked and answered, I apologize.

I also want to thank Chairman DeFazio and Ranking Member Graves for having this hearing, because I do believe that infrastructure is a key component in our ability to fight climate change, and having this hearing is so important.

As I mentioned, I am from California. California is known for many things, including its traffic. In fact, 16.9 percent of California's roads are in poor condition, 6.2 percent of our bridges are deficient, 53 percent of our dams are at high risk. So we recognize how important it is to have the interaction of the Federal Government work with States and local municipalities in addressing these issues.

I want to read a couple facts with you and then get into some questions.

It is shown that personal cars are unused 95 percent of the time. So a wasting asset 95 percent of the time. In densely populated cities like Los Angeles, 15 percent of urban land is used for parking, yet estimates by 2035 is that parking spaces will decline by 5.7 million square meters. If we get to a point where we actually have 90 percent driverless cars, it would result in \$447 billion in savings and productivity.

So if we assume for a minute that we had level 5 auto automation, supporting high levels of autonomous vehicles, we had ride sharing, we had mobility on demand as you mentioned, Mr. Millar, how is that going to impact—this is an open question for all of you—infrastructure design?

Because if population is expected to grow by—your respective cities—by 25 percent in the next 25 years, that doesn't mean we need 25 percent increase in the highways, and so on, if we have these. So I am just curious how you guys are working this into your long-term planning for infrastructure.

Mr. NIRENBERG. Well, we are considering—and actually have been implementing—flexible plans for some of that infrastructure. You know, it is my dream one day that we built our last structured parking garage at some point. But as we build those structures, we are also considering future use in them, knowing that there is some time off.

But it also really depends. I mean—and there is a great potential for urban recapture. And we know we have a great need for housing and things like that in our urban communities. But how we build the transition phase between where we are today and a more multimodal and perhaps autonomous future is very much in the balance. And that is why we are working towards better land use, coordinated with housing and transportation, and also including public transportation.

Mr. MILLAR. Just to add to that, one of the things that we are hoping to see is more flexibility in the funding that comes to us to allow us to adapt to these things.

A specific example, we are building bus rapid transit on the east side of the central Puget Sound area. The suburban mayors along that route come to the Sound Transit board that I sit on and beg for more park-and-ride. "Give us more park-and-ride, give us more park-and-ride." Fifty-thousand-plus a space to build those. The best park-and-ride is your own garage.

[Laughter.]

Mr. MILLAR. If we could invest money in working with the private sector, working with labor and public transit to get people from their home to the transit center—

Mr. ROUDA. Right.

Mr. MILLAR [continuing]. And leave their car at home, we would be better off—

Mr. ROUDA. You would solve that problem.

Mr. MILLAR. That land could be used for housing at the transit center, instead of parking cars.

Mr. ROUDA. And I know that is a whole other topic, and you started to touch on that, as well, the intersection of affordable housing and transportation.

I also want to ask you, too, there is always a large debate about how to fund infrastructure needs, and whether it is a gasoline tax or miles traveled. And, you know, when we talked about miles traveled and congestion pricing, and with the growing use of ride-share apps and so on, don't we—there is always this question. Can we even measure miles traveled?

And I believe we can, right now, to a large degree, with certain aspects of what we are seeing in these developing technologies and these ride-share techniques. Is that being discussed at your level on how to use those existing applications to help monitor miles traveled, and use that as a tax base?

Mr. MILLAR. How to measure it is being discussed. A more interesting discussion is who measures it, and who shares it.

We, as an agency—I have 9,000 sensors around Seattle alone measuring traffic volumes and traffic speeds. I know that data. We know that data—I don't have the technical experience—we know that data, we know how it has been generated, we know the problems with it. We have private-sector entities that are creating data from different places. We don't know as much about the black box that they use to turn that data into information.

As this all evolves, a place where we could use some Federal guidance, some Federal support, is what are the relationships, what data gets shared, how does it get shared, how are trade secrets protected, how—if the public sector enables this to happen on its system, what do we get back from the private sector, in terms of the data streams that they collect?

It is not just us at the DOT or the city or the county, there are lots of players in that. So what we measure is important, who measures it, and how we get access to that information is critically important.

Mr. ROUDA. Thank you, Madam Chairman.

Ms. NORTON. Thank you.

Mrs. NAPOLITANO?

Mrs. NAPOLITANO. Thank you, Madam Chair. I would like to go on a different route.

Mr. Clark, thank you for highlighting the issue on assault on bus drivers. My legislation with Mr. Katko, H.R. 1139, the Transit Worker and Pedestrian Protection Act, requiring transit agencies to work with labor on implementing safety plans to protect bus driver assault, and also requires the transit agencies and the USDOT to collect better data on this growing problem, which is inadequate at times.

And as you point out, anecdotal data from newspaper stories every day show it is a growing problem. It is discouraging new bus driver applicants. Can you further discuss how assaults on bus drivers—and the deterrent to hiring new drivers, especially when the new bus drivers get the dregs?

Mr. CLARK. Yes. Thank you. Thank you very much. Yes.

I think, obviously, if the data is not collected nationally, obviously, it is known locally. And people—and stories spread. And you are right. You are absolutely right. Driving a bus is, under the best circumstances, a difficult job. And there used to be—if you are starting at \$15 an hour 20 years ago, that was an extraordinarily—that is about what the wage was 20 years ago, and that was an extraordinarily competitive wage in that labor market. It is much less so right now.

And if the likely—if people—it is not likely, statistically it is not a likelihood. But if the specter of those attacks looms large, people will stay away.

I applaud your bill because it—there may be barriers to the right answer, there may be other things with the right answer, but the Federal Government is not trying to mandate what the right answer is. The Federal Government is saying solve it at the level where you can solve it, and the represented workforce—or unrepresented workforce, as the case may be—and local management come together to plan around it. And I think that is a good model for training, that is a good model for labor relations in transit, that is

a good model for—the safety management system that is being implemented rests on that involvement of that front-line workforce. And I think your bill addresses that well.

Mrs. NAPOLITANO. Thank you, sir.

And Ms. McMillan, I recall meeting you when you were in Federal Transit Administration a while ago, and when you worked at the L.A. Metro. We will miss you in L.A., but congratulations, ma'am, for your new role. I want to ask you about the ability of local transportation agencies to hire local workers.

The Trump administration budget calls for more State and local investment in transportation, but prohibits local governments from hiring local preference on infrastructure projects. Most taxpayers believe that when you are—they are paying for a public transportation project, they should be given a preference on jobs associated with that project.

As a local transportation leader, do you believe that you and other local transportation agencies should be allowed to set a local hire preference for your citizens? And how can this Federal law hinder those local hiring?

Ms. McMILLAN. I want to be careful, Congresswoman, to speak to my experience, where there was a very clear, you know, position there. But I think the intent behind it and the spirit behind it would extend to many other communities.

As we build our infrastructure, it has impacts on the communities. It brings a lot of benefits, in terms of access to opportunities, and it also can have—at least certainly while it is happening—a major impact on the local businesses and a number of other things.

One of the ways of giving back to the community and having them be able to own and buy into the entire life package of that project would be to have those employment opportunities offered to community members. And I think, in this case, we want the option to be available. For communities that want to do that, where they see a powerful benefit in giving back to their community in a number of different ways with these investments, that should be on the table. I think it is the option to have that available for communities that want to use it is where, I think, the core of certainly the pilot program that was done, you know, with FTA.

And when I was with Los Angeles, that was something that was incredibly important to them, and they grabbed it. And so the option is the importance.

Mrs. NAPOLITANO. Thank you very much.

Anybody else?

Ms. NORTON. There is going to be a vote between 1 o'clock and 1:30, so I would like to get everybody in.

Mr. Stanton?

Mr. STANTON. Madam Chair, thank you for hosting this hearing, having these outstanding representatives from a broad range of industry on this important topic. And yes, I will try to keep it tight so we can get to our votes, which are very important.

Before serving in Congress—I am a freshman Member—I was mayor of Phoenix, Arizona, one of the fastest growing cities in America, kind of like San Antonio. And so the dynamic in a lot of communities, where the urban center wants more money for transit, and the suburban communities want more money for roads and

highways, that kind of gets turned on its head in a city like Phoenix, where, as a mayor, you got to be supportive of all of it, because we are over 500 square miles, but a growing center city.

So we passed a major infrastructure investment plan that did have—tripling the amount of money for our light rail system, increasing support for our bus and bus rapid transit system, bikeability, walkability, and more money for roads on the more suburban parts of our community.

And, Mayor, I am sure it is very similar to what is going on in San Antonio, also one of the fastest growing. So I want to get your thoughts, you know, as we make important decisions in this committee, about a transportation infrastructure investment plan for America. For a city like yours, thinking beyond roads and bridges, what kind of investments are you looking for?

Mr. NIRENBERG. Yes, well, I certainly appreciate your perspective, Congressman. And absolutely right. I think there is urban/rural issues at play here.

But what we found—and there is a great study by the National League of Cities that shows that when we have a proper balance, the results create great synergies for everybody, including, you know, supply chains from the economic development side to more quality of life for those who seek to live inside or outside of the city.

We are seeking a balanced approach to multiple modes of transportation, and sustainable sources of funding that recognize the local leveraging that is taking place already. We applaud the work of our Congress on many things, including fully funding transit projects in years past. We would like to see a return to that.

We are also working on partnerships with regard to new technologies and how we regulate those technologies, and autonomous vehicles comes up, and making sure that we have respective local authorities when it comes to, you know, regulating the design and maintenance of traffic infrastructure and traffic management systems, and so forth.

You have a partner in local governments, because we represent the same constituents who have the same concerns and who rely, from an equity standpoint, on an efficient transportation system.

Mr. STANTON. I appreciate you saying that. You haven't had as good of a partner as cities deserve in the Federal Government over the last few decades, where the support for projects like what you described have been eroding. Both of our cities have grown so fast, but at a period of time when Federal support has been going in the opposite direction, which has forced cities like ours more and more to kind of go it alone.

Phoenix first passed our transit election in the early 2000s. We came to the table with 50 percent support for the project. When I was mayor just a few years ago we went to the voters to do that significant infrastructure investment. We calculated that we would only get a 30-percent match from the Federal Government, 70 percent for the local government. We are not going to keep up with infrastructure in America if the Federal Government doesn't up its game, if you will, and be a much better partner to local government. So I really appreciate your perspective.

Mr. NIRENBERG. Yes, and I would just add we are working on our first-ever rapid transit system. You had great city management

there in Phoenix to bring that online. We do, too, here, in San Antonio. But we are working on our first-ever rapid transit system in San Antonio.

I can tell you that my community will pass it. We are going to bring it to the ballot in 2020 if we can show that we have funding available long-term to make it happen. And that is only going to be—that can only happen if we have a partner in the Federal Government.

Mr. STANTON. That is great. And one final question. I don't know if we have had a chance to talk about public-private partnerships. For a lot of mayors, sometimes the mirage of public-private partnerships versus the reality—so maybe, Mr. Stanley, you may be the best one on the panel to talk a little bit about—in addition to the funding that cities deserve from this Federal Government when it comes to major infrastructure and transportation projects, looking at also opportunities for public-private partnership. Because, as a practical matter, that is the only way we are going to get a bipartisan bill. And I think we need to get a bipartisan bill to make this happen.

Mr. STANLEY. Thank you, sir. So I think the issue of public-private partnerships is much like the other issues that have been discussed today. It should just be one of the tools in the toolbox.

I think the outstanding and the ongoing commitment of the Federal Government to the highway program and transportation program is still the main key. But still, having the public-private partnerships is a tool to allow some private investment where it makes sense.

And so, some of the issues you have with a public-private partnership are in some of the transportation modes in transit and things like that, that are not financially sustainable. You are not going to get public-private partnerships to take on those projects. So you are—still have to have that Federal investment. But there are some things—toll roads, toll bridges—where the public-private partnerships make sense. And so, allowing that to be a tool in the tool kit is important.

Mr. STANTON. Thank you very much.

Madam Chair—

Ms. NORTON. Thank you.

Mr. STANTON [continuing]. I ask for consent to enter into the record a letter from my friend, the mayor of Tempe, Arizona, which is now in my district, as well, lamenting the lack of a strong Federal partner in public transportation, and we need more of it. So I would like to enter it into the record.

Ms. NORTON. So ordered.

[The information follows:]

Letter from Mark W. Mitchell, Mayor, City of Tempe, AZ, et al., Submitted for the Record by Hon. Stanton

FEBRUARY 1, 2019.

Hon. GREG STANTON
U.S. House of Representatives, 128 Cannon HOB, Washington, DC 20515

DEAR REPRESENTATIVE STANTON:

As leaders in the City of Tempe, Arizona and the National League of Cities, we are writing today to ask for your commitment to address one of our country's most

pressing challenges—rebuilding America’s infrastructure. As we emerge from an extended partial government shutdown and return to a working, stable federal government, we are joining leaders from the 19,000 cities, towns and villages across the country calling on our federal leaders to not repeat this crisis and to work in a bipartisan manner to pass comprehensive legislation that rebuilds and reimagines America’s infrastructure in partnership with local governments.

Infrastructure investments are the foundation that connects us as a country, improves the quality of life for our residents, supports jobs for thousands of workers, strengthens our nation’s economic competitiveness, and keeps our communities safe. Unfortunately, the federal partnership for infrastructure investments has eroded over the last two decades, putting America at risk of falling behind on an ever-increasing list of potential hazards that undermine our economy and threaten our standard of living. Today, our transportation network is a knot of congestion and disrepair, our broadband lags behind other countries and families drink from bottled water in the absence of safe tap water. Moving a bipartisan infrastructure package would demonstrate to the country that Congress is focused on delivering results that will improve the daily lives of our constituents.

Cities like ours will continue doing our share, but it is time for Congress to act and rebuild with us. Across the country, much of our infrastructure is at a breaking point. We need a strong federal-local partnership to upgrade the 100-year-old leaking pipes, to replace the 50-year-old crumbling bridges and to install modern and resilient solutions for the next 100 years. Congress must prioritize a long-term infrastructure plan early in 2019 that will work holistically to improve our nation’s water, broadband, and transportation systems and create well-paying jobs for our nation’s workforce that will build and maintain these important assets.

For our economy and for our future, addressing America’s infrastructure challenges is a shared priority in 2019. We look forward to meeting with you soon to discuss how we can work together.

Sincerely,

MARK W. MITCHELL, Mayor
ROBIN ARREDONDO-SAVAGE, Councilmember
JOEL NAVARRO, Councilmember

Ms. NORTON. Ms. Finkenauer?

Ms. FINKENAUER. Thank you, Madam Chair, and thank you all for being here today. This is, obviously, an incredibly important topic for States all over the country. And one of the things I want to touch on came up in my time as a State representative in Iowa.

See, I sat on the transportation committee for 3 years in Iowa in my 4 years in the statehouse. And, you know, I remember looking back on 2016 and the idea that we heard from the administration, our current administration now, and Democrats, and Republicans all across the country talking about caring about the same things, like Made in America and making sure our workers are paid fair wages and we have opportunities for working-class families. We heard that again across all sides of the aisle.

However, you can imagine my surprise, then, just a few months later, when I went back to the statehouse in early 2017 and I was sitting on the transportation committee, and one of the first bills that gets brought up was H.F. 203. And it was a bill that would authorize the use of primary road funds for secondary road funds, and—I mean and municipal systems.

So, basically, this was a tool to bring in the Federal dollars that would typically have gone just directly to our cities and our counties, which would have Davis-Bacon and Made in America attached to them, instead go through our State first—and I am from Iowa, where we do not have prevailing wage or Made in America provisions—and then those dollars would go out to our cities and our counties. You can imagine my concern, and the concern of a lot of the folks that I worked with in Iowa.

Now, you know, I know one of the arguments was that our cities and our counties needed the help, especially with the paperwork and, you know, what comes with that for getting Federal dollars. And I want to make sure that we are addressing that, making that easier for our cities and our counties to be able to—regardless if you are in a big city or in a rural community—to access those dollars. And I want to know if there is anything that you guys are looking at to be able—so that we should be adding to this transportation bill to make sure that we do that.

Secondly, I want to know if you have any ideas—specifically, Mr. Clark or Mr. Millar, I know this may be something that you have looked into a little bit—about how do we make sure that if we are making a very large investment in Federal dollars going out to our States, which I hope we are doing—we desperately need it—how do we make sure that those dollars are 100 percent then going with those Davis-Bacon provisions and also those Made in America provisions?

Because, quite frankly, our economy depends on it. Our States depend on it. And I just want to make sure that we are doing this the right way.

So if you all have any comments, I would appreciate that.

Mr. CLARK. I think that is an excellent question, thank you.

Some of it is just insisting on things like Davis-Bacon. But I think there is a larger set of issues here. People have talked about ride-handling services a lot. There was a piece in the Washington Post op-ed page just a couple of days ago that was amusing, but also very instructive, written by—I think, I believe—by a writer from the Cato Institute, which is a fairly conservative group of people. And her point was—she told a story about people selling their cars because they are going to rely on the ride-handling services, saying that just isn't going to work.

And her ultimate point was the ride-handling services are losing money hand over fist, and they are doing it because they have got deep venture capital pockets to support it. But in the meantime, they are depressing the wages of what traditionally were not great jobs, but decent jobs for taxi drivers and other kinds of people.

I don't know what the answer is for the Federal Government's role there, but I think we have got to pay attention, because there—you are absolutely right, there are lots and lots of forces driving us to race to the bottom, in terms of working-class living standards.

And transportation traditionally has been a sector where people make a decent living. And I think the Federal Government needs to look carefully at how we make sure transportation continues to provide decent livings for people, and it doesn't become how we play a beggar-thy-neighbor policy to drive working-class living standards down further and further to provide an inexpensive utility to middle-class people.

Ms. FINKENAUER. Thank you.

And Mr. Millar, do you have anything to add, especially in regards to the State part of it?

Mr. MILLAR. Well, I would, one, what Mr. Clark said.

And I think what we look at—quite often we are asked by local governments, “Would you take the Federal money that we get—be-

cause it is so difficult to administer, would you take it and spend it at the State level and send State money to us?" The problem we have is that we need our State dollars to match the Federal dollars that comes to us. You know, it is—there—it is a very constrained pot of money.

I think with—what comes to us from the Federal Government comes to us with Davis-Bacon, you know, Buy America. Those provisions are in it. The State money that we have—we have many of the same provisions. We don't have that particular issue.

I think it is important that we are all contributing—again, the partnership, the Federal, the State, the local—and I would encourage you to look at it maintenance of effort. We are investing heavily, as the State. You know, our gas tax has gone up. We are making heavy investments. If more Federal money comes, that doesn't give us the ability—it shouldn't give us the ability to take our foot off the throttle. We need to be doing that, and the local government needs to be doing that, as well. We are today. Increased Federal investment should come with an assurance that State and local partnership is going to maintain its—be in place.

Ms. NORTON. Thank you very much.

Ms. FINKENAUER. Thank you, I appreciate it.

Ms. NORTON. Finally, Mr. Allred.

Mr. ALLRED. Thank you, Madam Chair. And I guess we have saved the best for last.

[Laughter.]

Mr. ALLRED. I wanted to just begin by thanking my fellow Texans for being here. I have the honor of representing the only donor State to the highway fund, the great State of Texas, and Dallas, in particular.

Mayor Nirenberg, I want to thank you for being here as a representative of the second best city in Texas.

[Laughter.]

Mr. ALLRED. I have questions for all of you, but we don't have enough time to get into it. And I want to thank you for your testimony. I have read through all of your written testimonies, and this has been a very informative hearing, and I think that it is an important one for us to talk about, where we are going from here.

Dallas is, like San Antonio, one of the most rapidly growing cities in the country. We have all of the issues that have been talked about here today. We are urban, suburban, we have congestion. I think we are the seventh most contested city in the country now. We have some exciting things that are going on with DART, which is doing, I think, a very good job.

And we also have, of course, TxDOT and the Texas Innovation Alliance, which has done some great work, Mr. Anderson, so thank you for all of your hard work.

I wanted to quickly get into your written testimony, where you mentioned the Federal Highway Administration's automated driving systems demonstration grant program. And I just wanted to see if you could describe some of the projects that the alliance would like to pursue, if you are awarded that grant.

Mr. ANDERSON. Well, I talked about, as a whole, the alliance has been working in addition to several other technologies, and relative

to solutions or challenges that they had. But autonomous vehicles are a part of that.

And across many of the cities in Texas—and, as I mentioned earlier in my testimony, starting with the passage of senate bill 2205, which opened the doors for that innovation in the State—all of those cities have been looking at first- and last-mile solutions, looking at movement on universities, movement between universities and housing areas, medical center movement for—especially for disabled or elderly that need to move in and around, for example, Houston and some of Dallas' medical complexes, and who can't do the walking, for example.

And they are also looking at freight movement, both within the urban areas and then moving, you know, outside of the urban areas along our corridors. So several of those.

We know that we are going to have many of those actually happening in the next year, beyond the ones that currently are occurring in Arlington and Frisco, where we have circulators of autonomous vehicles. In the case of Arlington, it is in the entertainment district, and in the Frisco area it is between a business district and a restaurant area, and it is limiting the amount of vehicles that have to be moving nearing lunch time, and things like that.

But also in Austin, San Antonio, Houston, Bryan-College Station, Coastal Bend area, and El Paso, they all have either microtransit solutions or circulator routes that they are looking to deploy in the next year. And all of those are a part of that proposed autonomous driving system grant.

Mr. ALLRED. Right.

Mr. ANDERSON. They are offering those to be data sets for what is happening—you know, not a pilot, but something that is happening now, and providing that data to the Federal highways.

Mr. ALLRED. Thank you, Mr. Anderson.

Mr. Terry, I am interested in how you increased ridership. I know you discussed it briefly previously there. As I have spoken with our DART officials, obviously, that is the challenge for our local regional transit folks. And if you could, just very quickly go into how you approach doing that.

Mr. TERRY. Sure, thank you. It is putting the frequency, the reliability that people can count on, the hours of service. We are focusing on the density, where the employment centers are.

Mr. ALLRED. Did you have to decrease the area that you were serving to get that—

Mr. TERRY. We have an increase of local funding through a referendum to support. And we were increasing our system by over 70 percent. But it is not adding a lot of more routes, it is more focusing on that frequency—

Mr. ALLRED. Right.

Mr. TERRY [continuing]. The hours, and the—starting earlier every route, every day. So now you have that dependability that people can count on. And when you have the frequency—we are creating a 15-minute frequency grid that feeds into, eventually, three rapid transit corridors—people start using it.

So we already invested in several routes this past year with some of the new funding, and immediately we started seeing an increase in ridership. So it is starting to validate our planning.

Mr. ALLRED. Well, thank you. I think when we say frequency, we should also say just convenience.

Mr. TERRY. Yes.

Mr. ALLRED. And Mr. Mayor, just really quickly, you talked about the importance of the Federal Government investing in regional transportation solutions in your written testimony. We have a promising high-speed rail project between Dallas and Houston. Probably get San Antonio in on that, eventually. If you could, just very quickly, just touch on how that would be helpful.

Mr. NIRENBERG. Yes. Well, the regional rail between Austin and San Antonio has been a long sought-after dream. We have had a couple of committees, organizations set up to support it. But we really are reliant on leveraging existing infrastructure in the corridor.

But certainly that project is not going to be enabled unless we have Federal support, so it is vital to our State's economy, as you know. The Texas Triangle is where our State's economy runs, will for the foreseeable future. And Texas is one of the leading economies in the world now, so it is very important for us in our economic sustainability to see that corridor connected with something other than just our highway system.

Mr. ALLRED. Thank you, Madam Chair.

Ms. NORTON. Thank you very much for that answer. And I want to thank each and every one of the witnesses for this informative testimony. We have kept you a long time, but we have learned a lot, if that is any recompense.

I ask unanimous consent that the record of today's hearing remain open until such time as our witnesses have provided answers to any questions that may be submitted to them in writing, and unanimous consent that the record remain open for 15 days for any additional comments and information submitted by Members or witnesses to be included in the record of today's hearing.

Without objection, so ordered.

If no other Members have anything to add, the subcommittee stands adjourned.

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

SUBMISSIONS FOR THE RECORD

Letter from Shailen P. Bhatt, President and CEO, Intelligent Transportation Society of America, Submitted for the Record by Hon. Norton

MARCH 13, 2019.

Hon. ELEANOR HOLMES NORTON
Chair

Hon. RODNEY DAVIS
Ranking Member

Subcommittee on Highways and Transit, Committee on Transportation and Infrastructure, U.S. House of Representatives, Washington, DC 20515

DEAR CHAIR NORTON AND RANKING MEMBER DAVIS:

In anticipation of the Subcommittee on Highways and Transit upcoming hearing entitled “Aligning Federal Surface Transportation Policy to Meet 21st Century Needs,” the Intelligent Transportation Society of America (“ITS America”) urges the Subcommittee to prioritize the research and deployment of intelligent mobility and smart infrastructure in the reauthorization of Fixing America’s Surface Transportation (FAST) Act and an infrastructure package.

This hearing takes place at an important time. Just as transportation infrastructure was critical to the development of our economy in the 20th century, maintenance of existing infrastructure and deployment of intelligent mobility and smart infrastructure will be critical for our global competitiveness in this century. Advances in robotics, artificial intelligence, and wireless communications have inspired a race to make the next generation of transportation and infrastructure a reality. We are entering a technology revolution that will define the way people, goods, services, and information move in the 21st century. Part of that revolution includes new technologies that allow freedom of movement for those who have limited mobility access, such as people with disabilities, older adults, and people living in transit deserts. And most importantly, these technology advancements will finally help us begin to reduce the epidemic of fatalities on our roadways.

Members of ITS America are state and city departments of transportation, metropolitan planning organizations, automotive manufacturers and suppliers, technology companies, engineering firms, and research universities. We are united around a shared vision of a better future transformed by intelligent mobility that is safer, greener, and smarter. ITS America looks forward to working with you on a FAST Act reauthorization and an infrastructure package that increases federal commitments to intelligent transportation technologies that save lives, improve mobility, promote sustainability, and increase efficiency and productivity.

ITS America is developing our FAST Act reauthorization policy, which we look forward to sharing with the Subcommittee early this summer. In the meantime, the following are our high-level transportation infrastructure policies that will frame the association’s FAST Act reauthorization platform:

FAST Act Reauthorization: In the 20th century, transportation was about moving cars. In the 21st century, the transportation landscape is rapidly evolving. New forms of mobility are being deployed even as others are being developed. A century ago with the invention of the car, Departments of Roads were created to deal with this new form of transportation. Those agencies are now Departments of Transportation, having grown to include other modes of transportation. Now those same agencies need to evolve again to provide seamless mobility. Instead of just moving cars, transportation is about moving people, data and freight. To keep pace with these advances in technology, which are transforming transportation, ITS America supports a FAST Act reauthorization that prioritizes federal policy and programs that make intelligent transportation deployment the rule rather than the exception and provides federal funding that encourage the rapid deployment of intelligent transportation technologies.

Increase Federal Investment in Transportation by Prioritizing Safety through Research and Deployment of Intelligent Mobility and Smart Infrastructure: Support increased revenue for intelligent mobility and smart infrastructure; ensure the solvency of the Highway Trust Fund; and transition to long-term and sustainable revenue for America's transportation system. Only with such certainty will the nation finally see the research and the large-scale transformational deployments of intelligent transportation technologies—and most importantly, finally help us begin to reduce the epidemic of fatalities on our roadways.

Saving the Spectrum for Transportation Critical Safety Communications: New and developing vehicle to everything (V2X) technology that depends on the 5.9 GHz band is allowing us to finally address the lives lost and ruined on our nation's roads. Our members are actively developing and deploying such technologies, which send hazard alerts to vehicles, bicyclists, pedestrians, and traffic lights. These technologies can also enhance automated driving systems, which hold the promise to provide numerous economic, environmental, and societal benefits, such as decreased congestion and fuel consumption, and increased access for the elderly and disabled. These safety innovations require dedicated spectrum to ensure they work every time without signal interference. Millions of dollars have already been invested in this effort, including incorporating connected vehicle technologies into infrastructure by states and cities. ITS America strongly supports preserving the entire 5.9 GHz band for transportation safety applications. Speed matters when safety information is involved; sharing the band could compromise the speed and put lives at risk. With all the advancements and technology deployments, we are finally on the cusp of turning the corner to reduce deaths, but we need the spectrum to do that.

Increase Buildout of Alternative Fuel Vehicle Infrastructure: Transportation is now the largest source of carbon emissions in the United States, and carbon emissions from cars and light trucks account for almost one-sixth of the nation's total emissions. ITS America supports policies in the transportation infrastructure sector that will help reduce transportation emissions. Given that automakers are committing to alternative fuel vehicles that will reduce greenhouse gas emissions, ITS America supports standalone legislation and language in the reauthorization of the FAST Act and an infrastructure package that would provide increased federal funding to rapidly buildout alternative fuel vehicle infrastructure and new technologies such as inductive charging to speed the deployment of electric vehicles.

New Technology Grants to Support Congestion Relief: ITS America urges Congress to create a new emerging technology grant program to support congestion relief in metropolitan and urban cores as well as heavily traveled regions and freight corridors. Eligible projects would include capital and operational investments that improve system safety and performance such as priced-managed lanes; transportation demand management programs; strategic transit investments; advanced parking, freight delivery, and incident management systems; and programs to support the deployment of connected and autonomous vehicles, including vehicle-to-vehicle and vehicle-to-infrastructure communications technologies.

Mobility on Demand: Mobility on Demand ("MOD") facilitates a transportation ecosystem in which consumers can research, book, and pay for all parts of their daily journeys—no matter the form of transportation (e.g., transit, rideshare/bikeshare, personal vehicles, micromobility, etc.)—on one integrated platform accessible on request. Developing the policy conditions for MOD to flourish will better enable consumers to identify and use the transportation options that best meet their mobility needs at any time. MOD promotes societal benefits such as a less congested, less costly, and more sustainable transportation system. Leveraging the insights gained from MOD data, new business models can be developed to enhance mobility and address unmet transportation needs. ITS America advocates for policies that promote MOD and remove roadblocks that limit or restrict federal funding for MOD and supports an increased national commitment to public transit as it will be a key component in any successful implementation of MOD. To that end, ITS America supports policies that promote arrangements between public transit agencies and other shared modes of transportation to help promote first mile/last mile solutions as well as policies that foster alternative transportation modes. Additionally, we support increased funding levels for the MOD Sandbox program administered by the FTA Office of Research, Demonstration and Innovation.

We look forward to working with the Subcommittee on Highways and Transit on a reauthorization of the FAST Act and an infrastructure package that prioritize investments in intelligent mobility and smart infrastructure.

Sincerely,

SHALEN P. BHATT,
President and CEO, Intelligent Transportation Society of America

The ITS America Board is represented by the following companies: AAA, AECOM, Arizona Department of Transportation, California Department of Transportation, California PATH UC Berkeley, Conduent, Central Ohio Transit Authority, Crown Castle, Cubic, Delaware Department of Transportation, District of Columbia Department of Transportation, Econolite, Ford Motor Company, General Motors, Gridsmart, HELP, Inc., HNTB, Iteris, Kapsch TraffiCom North America, MCity, Michael Baker International, San Francisco Bay Area Metropolitan Transportation Commission, National Renewable Energy Lab, New York City Department of Transportation, Panasonic North America, Pennsylvania Department of Transportation, Qualcomm, Southwest Research Institute, State Farm Insurance, Toyota, Texas Transportation Institute, Utah Department of Transportation, Washington State Department of Transportation.

Letter from James D. Ogsbury, Executive Director, Western Governors' Association, Submitted for the Record by Hon. Norton

MARCH 11, 2019.

Hon. ELEANOR HOLMES NORTON
Chair

Hon. RODNEY DAVIS
Ranking Member

Subcommittee on Highways and Transit, Committee on Transportation and Infrastructure, U.S. House of Representatives, Washington, DC 20515

DEAR CHAIR NORTON AND RANKING MEMBER DAVIS:

Terrain and landownership patterns in the West underscore the purpose and vital need for a federal role in surface transportation. Western states are responsible for vast expanses of national highways and interstates that serve as critical freight and transportation routes for the nation. The infrastructure in the region, especially in rural areas, is under strain from increased movement of goods and people and from underinvestment in infrastructure needed to keep pace with this growth and change.

Thank you for examining this important topic at the Subcommittee's March 13 hearing on Aligning Federal Surface Transportation Policy to Meet 21st Century Needs. To inform your consideration of this subject, I request that the Subcommittee include the following attachments in the permanent record of the hearing:

- WGA Policy Resolution 2018–06, Transportation Infrastructure in the Western United States, which emphasizes the importance of a state-federal partnership in improving our nation's surface transportation and of a long-term federal funding mechanism for the maintenance and expansion of surface transportation networks.
- WGA Policy Resolution 2018–15, Modernizing Western Infrastructure, which sets forth the Western Governors' support for more efficient infrastructure permitting and environmental review processes without shortening timelines for state input and consultation or compromising natural resource, environmental, or cultural values. Early, meaningful and ongoing state consultation on infrastructure will help prevent delays, reduce duplication, and streamline the process.

Thank you for your consideration of this request.

Sincerely,

JAMES D. OGSBURY,
Executive Director, Western Governors' Association

Attachments

POLICY RESOLUTION 2018–06—TRANSPORTATION INFRASTRUCTURE IN THE WESTERN UNITED STATES

A. Background

1. The American West encompasses a huge land mass representing 2.4 million square miles or over two-thirds of the entire country. Over 116 million people live in these states and they reside in large, densely populated cities, smaller cities and towns and in rural areas.
2. Perhaps more than any other region, terrain and landownership patterns in the West underscore the purpose and vital need for a federal role in surface transportation. Western states are responsible for vast expanses of national highways and interstates that often do not correlate with population centers but serve as critical national freight and transportation routes for the nation.

3. Western states ports are national assets, moving needed parts and retail goods into the country, while also providing the gateway for our nation's exports. Although they benefit the entire country, the financial burden of developing, expanding and maintaining them to meet the demands of growing trade is almost entirely borne at the state and local level.
4. Jobs, the economy and quality of life in the West depend on high quality transportation infrastructure that efficiently, effectively and safely moves goods and people. Western transportation infrastructure is part of a national network that serves national interests. Among other things, transportation infrastructure in the West: moves agricultural and natural resource products from source to national and world markets; carries goods from western ports on western highways and railroad track to eastern and southern cities; and enables travelers to visit the great National Parks and other destinations in the West.
5. The transportation and transit needs in the West differ significantly from our eastern counterparts. Western states are building new capacity to keep up with growth, including new interstates, new multimodal systems including high-speed passenger rail and transit systems and increased capacity on existing infrastructure.
6. The infrastructure in the region is under strain from both increased movement of goods and people and from underinvestment in repair and new infrastructure needed to keep pace with this growth and change.
7. The vast stretches of highways and railroad track that connect the West to the nation do not have the population densities seen in the eastern United States.
8. Raising private funds to carry forward infrastructure projects in the rural West will be extremely challenging. The low traffic volumes in rural states will not support tolls, even if one wanted to impose them. Projects in rural areas are unlikely to generate revenues that will attract investors to finance those projects, even if the revenues are supplemented by tax credits.

B. Governors' Policy Statement

1. Western Governors believe there is a strong federal role, in partnership with the states, for the continued investment in our surface transportation network—particularly on federal routes and in multimodal transportation networks throughout the West that are critical to interstate commerce and a growing economy. These routes and networks traverse hundreds of miles without traffic densities sufficient to either make public-private partnerships feasible or allow state and local governments to raise capital beyond the historic cost share.
2. Western Governors believe the current project decision-making role of state and local governments in investment decisions should continue. Western Governors desire additional flexibility to determine how and where to deploy investment in order to maximize the use of scarce resources.
3. Western Governors believe regulation accompanying Federal Transportation programs should be reduced by expediting project delivery and streamlining the environmental review process without diminishing environmental standards or safeguards.
4. Western Governors believe that a viable, long-term funding mechanism is critical to the maintenance and expansion of our surface transportation network and encourage Congress to work together to identify a workable solution that adequately funds the unique needs of the West.
5. Western Governors believe in enhancing the ability to leverage scarce resources by supplementing traditional base funding by creating and enhancing financing mechanisms and tools that are appropriate for all areas of the United States, including those with low traffic densities where tolling and public private partnerships are not feasible.
6. Western Governors believe using the historic formula-based approach for the distribution of funds would ensure that both rural and urban states participate in any infrastructure initiative and it would deliver the benefits of an infrastructure initiative to the public promptly.
7. Western Governors believe the Highway Trust Fund (HTF) and the programs it supports are critically important to success in efforts to maintain and improve America's surface transportation infrastructure. Currently, the HTF will not be able to support even current Federal surface transportation program levels and will not meet the needs of the country that will grow as the economy grows. Congress must provide a long-term solution to ensure HTF solvency and provide for increased, sustainable federal transportation investment through the HTF.

8. Western Governors strongly encourage western states port operators and their labor unions to work together to avoid future work slowdowns by resolving labor issues well before contracts are set to expire. In recent years protracted disagreement in bargaining between parties has had an adverse impact on the American economy that should not be repeated.
9. Western Governors believe modern ports infrastructure is essential to strong national and western economy and urge Congress to fully fund the Harbor Maintenance Trust Fund and to reform the Harbor Maintenance Tax to ensure western ports remain competitive. Furthermore, Western Governors believe the Federal government must work collaboratively with states, along with ports, local governments and key private sector transportation providers like the railroads, to ensure the necessary public and private investments to move imports and exports efficiently through the intermodal system.

C. Governors' Management Directive

1. The Governors direct WGA staff to work with Congressional committees of jurisdiction, the Executive Branch, and other entities, where appropriate, to achieve the objectives of this resolution.
2. Furthermore, the Governors direct WGA staff to consult with the Staff Advisory Council regarding its efforts to realize the objectives of this resolution and to keep the Governors apprised of its progress in this regard.

POLICY RESOLUTION 2018–15—MODERNIZING WESTERN INFRASTRUCTURE

A. Background

1. Western states depend on a safe, reliable and resilient network of infrastructure to move goods, people, energy, and agricultural products to meet growing demands across our nation and world. Investments to modernize our state's infrastructure, including ports, water systems, bridges, pipelines, highways, airports, electric generation and transmission, communications facilities, recreational assets and railways not only support the economic well-being of our communities, they also serve to position our economies to attract and retain investment through maintaining our competitive advantage in a growing global marketplace. Because a significant portion of the West is federally-owned, federal processes impact the region's infrastructure.
2. Modernizing and maintaining the West's network of infrastructure relies upon permitting and review processes that require close coordination and consultation among state, federal and tribal governments. State and federal coordination is necessary to ensure that infrastructure projects are designed, financed, built, operated and maintained in a manner that meets the needs of our economies, environment, public health, safety and security. Early, ongoing, substantial, and meaningful state-federal consultation can provide efficiency, transparency, and predictability for states, as well as prevent delays, in the federal permitting and environmental review process.
3. Western Governors applaud the principles and intent of the National Environmental Policy Act (NEPA) which, since its enactment in 1970, has required that federal agencies consider how proposed federal actions may impact natural, cultural, economic and social resources for present and future generations of Americans. The process by which NEPA is implemented has been defined over time through regulations and guidance issued by the Council on Environmental Quality (CEQ).
4. Congress recognized the need for improved state-federal coordination in the NEPA process in the Fixing America's Surface Transportation (FAST) Act, passed in December 2015, which implements reforms regarding cooperating agency status and coordination with state and local governments. This statute should be consistently implemented.
5. NEPA mandates federal agency cooperation with state and local governments through the designation of qualified "cooperating agencies." Under existing law, an entity shall: (i) participate in the NEPA process at the earliest possible time; (ii) participate in the NEPA scoping process; (iii) assume, at the lead agency's request, responsibility for developing information and preparing environmental analyses; (iv) provide staff support upon request of the lead agency; and (v) use its own funds in its participation as a cooperating agency.¹
6. The manner in which cooperating agencies are selected by a lead agency to participate in the NEPA process is unclear and inconsistently implemented. Additionally, a lead agency's determination of whether or not to grant cooper-

¹40 CFR § 1501.6(b).

ating agency status to a federal or non-federal governmental entity is not subject to judicial review.

7. State and local governments often have the best available science, data and expertise related to natural resources within their borders. In cases where the states have primary management authority, such as wildlife and water governance, states also possess the most experience in managing those resources and knowledge of state- and locality-specific considerations that should inform infrastructure siting decisions.

B. Governors' Policy Statement

1. Western Governors support improved infrastructure permitting and environmental review processes that result in more efficient reviews without shortening timelines for state input and consultation, or compromising natural resource, wildlife, environmental quality or cultural values.
2. Western states have a diverse mix of infrastructure needs spanning rural and urban areas and across multiple sectors of our economies. Infrastructure financing reforms should recognize this diversity and should avoid shifting costs to states or creating undue or disproportionate impacts to the infrastructure that connects the West's cities and rural communities with the nation and world. Federal infrastructure financing appropriations should acknowledge and support the diverse infrastructure needs facing western states.
3. The federal infrastructure permitting and environmental review process must be transparent, predictable and consistent for states and project developers. Federal processes must ensure that agencies set, and adhere to, timelines and schedules for completion of reviews and develop improved metrics for tracking and accountability.
4. Federal programs that increase bottom-up coordination among agencies, state and local governments and that foster collaboration among diverse stakeholders and project proponents can create efficiency and predictability in the NEPA process, including reducing the risks of delays due to litigation.
5. State, local and tribal governments, as well as their political subdivisions, have unique and critical duties to serve their citizens and should not be considered ordinary "stakeholders" for purposes of the NEPA process.
6. Federal agencies should be required to engage with states and state agencies in early, meaningful, substantive and ongoing consultation. Federal agencies should be required to invite all qualified state governmental entities to participate in the NEPA process as "cooperating agencies" and promulgate regulations to clarify consultation procedures and states' roles as cooperating agencies. The denial of any bona fide request for cooperating status should be accompanied by a clear and thorough explanation from the lead agency denying such request, citing specific factors the agency used in its determination. Such information should be recorded and maintained by the lead federal agency and collected by the Office of Management and Budget.
7. Western Governors encourage consistency in the implementation of NEPA within and among agencies and across regions. The federal government should identify and eliminate inconsistencies in environmental review and analysis across agencies to make the process more efficient.
8. Federal NEPA regulations should allow for existing state environmental review processes to supplement and inform federal environmental review under NEPA. Federal agencies, in their NEPA implementation guidelines, should encourage joint reviews with the states where possible.
9. The federal government should consider and apply peer-reviewed environmental science in a consistent manner across agencies as each undertake their NEPA reviews of different projects' impacts on and contributions to environmental quality. Federal agencies should work directly with states to obtain and use up-to-date state data and analyses as critical sources of information in the NEPA process.

C. Governors' Management Directive

1. The Governors direct WGA staff to work with Congressional committees of jurisdiction, the Executive Branch, and other entities, where appropriate, to achieve the objectives of this resolution.
2. Furthermore, the Governors direct WGA staff to consult with the Staff Advisory Council regarding its efforts to realize the objectives of this resolution and to keep the Governors apprised of its progress in this regard.

Western Governors enact new policy resolutions and amend existing resolutions on a bi-annual basis. Please consult www.westgov.org/policies for the most current copy of a resolution and a list of all current WGA policy resolutions.

Letter and Congestion Maps from Tori Emerson Barnes, Executive Vice President, Public Affairs and Policy, U.S. Travel Association, Submitted for the Record by Hon. Norton

MAY 7, 2019.

Hon. PETER A. DEFAZIO
Chairman

Hon. SAM GRAVES
Ranking Member
Committee on Transportation and Infrastructure, U.S. House of Representatives,
Washington, DC 20515

Re: Hearing: “Aligning Federal Surface Transportation Policy to Meet 21st-Century Needs”

DEAR CHAIRMAN DEFAZIO AND RANKING MEMBER GRAVES:

On behalf of America’s travel and tourism industry, I am pleased to submit the findings of a new U.S. Travel Association study for this important hearing on “Aligning Federal Surface Transportation Policy to Meet 21st Century Needs.”

Travel to and within the United States is one of the largest and most important aspects of interstate commerce. Travel generates \$1.1 trillion in direct spending, produces \$2.5 trillion in total economic output and supports 15.7 million—or one out of every 10—American jobs. Each of the 2.3 billion business and leisure trips that take place to and within the United States each year, and every dollar of economic output generated by the travel industry depends on our nation’s transportation network.

Unfortunately, inadequate federal investment in America’s travel infrastructure has increased congestion across all modes of transportation, reduced national and regional connectivity, and restricted travel demand. Every day, whether commuting to work, traveling for business, visiting family or taking a vacation, Americans feel the consequences of Congressional inaction.

The U.S. Travel Association recently conducted a study on the “time toll” that Americans pay due overcrowded, underfunded, crumbling bridges, tunnels and highways. Using data from INRIX Research, the study examines travel times along major Interstate corridors under three conditions:

- Ideal: driving with no congestion;
- Summer: driving under summer traffic conditions; and
- Peak: driving during peak holiday conditions.

The results show that in the time it takes to drive between major U.S. cities during summer and peak hours, Americans could travel hundreds of miles farther if they had the efficient, safe and modern transportation network that our nation deserves.

For example, along the I-95 corridor from Washington, DC to New York, NY, the study found that:

- During the summer months, travelers could drive an additional 68 miles—or the equivalent distance to New Haven, CT—under ideal conditions; and
- During peak holidays, travelers could drive an additional 109 miles—or the equivalent distance to Hartford, CT—under ideal conditions.

To better illustrate these findings, U.S. Travel developed maps of the United States where the distances between cities are based on average drive times, rather than mileage. As drive times increase, the distances between cities grows.

These maps tell a troubling story of how Congressional inaction to boost investment in our nation’s infrastructure is pushing America’s cities, businesses, and citizens farther apart. When our commutes get longer, our jobs get farther away from our homes. As the time to deliver goods grows, businesses get farther away from their customers, and prices become higher than what families can afford. As the hours traveling between cities pile up, our families, friends, and communities grow farther apart.

Congestion takes a toll on more than just our time—it also takes a toll on our economy. According to a U.S. Travel survey, highway congestion caused 38 percent of Americans to avoid at least one business or leisure trip by car during the previous year. This resulted in \$23 billion in lost travel spending, which is enough to support 208,000 American jobs.

Without significant policy changes to provide increased, sustainable investment in our nation’s infrastructure, travel’s vital role in interstate commerce and the future growth and competitiveness of America’s travel industry are at risk.

Please find enclosed examples of the “congestion maps” described above, along with an outline of the U.S. Travel Association’s recommendations for aligning federal surface transportation policy with America’s 21st Century needs.

Thank you for your leadership in identifying policy solutions that increase investment in the nation’s transportation infrastructure. We look forward to working with you to solve our infrastructure investment crisis and support American jobs in every corner of the country.

Sincerely,

TORI EMERSON BARNES

Executive Vice President, Public Affairs and Policy, U.S. Travel Association

U.S. TRAVEL ASSOCIATION—TRANSPORTATION AND INFRASTRUCTURE POLICY
RECOMMENDATIONS

- *Increase federal user fees:* Adjust federal user fees dedicated to the HTF, to finance surface transportation improvements needed to maintain and modernize our nation’s travel infrastructure network. Congress should consider all user fee options, including (but not limited to):
 - Federal gas tax;
 - Federal taxes on heavy vehicles;
 - A vehicle sales tax based on fuel economy or emissions;
 - Registration Fees;
 - Federal bonds, loans, and tax credits back by user fees; or
 - A value-added gas tax, with a progressive rebate for certain consumers
- *Establish a Projects and Corridors of National Significance Program.* Authorize a Projects and Corridors of National Significance (PCNS) program within U.S. DOT that provides funding for major multimodal projects that cannot be supported by current formula programs. The PCNS program should include the following elements:
 - *Multi-state planning and operations.* Award funding to multi-state organizations that promote cross-jurisdictional cooperation in project planning and construction, and conduct activities that improve operations along critical travel corridors. Eligible activities should include:
 - *Projects of National Significance (PNS):* Provide funding for major multimodal surface transportation projects that generate economic benefits that accrue beyond local areas and states, but cannot otherwise be supported through existing formula programs. Selection criteria should prioritize funding for:
 - Projects along critical corridors that support significant volumes of long-haul passenger travel, ensure the resiliency of travel infrastructure, improve access to major travel destinations and attractions, and enhance the economic contributions of business, leisure and international travel; and
 - Projects that were planned and developed through multistate corridor coalitions or achieve the goals of the National Travel and Tourism Infrastructure Strategic Plan (Sec. 1431(e) of P.L. 114-94).
 - *Authorize a National Travel Mobility Program.* Establish a National Travel Mobility Program funded at \$1.2 billion per year for the development of long-term plans and capital improvements that ensure the efficient movement of people on the national transportation network. Funds would be distributed to States by formula for eligible projects that:
 - Alleviate congestion, provide mobility options and accommodate future growth along major corridors for long-haul travel;
 - Improve safety, efficiency and reliability of the surface transportation system; and
 - Enhance connectivity between modes and to major destinations; or
 - Improve mobility within destinations; and
 - Achieve the goals of the National Travel Infrastructure Strategic Plan.

Program Elements:

- *Authorization Period:* 5 years
- *Obligation Limitation:* Obligations would be reimbursed from the Highway Account of the Highway Trust Fund. Funds would come with contract authority and be subject to the annual obligation limitation imposed on the Federal-aid Highway Program.
- *Federal Share:* 80 percent
- *Establishment of National Multimodal Travel Infrastructure Network:* Direct the Secretary of Transportation designate a NMTIN made up of the NHS, rail, National Parks, Federal lands access, Scenic Byways, transit systems, and other surface transportation assets that are critical to facilitating a majority of long-haul travel (50 miles or more) to and within the United States.

- *Long-Term Planning*: Consistent with current STIP and TIP planning requirements, States and MPOs would identify projects and strategies for enhancing national and regional travel mobility. Funds provided under the program could be used to conduct long-term planning activities related to enhancing national and regional travel mobility.
- *Project Eligibility*: Project eligible to be carried out under Title 23 U.S.C.
- *Formula*: Direct the Secretary of Transportation to develop a methodology for determining the annual number of non-local visitors to each State (definition: anyone taking a trip of more than 50 miles from that includes at least one overnight stay). For each state, apportion \$1.50 for each out-of-state visitor and \$.50 for each in-state visitor.

CONGESTION MAPS—WASHINGTON, DC-NEW YORK, NY / PORTLAND, OR-SEATTLE, WA /
LOS ANGELES, CA-SAN FRANCISCO, CA



Efficient Travel Time*

* Most efficient average travel time = 8:00p.m. on Wednesdays, Thursdays and Fridays during the summer of 2015



Summer Average Travel Time*

* Highest average travel time = 5:00p.m. on Wednesdays, Thursdays, and Fridays during the summer of 2016



Peak Average Travel Time*

* Peak average travel time = 1:00p.m. on November 21, 2015





APPENDIX

QUESTIONS FROM HON. PETER A. DEFazio FOR HON. RON NIRENBERG

Highway Fatalities

Question 1. Mayor Nirenberg, in your testimony you raise the appalling fact that roadway accidents are the leading cause of death for youth ages 5–24, but you go on to note that cities like San Antonio are leading efforts to reduce deaths on our Nation's roadways through Vision Zero and related efforts.

What methods have been most effective in your city for lowering traffic fatalities?

ANSWER. In 2015, San Antonio began a Vision Zero program led by the City's Transportation & Capital Improvements (TCI) to take a citywide systems-level and multi-faceted approach to protect people on our roads. Cities across the country have also recognized this unmet need and more than 40 have formed their own programs [<https://visionzeronetWORK.org/resources/vision-zero-cities/>]. Vision Zero is different than past safety efforts because the focus lies on using a multi-faceted approach to make the roadway safe for all users. Our approach uses the five essential elements for a safe transportation system: Engineering, Education, Encouragement, Enforcement and Evaluation. By focusing on the 5 "E" approach, San Antonio brings community awareness to the epidemic of traffic fatalities while evaluating crashes and identifying the areas in most need of enhanced infrastructure. We want San Antonio roadways to be safe for everyone: whether they choose to walk, bike or drive.

Question 2. What are the biggest hurdles to implementing safety measures?

ANSWER. Vision Zero efforts are generally being funded locally or through competitive grants, but more could be done with federal support for both planning and implementation according to organizations such as the National Transportation Safety Board, Governors Highway Safety Association, and the Vision Zero Network. Additionally, many changes with proven results, such as lowering speed limits or using automated enforcement to modify driver behavior, require onerous special permission from state DOTs or state legislatures; we must put all safety tools to work to prevent deaths on the roads. Incentives for cooperation should be pursued in all safety programs. Lastly, state DOTs have traditionally had a singular focus on congestion reduction and need to expand the focus to safety improvements and other modes of transportation.

Question 3. What can Congress do to direct Federal investments to move the needle on safety?

ANSWER. Congress should ensure that federal programs are data-driven and promote and support changes to best practices to reduce roadway fatalities, particularly those identified in the Toward Zero Deaths National Strategy. While FARS continues to be the data of record on fatalities, state and local government data is more readily available and actionable much more quickly; federal platforms and systems to collect and analyze data that will generate the information needed to target safety interventions must catch up. We hope that Congress will also explore opportunities to align safety research and development funding with fatalities and trends to improve return on investment.

Additionally, the National League of Cities concurs with GHSA's latest 2019 report, "Speeding Away from Zero: Rethinking a Forgotten Traffic Safety Challenge," [<https://www.ghsa.org/resources/Speeding19>] which calls for increased attention to speeding as one of the most forgotten safety challenges. With approximately 1 out of every 3 crashes involving speed, Congress could consider calling out speeding in a similar way that drunk driving, an issue with unfortunate and similar crash risk, is focused on in legislated programs. GHSA's recommendation is to focus on speeding with "comprehensive public awareness campaigns, traditional and automated enforcement efforts, and traffic calming infrastructure" and take "successful approaches to speeding, including the implementation of Vision Zero concepts in urban

areas.” Proven countermeasures to manage speed would also move the needle to zero traffic deaths.

Finally, for the High-Risk Rural Roads program, Congress should allow for quicker safety interventions if the number of fatalities on a rural road reaches a certain threshold prior to the end of the reporting period [Reference: 23 U.S.C. 148(g)(1)]. Waiting to act where data supports action is not prudent. We would also recommend that states work in coordination with local governments in regard to setting their high-risk rural roads within their road safety program [Reference: 23 U.S.C. 148(a)(1)].

Question 4. Would it be helpful to require Federal safety dollars—that are currently allocated to State DOTs—to be spent in specific areas of a State where the most fatalities occur?

ANSWER. Yes, in order to reach our vision of zero fatalities, we should be allocating federal dollars directly to the corridors and transportation systems where fatalities are occurring based on the data, but also where risk is greatest for the most vulnerable road users who are biking and walking. For example, with 76 areas of high crash concern in San Antonio, it will take us nearly 20 years to address the simple pedestrian infrastructure need we have. The city currently has committed \$1M for infrastructure, education, and outreach, but this does not even address the education, outreach and innovative programs that are needed to make a difference in traffic safety for all our modes of transportation. We would welcome more support from our state and federal partners to continue to take action to save lives.

Mobility and Connectivity

Question 5. Mayor Nirenberg, your testimony states that the mobility of our citizens should be our measure of success in the next surface transportation reauthorization bill.

Do you feel it is necessary for the Federal government to support both the Interstate Highway System as well as local transit in order to increase mobility?

ANSWER. Transportation should be about the safe mobility of all of our residents, whether walking, bicycling, taking transit or driving, and every region will have different needs to improve their transportation network. We should be investing in the transportation options that best support moving people through our regions safely whether that is a highway or transit investment. The innovation that’s happening in transportation today is changing out views on what is possible, but just proceeding with the status quo of programs and funding ratios is not leaning into that innovation happening in mobility, transportation data, or rapid transit networks. Now more than ever do flexible and accountable transportation programs, like the Surface Transportation Block Grant and the Mobility on Demand Sandbox, need to be embraced as the right tools for the federal government to unlock the potential of mobility innovation and strive for greater equity among our modes.

Question 6. Are local transit options and broader regional connectivity closely related?

ANSWER. Yes, mobility is central to individual prosperity, as well as to commerce and to the growth of communities, and both local transit and regional connectivity options have a role to play in our future planning. In San Antonio, 79% of our residents commute by single occupancy vehicles. We know that this is not sustainable, especially as we are experiencing such rapid growth and expected to have nearly double our population by 2040. In order to have an effective, sustainable transportation system, we need to have realistic choices for our residents.

Question 7. How does this connectivity affect the overall strength of our national transportation system?

ANSWER. Transportation is about flow and also, for growing areas like San Antonio, about what is keeping that from happening. As a country, our national transportation system should not be slowed to a crawl in our most productive urban economic centers. To create flow, we must make system-level decisions like investing in transit options and investing in regional connectivity with fast and reliable trains, as well as walkable communities that support local businesses and healthy activity. America must invest in the performance of our system for our residents.

QUESTIONS FROM HON. PETER A. DEFAZIO FOR ROGER MILLAR, PE, FASCE, FAICP

Multimodal Investment

Question 1: Secretary Millar, as the head of Washington State’s Department of Transportation, you have a unique perspective on the importance of multimodal transportation. As you mention, your agency oversees everything from ferries to airports, and rail systems to public transit.

Can you give an example or two of how your agency makes multimodal investments in the transportation system?

ANSWER. Like many states, Washington has an amendment to our state constitution that limits the use of gas tax revenue to highway uses. However, we have other sources of revenue that can be used for multimodal investments, including some federal funding, and we make full use of those revenues.

Through our practical solutions approach to solving transportation challenges, we work to first understand what the problem is and don't presuppose what the solution to a transportation challenge should be. It might be that widening a highway or updating an interchange is the appropriate solution. But it might also be investments in our local partner's system, increased transit service, adding managed lanes or improving bike and pedestrian connectivity that will best address the transportation challenge that's been identified. We strive to work with our local partners, our state legislature, USDOT modal administrations, and within our funding constraints to identify and fund the best solutions to complex transportation challenges and needs.

We also support the transportation system through a series of multimodal grants and loans to cities, counties, transit agencies, ports and nonprofits. These transportation projects create access for those who have no other transportation options, reduce delay for people, improve goods movement, lessen demand, reduce carbon emissions, create safe routes to schools, and improve sidewalks and bike lanes for all Washingtonians. For example, we award over \$250 million in public transportation grants per biennium, and we award nearly \$15 million in rail loans and grants per biennium to help support freight rail capital needs.

Washington has also led the nation in design and implementation of our rural intercity bus network. It is designed as a system so that people can make timed connections with multiple providers on multiple routes. Our public-private partnership with the industry opened up new ways of ensuring that people can get to wherever it is they need to go throughout the country. We should note our thanks to both the Federal Transit Administration for allowing us to pilot this partnership and Congress for codifying it in subsequent surface transportation authorizations.

Our I-405 Renton to Bellevue Widening and Express Toll Lanes project [<https://www.wsdot.wa.gov/Projects/I405/RentontoBellevue/home>] is a good example of an investment in a highway expansion and congestion management project that also supports a bus rapid transit (BRT) investment by our regional transit partner, Sound Transit. The new express toll lanes between Renton and Bellevue will connect to the existing express toll lane system between Bellevue and Lynnwood to the north, as well as the SR 167 HOT lanes to the south, to create a 40-mile system of express toll lanes. This project is designed to improve speeds and trip reliability for all travelers and support the new I-405 BRT line between Lynnwood and Tukwila included in the voter-approved Sound Transit 3 package. It's the state's investment in widening I-405 to finish the express toll lanes that will enable Sound Transit to make its BRT investment in the corridor. Without the state's investment, BRT would not work as the buses would be stuck in congestion and wouldn't have a reliable trip.

As a part of the I-405 Corridor Master Plan, we are also working with King County to add 16.7 miles of new regional trail in the corridor that will connect the "Eastside" of Lake Washington like never before and provide the cities of Renton, Bellevue, Kirkland, Woodinville, and Redmond with new opportunities for non-motorized recreation and transportation. This trail investment is being linked to our earlier multi-use trail investments in the Interstate 90 and State Route 520 corridors, connecting the Eastside with Seattle over our floating bridges and to Eastern Washington via the Mountains to Sound Greenway corridor.

Even before we finish the Renton to Bellevue express toll lanes, on the existing Bellevue to Lynnwood segment, we're moving more than 25 percent more people and giving transit riders a faster and more reliable ride. King County Metro ridership is up 9 percent in the 405 corridor and Community Transit ridership is up 2 percent.

As a final example, the Alaskan Way Viaduct Replacement Program in Seattle replaced a seismically vulnerable highway with a safer roadway and tunnel under downtown. After the nearly 60-foot-tall viaduct is removed, the central business district will be reconnected to the historic waterfront with new streets that provide connections for people who drive, bike, walk and roll. The City of Seattle is also building out 20 acres of public space and a new promenade for people to enjoy. Additionally, WSDOT built a new shared use path that links neighborhoods with downtown Seattle and the state's largest ferry terminal. A second shared use path will be connected in 2020. Later this year, two surface streets that were severed by the old highway will be rebuilt—one is a green street—reconnecting several vibrant neighborhoods for many modes of travel.

Question 2: In your opinion, how important is it that the Federal government invest in multimodal transportation options?

ANSWER. Federal investment in multimodal transportation options is critical. People need choices when it comes to transportation. Not everyone is able to drive or can afford a car, yet they need a reliable way to get to work, to doctor appointments and other important destinations. In Washington state, I-5 is the backbone of our transportation system and goods movement on the west coast is dependent upon it. Transit and active transportation give viable and well-used choices to driving alone, freeing up space on I-5 for trucks to get goods to market. It also frees up space for those that prefer or have no choice but to drive. Similarly, our Amtrak Cascades intercity passenger rail service that we sponsor along with the Oregon DOT reduces vehicle demand on I-5 and gives both business and leisure travelers another option. More than 800,000 passengers rode Amtrak Cascades in 2018. Without that service most of those passengers would have had to drive on I-5.

Question 3: Can you speak to the impact having a strong multimodal system has on both passengers as well as the movement of goods?

ANSWER. Per the answer to question number two above, when people have safe, direct, and convenient alternatives to driving alone, it frees up critical space on the Interstate for trucks to get goods to market. Not everyone in Washington state can or wants to drive, and there are many that can't afford a car, yet they still have a right to access to opportunity and to have a viable way to get where they need to go. Having transportation options is integral to having a strong economy.

Rural Versus Urban Needs

Question 4: Secretary Millar, your State is unique in that it has major urban areas which are home to some of the largest companies in the Nation, while also having extremely rural populations as well.

How can we ensure that as we modernize our Federal highway and transit programs we address the needs of both urban and rural populations equally?

ANSWER. Transit and active transportation programs are just as important to urban and rural communities as are the federal-aid highway programs. In urban areas, transit and active transportation provide a critical option to avoiding congestion. In rural areas, transit often provides a critical lifeline for those who cannot drive or who cannot afford to drive. Agriculture is a major part of our state's economy and those commodities must get to market, using our roads, railways, waterways and airports. As you work on reauthorization of the FAST Act, we encourage you to increase investment in all of the formula programs, highways, transit and ferries, as well as the rail programs and allow state DOTs the flexibility to continue to work with our local partners to invest those funds in both our urban and rural areas depending on our most critical needs. When it comes to urban and rural, it's not an either/or, it's both. Everyone deserves transportation choices and all parts of Washington state need safe and efficient transportation options.

Technological Advancements

Question 5: Secretary Millar, in your testimony, you mention AASHTO's recently established Cooperative Automated Transportation (CAT) coalition which will help leverage emerging technologies. You also mention that State DOTs are planning now for a future which integrates new technological advancements with existing systems, such as connected vehicles and multimodal trip planning.

In your opinion, how soon will we begin to see technological shifts in local transportation systems to this degree?

ANSWER. Advances in vehicle automation, connectivity, electrification, and shared mobility are already impacting the state's transportation system and have begun to radically change the movement of people, data and goods. The private sector has made significant advances in the development and deployment of automated vehicles (AV) and connected transportation technology. Opinions differ about the deployment level, rate and timing of AVs. However, it is expected that some level of vehicle automation will be widespread by 2025, and fully automated cars are anticipated to be more broadly adopted by 2030. Currently, most new vehicles are equipped with a range of driver assistive options. This may include adaptive cruise control, blind spot detection, forward collision warning, lane departure warning, rearview video systems, vehicle and pedestrian automatic emergency braking, pedestrian protection, rear cross traffic alert, and lane centered assist. At this time, ten technology companies and original equipment manufacturers (OEMs) are registered to conduct on-road testing on Washington's public roadways. This number is expected to increase as is the number of initial automated vehicle pilot and deployment projects conducted in Washington state. Transportation network companies such as UBER and Lyft and cloud computing and data integration companies such as Amazon,

Google, Atos, and INRIX have already begun deployment of Mobility on Demand (MOD) services. These services provide multimodal traveler information, scheduling and payment platforms which are already impacting the way transportation agencies develop and deliver services and the way people and goods are moved.

Question 6: What are the risks and benefits associated with utilizing these new technologies?

ANSWER. Automated and connected transportation has the potential for significant mobility and societal benefits. This includes safety, system efficiency, reduced congestion, environmental sustainability and improved equity and access. At the same time, without careful policy guidance and management, these technologies could also have less desirable effects such as increased trips, congestion and emissions.

Safety

In 2017, there were 560 fatalities and more than 2,200 serious injuries due to crashes on Washington state roadways, resulting in an \$8.4 billion impact to Washington's economy. Ninety-four percent of these crashes are assumed to be related to human error. Vehicle automation that provides driver assistive systems now or driverless options later have the potential to drastically reduce crashes and fatalities. By minimizing or eliminating human error from the operation of cars and trucks, automation can support Washington's Target Zero goal (reduce traffic fatalities and serious injuries on Washington's roadways to zero by the year 2030). While technology is not infallible and government agencies need to ensure deployments of automated vehicles are safe, it is important to note that, on average in the United States, 100 people lose their lives on our roadways every day. In addition, according to the National Highway Traffic Safety Administration (NHTSA), connected, Vehicle to Infrastructure (V2I) technology helps drivers safely negotiate intersections and could help prevent 41 to 55 percent of intersection crashes. Another connected vehicle safety application that helps drivers with left turns at intersections could help prevent 36 to 62 percent of leftturn crashes, according to NHTSA. In addition to the lives saved, just these two applications alone could prevent up to 592,000 crashes and 270,000 injuries each year.

Congestion and System Efficiency

According to the 2017 Global Traffic Scorecard from INRIX, U.S. drivers spent an average of 41 hours a year in traffic during peak hours, which cost drivers nearly \$305 billion, an average of \$1,445 per driver. According to the Texas Transportation Institute (TTI), congestion produced 56 billion pounds of carbon dioxide (CO₂) pollution and contributed to 3.1 billion gallons of wasted fuel in 2015. Without stewardship and active engagement, there are also risks that automation can further increase the number of trips, traffic congestion and urban sprawl. Automated technology can potentially reduce the cost of transportation and therefore increase access and demand. This would add pressure to state and local transportation systems, many of which are already operating beyond capacity. However, if emphasis is placed on shared automated vehicles and Mobility on Demand solutions that leverage investment in public transportation and active transportation networks, the transportation system could be used more efficiently, resulting in less demand for roadway expansion projects.

Environmental Sustainability

Automated electric vehicles have the potential to reduce carbon dioxide (CO₂) pollution and our nation's dependence on oil. However, to maximize the environmental benefits of automated transportation, it should be both electric and shared. Fossil-fueled automated vehicles could increase emissions if the convenience of automated vehicles results in selecting a single-occupancy AV travel over transit or other modes, traveling longer distances to home and work, and letting empty AVs circulate until a ride is needed. Research conducted by UC Davis projected that if vehicles are automated but not electrified or shared, greenhouse gas emissions from the transportation sector could rise 50 percent by 2050 compared to current levels. However, if autonomous vehicles are electrified and shared, transportation sector emissions could decline by 80 percent.

Access and Equity

Connected and automated vehicle technologies coupled with Mobility on Demand applications and supportive policies have the potential to expand access to transportation for everyone and especially the disadvantaged populations, including older Americans and people with disabilities. According to the U.S. census, residents age 65 and over grew from 35.0 million in 2000, to 49.2 million in 2016, accounting for 12.4 percent and 15.2 percent of the total population, respectively; and nearly one

in five people have a disability. Similarly, it is hoped that automation will provide more options and access for people in underserved communities to support better work opportunities, better education, and access to better healthcare. These communities need to be actively engaged as stakeholders in the development and deployment of these new technologies.

Infrastructure

At this time, infrastructure investments that may be needed to support automation are still being defined. For competitive reasons, the various Original Equipment Manufacturers (OEMs) are hesitant to define specific infrastructure modification needs. However, it is understood that a minimum level of infrastructure systems, conditions and maintenance levels will be needed for automated vehicles to operate properly. Most automated vehicles analyze real-time inputs from a combination of active sensors. Ideally, supervised and/or unsupervised “machine learning” occurs to improve performance of these processes over time, extending and expanding safety capabilities across vehicle models. Consistency in the implementation and maintenance of traffic control devices is important. Signage and markings provides direction, guidance and warnings to drivers. Some states elect to follow the federal Manual of Uniform Traffic Control Devices (MUTCD), while other states may generate different iterations of the MUTCD. Even if a road sign design is not the easiest to perceive or assimilate for a human driver, for an automated vehicle vision detection and classification system, it is likely easier to learn how to interpret a single but ambiguous traffic sign as opposed to having to learn to interpret a large number of different but more easily identifiable signs. Not only is consistency important, maintenance is also vital. In some circumstances, poorly maintained markings and signage can be worse than having no markings and signage at all, as they can result in unintended responses by the automated driving system. Road surface conditions are also important. Poorly maintained roadway surfaces (buckled asphalt, potholes, etc.) could increase the risk of damaging vehicle sensors. Damage to sensors can compromise vehicle performance and may force a vehicle into a degraded state where automation must be deactivated.

QUESTIONS FROM HON. MARK MEADOWS FOR ROGER MILLAR, PE, FASCE, FAICP

Question 7: Part of meeting 21st Century needs is making sure we are addressing the current maintenance backlog plaguing our roads and bridges. For instance, the National Park Service has almost \$6 billion in overdue needs, including almost \$275 million for the Blue Ridge Parkway that runs right through my district.

How do we make sure that we are adequately addressing the needs of our federal lands roads as we consider policy proposals?

ANSWER. Lack of funding to keep transportation infrastructure in a state of good repair is a problem nationwide and at all levels of government. Like other western states, Washington has a large amount of federal lands, including three national parks, which are important to tourism and our economy. The Federal Lands Access Program is an important source of revenue to ensure these important national treasures are open and safe for the public to access. As the Committee works on reauthorization of the FAST Act, we encourage you to make investing in preserving and maintaining our existing infrastructure in a state of good repair—at all levels of government—a top priority.

QUESTIONS FROM HON. PETER A. DEFazio FOR DARRAN ANDERSON

Technology Applications for Rural Communities

Question 1: Mr. Anderson, your testimony gave great insight into how States can harness emerging technologies to solve mobility and other transportation issues through applications such as connected vehicles and data sharing across modes. However, most of these examples seem to be geared toward large, metropolitan areas.

Can you provide some examples of technology applications that Texas has used to benefit rural or underserved communities?

ANSWER. Transportation has been identified as a barrier to jobs, medical care, schools and other critical services. In Texas, as in a number of other states, car ownership is often essential to access economic opportunity. The challenge is widespread: it exists for vulnerable and underserved communities in regions where affordability, displacement, and rapid growth are applying pressure. But it is also impacting smaller or more rural communities that are particularly limited in their budgets to meet their residents’ needs. To combat this, the Texas Innovation Alliance has identified a number of strategies and action items. These are (1) to improve access to jobs, medical care, schools, and critical services, (2) to explore inno-

vative paratransit partnerships, and (3) to assess affordability and livability. As new developments in technology emerge, it will be critical for public agencies to develop a mobility system that continues serving all communities.

For example, in Bryan-College Station, the Brazos Valley Center for Independent Living has purchased SimpliTransport, an on-line software package that allows trips to be coordinated by multiple agencies. In the past year, they have introduced the software to the human service agencies in their area and have met with local hospitals to determine how best to serve those who need transportation for medical services but do not have access to a vehicle.

Another example is in Arlington, Texas. Although Arlington is located between two very large metropolitan areas, there are people who live in nearby suburban communities that depend on these bigger cities for access to medical care, jobs, education, and even groceries. The Via Rideshare Service in Arlington provides a flexible and personalized on-demand transportation solution to those services. Via Transportation shares extensive data with the City of Arlington to allow informed decision making regarding transportation in the future. The city is also exploring possibilities to coordinate existing paratransit services within the Via platform and service to improve access and efficiencies.

Question 2: Do you believe there is a disparity in how technological advancements can benefit varying populations, and if so, how can we level the playing field so everyone shares the benefits?

ANSWER. Research has indicated clear economic benefits of access to opportunity provided by transportation mobility—including affordable public transportation. As emerging technologies advance transportation mobility, we should consider that many low-income people and households either do not have access to a vehicle nor do they live near public transportation. This can significantly limit their access to opportunity, healthcare, food, and steady employment. Moreover, many elderly or low-income individuals do not have access to a smart phone or even a computer from which they could access rideshare opportunities such as Uber or Lyft. As technology innovations to mobility systems advance, we should continue to work with private stakeholders to develop options that offer all communities affordable, accessible, and convenient transportation options.

Promoting Innovation

Question 3: Your testimony lays out examples of successful innovations based on your experience in Texas.

Can you provide some examples of successful innovations in local infrastructure?

ANSWER. There are a number of projects which are active and funded or active pilots in Texas that provide examples of successful innovations in local infrastructure. Many of them are in the early stages and data is still being collected and analyzed to assess the performance of the projects. Here are some examples:

- Arlington, Texas—*Applied Information Test Deployment:* The City of Arlington has initiated a pilot program with Applied Information for a test deployment of a Connected Vehicle (CV) application. The application can provide travelers with alerts and information for pedestrian/bicycle proximity, signal phase and timing, fire truck approaching, school zone, etc., through a wireless network. The test site is located from UTA Boulevard to Randol Mill Road along the Cooper Street corridor that includes high pedestrian/bike activity, a railroad crossing, and a school zone.
- Arlington, Texas—*Developing a Standard for Construction/Lane Closure/Incident Information:* The City has enrolled in the Waze Connected Citizen Program and become a partner in the Waze Global Event Partner Program. The traffic engineering division of the Public Works and Transportation (PWT) Department programs closures for events, construction, incidents, etc., into the Waze Road Closure tool. PWT staff use Waze traffic alerts to identify traffic congestion areas and adjust signal timing as needed. The North Central Texas Council of Governments (NCTCOG) became a partner with Waze and created the data exchange path between Waze and 511DFW. The residents of the City are informed with the current road closure information at their fingertips through Waze or the 511DFW app. Developing this standard will allow for efficient management of traffic diverted due to incidents on highways or arterials.
- Frisco, Texas—*Real Time Data Sharing:* Frisco partners with Traffic Technology Services to provide Vehicle to Infrastructure (V2I) technology to Audi vehicles at all of the city's signals. They are starting to collect and process the reciprocal data from these vehicles to help optimize their signal system.
- Houston, Texas—*ConnectSmart:* The Houston District of the Texas Department of Transportation received an \$8.9 million grant under FHWA's Advanced Transportation and Congestion Management Technologies Deployment

(ATCMTD) program to deploy advanced technologies as part of Houston's ConnectSmart. The project integrates transportation management systems across the various modes of transportation to benefit drivers and carpoolers, transit riders and bicyclists. The system will provide additional real-time information on carpooling, ridesharing and the availability of shared electric bicycles. ConnectSmart's mobility-as-a-service platform will help to manage congestion in the Houston metro area. It will provide transportation stakeholders with data to improve their operational efficiency with the goal of encouraging multi-modal transportation based on data-driven rider recommendations.

- Dallas, Texas—*Dallas Area Rapid Transit (DART)+Uber*: DART recently awarded an RFP to Uber for providing first/last mile solutions. The initiative enables riders to request an Uber ride using DART's GoPass mobile ticketing application. The DART and Uber partnership emerged after a successful trial during the Dallas St. Patrick's Day parade that encouraged people to ride transit and overcome first/last mile obstacles.

Question 4: What obstacles do you feel are the most significant to promoting innovation in our Federal transportation programs?

ANSWER. Funding is always an obstacle, but indecision, not keeping pace with technological innovations, and outdated and inconsistent procurement regulations are as well. Some examples are:

- The continued delay on a decision on technology deployment. It is challenging for states and localities to invest in certain technology when we don't know when or if the federal government is going to choose to employ Dedicated Short-Range Communications or opt to use 5G for Connected Vehicles (CVs). Many technology experts say the two solutions will never be able to fully integrate and be interoperable, so it would require multiple redundant devices to have a dual-mode solution. We appreciate that the USDOT wants an interoperable system, but we don't want to invest in a Betamax if a VCR will be the standard.
- The lack of passing and implementing an Automated Vehicle law or declaring a national Connected and Automated Vehicle strategy for several years has created uncertainty and encourages inconsistency and incongruity as state and local officials design their own solutions.
- The slow speed at which the MUTCD keeps pace with new technology, industry innovation, and transportation readiness to implement new capabilities. MUTCD advancement could be tied directly into national connected and automated vehicle (CAV) and other research programs, so that as states and national entities complete research projects, the new standards are immediately allowed.
- Some federal agencies seem tied to the "way things have always been done" and deny proven concepts such as allowing an alternative font on highway signs, or considering the use of sponsorship logos on Dynamic Message Signs to rapidly deploy and improve our Traffic Management System. We see dynamic billboards along highways, but we are refused the opportunity to conduct a limited test on public roads of a public-private sponsorship concept that places a logo on part of a DMS during non-emergency situations.
- Inconsistency in the application of procurement laws for grant programs. For example, the Federal Highway Administration's Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) grant program encourages public sector applicants to include private sector interests in their grant application. If awarded an ATCMTD grant, the public sector awardee is then charged with holding an open procurement for the functions meant to be handled by their private sector partners. Yet, the Federal Transit Administration's MOD Sandbox grant treats private sector partners that are part of a public sector application as a sole source contract. There is no incentive for the private sector to partner with a public institution on a grant proposal if they are going to have to re-compete for the partnership after the grant is awarded.
- The federal government should also allow state and local DOTs to allow broader flexibility in public-private partnership arrangements. Using public-private partnerships can assist with deploying, operating, and maintaining innovative technology solutions, like CV, and make these technologies available to the public faster than if they are exclusively funded by traditional public programs that require a local match (CMAQ, STBG, etc.). Often, however, these arrangements can bring additional and unnecessarily federal regulatory oversight into the mix that can stymie innovation and efficiency.

Question 5: Do you think Congress should make substantial changes to how we approach Federal surface transportation policy, or should we focus on improvements

to how things work currently? If you do favor innovating our policies, what is the most important change Congress can make?

ANSWER. The most substantial action Congress can take in the next surface transportation bill is to use current data to inform the formulas used to allocate funds, and ensure this remains the case going forward. As population changes continue across the country, it is critical that the allocation of federal fuel taxes keep pace with changing system demands and performance. Since the current formula for the distribution of federal motor fuel taxes uses 2000 Census data and a formula last updated in 2005, it is important that the federal government provide each state with an amount equal to what it contributed in federal fuel taxes. TxDOT's current federal priorities document, enclosed with this letter, provides additional thoughts on this and other changes we believe would benefit the nation's surface transportation system.

QUESTIONS FROM HON. MARK MEADOWS FOR DARRAN ANDERSON

Question 6: The current Administration states its goal is to "seek long-term reforms on how infrastructure projects are regulated, funded, delivered, and maintained." It directed agencies "whenever feasible, to specify performance objectives, rather than behavior, in crafting new regulations." A recent report from the Government Accountability Office (GAO) states that although "agencies may design their regulations in different ways to achieve intended policy outcomes," agency "officials reported a preference for 'performance' designs that establish an outcome...".

In your experience with Texas Department of Transportation, do you believe the use of outcome-based performance standards both in Texas and nation-wide will be less prescriptive, as required by Executive Order 12866, while facilitating less costly, safer regulatory outcomes that do not stifle innovation?

ANSWER. One of many challenges for Texas continues to be the increasing disparity between demand and available capacity. Since 1990, the state's population has increased by 55 percent. During the same period, daily vehicle miles traveled have increased 70 percent and daily truck miles traveled have increased 110 percent on TxDOT-maintained roadways, while roadway centerline miles have increased at a disproportionate rate of 7 percent. This demand is only expected to increase for Texas. To address needs amid increasingly constrained resources it is critical to understand investment trade-offs and maximize the impact of every dollar spent. Outcome-based performance standards provide a path for TxDOT to align transportation investment decisions to address passenger and freight needs and demands amid unprecedented growth and declining revenues. TxDOT uses performance-based planning to determine strategic direction and performance outcomes to evaluate and improve strategies going-forward.

TxDOT wants the federal government to use a consistent set of performance measures, considering the most currently available data and performance factors. With that, we do need the flexibility in implementation of federal programs and projects to achieve the desired outcome as established by Texas, not federal regulations. Because each state's circumstances are unique and their ability to achieve a desired outcome is just as varied, it is not appropriate to prescribe specific regulations for a single outcome for all states. Additionally, technological advancements in transportation can quickly outdate regulations, even upon passage.

Every state and political subdivision faces different constraints and opportunities affecting their transportation system. Stable, reliable, and predictable funding is a particularly important variable for states in planning and target setting, but there are other factors (as described above for Texas), including economic conditions, environmental conditions, population growth trends, legislative and gubernatorial mandates and priorities, and issues identified in the public involvement process. Consequently, it is essential that states and MPOs have the flexibility to determine the best approach for achieving outcome-based performance targets, including targets that have performance holding steady or, in some situations, declining. Regulations pertaining to performance reporting should focus on providing the public and interested parties clear, concise, and easily available information on transportation system performance in the state as determined by the state.

Texas understands and appreciates the federal desire to hold states accountable for progress toward achieving desired federal outcomes; however, we believe that states are in the best position to understand the needs of our state and, therefore, states—in partnership with MPOs and regional leaders—should be the ones to decide program and project funding within the state. It is essential that any federal regulations do not compromise flexibility, delay project delivery, or create redundancies in requirements. It is also important to clarify language and definitions to avoid future variances in interpretation and guidance.

Question 7: What is Texas' experience with applying outcome-based performance standards and how can the federal government best apply outcome-based performance standards?

ANSWER. As noted in response to Question 6, TxDOT wants the federal government to use a consistent set of performance measures, considering the most currently available data and performance factors. TxDOT has applied outcome-based performance standards in select programs for many years and, in doing so, has developed measures (in some cases very detailed measures) that evaluate objectives and results. Texas' experience has led to a greater use of performance measures—from the performance-based annual planning cycle to the state's first performance-based long-range transportation plan (Texas Transportation Plan 2040 adopted on February 26, 2015) to MAP-21/FAST Act and Texas' Legislative Budget Board performance measures and set targets.

Visit the Texas Transportation Commission's Performance Dashboard [<http://www.dot.state.tx.us/dashboard/index.htm>] for examples of some of the high-level, strategic performance measures, targets, and results that TxDOT uses to help monitor and shape transportation policy efforts.

Texas believes that it is extremely important that states set their own performance targets, although we understand that the federal government should retain oversight to ensure that state metrics are reasonable, realistic and data-driven. Texas would prefer a program that does not include the federal agencies both establishing and evaluating state performance measure targets. Furthermore, any performance management structure should support meaningful transportation investment decisionmaking by establishing target and reporting timeframes that are realistic and appropriate for the measures being used.

QUESTIONS FROM HON. PETER A. DEFazio FOR JOHN KEVIN "JACK" CLARK

Workforce Training

Question 1: Mr. Clark, your testimony highlights the importance of apprenticeship programs as well as other frontline training programs. You make the case that Federal investment in infrastructure should be accompanied by investments in training programs.

How can Congress specifically target Federal dollars to help transit agencies overcome the "skills crisis" in transit you mention, as well as a rapidly aging workforce? Should Congress set aside dedicated workforce training funds from the urban and rural transit formula funds, so every transit agency has a small amount of workforce training dollars?

Question 2: What is the most efficient way for Federal investments in human capital to result in on-the-ground worker training?

Workforce Training Resource Center

Question 3: Mr. Clark, one of your policy proposals for reauthorization of the FAST Act is to create a "national resource center" devoted to frontline transit worker training.

Can you elaborate on what role you see this resource center playing? What would be the center's objectives? What authority would it have and how would it advance solutions?

Answers to Questions 1-3. At this time, I would not propose a federal mandate on a portion of federal grants that needs to be spent on training. As the question makes explicit, the resulting formula would lead to a "small amount of workforce training dollars" for each agency. Transit managers are likely to resist another mandate for already scarce capital funds, and it does make sense to push through that resistance for a small set-aside that isn't up to the scale of the problem.

I would reiterate the absolute need for a national resource center for the frontline workforce. There is a long history of authorizing and appropriating funds to support the National Transit Institute. NTI does invaluable work. By its own admission, NTI focuses on training for the 15-20 percent of the transit workforce in management and front-office roles.

The national resource center that is urgently needed now, on the other hand, would focus on identifying and quantifying the shortcomings of current training for the frontline workforce, developing training materials for agencies to implement, assisting agencies in improving their training, and developing registered apprenticeship programs. As the new frontline workforce center grows, it can and will work to develop recruitment and training strategies for the next generation of technical workers. Registered apprenticeship and pre-apprenticeship will be part of that strategy. Reaching out to Career and Technical Education schools at the secondary and post-secondary levels will also be part of that recruitment effort. Conscious strategies to diversity the transit workforce need to be central to addressing the workforce

skills crisis. Representative Brown from Maryland asked during the hearing if there is any successful history of training programs that have helped previously disadvantaged and excluded populations enter skilled transit jobs. I cited the experience in Los Angeles. I would like to enter into the record a 2013 study that the Transportation Learning Center submitted to the Leadership Conference on Civil and Human Rights Education Fund, entitled “Pathways to Equity: Effective Transportation Career Partnerships.” That study also highlights some innovative work by both union and management leaders in Philadelphia to reach out to inner-city high school youth. An effective frontline workforce center could identify and help to replicate successes like these.

Transit labor needs to have a full and equal voice in oversight of this frontline workforce center, and the entity housing this new frontline workforce center needs to have demonstrated experience in working with labor-management partnerships to improve training. I will return to the potential functions of a frontline workforce center in some closing comments and in some specific challenges confronting transit now.

It is useful to recall the scale of the challenge on workforce training. Take one very dramatic current example: the transition to battery electric buses (BEBs). FTA continues to place large sums of money in the no-low emissions grant program. California and a handful of other states have set timelines for zero emission buses. More states are following suit, and federal legislation has been filed to create a mandate for zero emission transit fleets. Substantial private funding is accelerating the transition. Even Cummins, the sole manufacturer of bus diesel engines, is entering a partnership with Gillig to produce an electric bus. FTA will continue to fund no-low procurement. Investors, responding to those procurements and to their own projections on the likelihood of BEBs, will continue to increase the capacity of the BEB vendors. Agencies will use the federal money to purchase this new technology. Reducing airborne pollution by deploying BEB’s achieves many good outcomes.

Who is paying attention to the need for training frontline workers to be ready to understand and maintain BEBs?

We know from a 2002 Transit Cooperative Research study (Training for On-Board Bus Electronics) that electric and electronic skills presented and still present a major challenge for current technicians. My own organization, the Transportation Learning Center, has conducted skills gap surveys at dozens of agencies large and small. Consistently, the skills gap shows up most prominently in electrical and electronic skills. The industry needs a major mobilization to make sure that current workers have the proper skills. We know enough to know that mobilization is not occurring.

A funded resource center dedicated to the frontline workforce, with leadership from both labor and management, could provide needed focus on training for this and many other new technologies.

Question 2 asks how we can ensure that federal funds result in on the ground training.

The federal government can have a powerful influence in ensuring that training reaches the frontline workforce. The Federal Transit Administration (FTA) monitors transit agencies on safety, on state of good repair, on grants management and fiscal capacity. Currently, the federal government does not ask agencies to report on what training is taking place or who is receiving training. Congress can and should mandate that FTA include training in its oversight of agencies. FTA’s review of system safety requires a level of workforce engagement. How much safety training occurs? FTA has been dogged in reviewing state of good repair in vehicle fleets. Is there adequate training for maintenance staff to achieve and hold that state of good repair? At many industry meetings and conferences, discussions center on the need for succession planning in the executive suite. Is anyone paying attention to succession for the next generation of mechanics and operators? Speaking of operators, some of the dramatic numbers in hiring needs come from very high attrition rates among new operators. Are agencies taking steps to reduce that rate of attrition?

Metrics need to be developed on workforce so that FTA has a proper framework for its oversight role. One piece of data that should be on that list is spare staffing ratio for maintenance. Maintaining a spare bus ratio is long-standing good practice for agencies. Accidents occur; breakdowns happen. Having spare buses ensures that you can maintain service. As we know, you need maintenance staff to keep the buses running, too. The Transit Cooperative Research Program (TCRP) released a study in 2016 on “Maintenance Technician Levels for Modern Transportation Fleets,” complete with a tool for calculating a proper ratio of technicians to buses. FTA needs to adapt and revise that ratio to allow for some spare capacity so that agencies can make daily bus turnout and be able to devote time for training. That ratio will vary over time. When an agency needs to recruit and train a large number

of mechanics, those apprentices need classroom time. In addition, experienced mechanics will spend time coaching and mentoring apprentices through on the job learning. That needs to happen, and it needs to be included in the calculation for appropriate maintenance training. A mature workforce with few apprentices will still require time for training and new learning, but it will be a smaller ratio.

In addition to improved monitoring and oversight by FTA, Congress can look at how capital funds currently support—or fail to support—good frontline workforce training.

Federal funds support capital spending in two ways.

1. Current law allows states to give agencies leeway to divert up to 0.5 percent of federal capital funds to workforce development activities. Congress can and should increase that flexibility so that agencies can use up to 5 percent of capital funds for workforce development. Congress can and should ask for reports from FTA on the use of that provision to fund workforce development and on what workforce development activities it supports. In general, in transit and in the economy more generally, training funds are spent disproportionately to support training for employees with higher levels of education and more managerial responsibilities. Congress has an interest in ensuring that any federal funds support training for the frontline workforce.
2. Because the federal government is paying 85 percent of the cost, most agencies include training in the bid process for new equipment. For the agencies and especially for the vendors selling the equipment, that training comes as an afterthought, not as a key deliverable in the bid process. The Transportation Learning Center worked with a wide range of transit rail subject matter experts to develop a 2014 study on “Establishing a National Transit Industry Rail Vehicle Technician Qualification Program Building for Success. To quote directly from the study:

OEM-provided training that comes packaged with new capital equipment is an important source of training, but it can fall short of the training needs of agencies for this new equipment. In a 2012 survey conducted by the Transportation Learning Center, SMEs on the National Rail Vehicle Training Standards Committee identified 50 distinct training areas on which OEMs provide training materials. The named OEMs include leading vendors in the industry. In 35 (70 percent) of these areas, the SMEs rated OEM training materials as poor or fair. Among the topics covered by the OEM training materials, rail vehicle troubleshooting and communications were found to be the most problematic. Not one subject area had an average score that put it in the “Very Good” Category across all vendors.

Anecdotally, some “training” consists of OEM sales personnel coming to tout how great their equipment is. That is an extreme example, but it happens. Training from the vendor more often is developed late without much thought on how to deliver it to people charged with doing the actual work. Frontline technicians then sit through a course written by an engineer that might—or might not—work for other engineers. Another common problem is that even if the vendor training is excellent, it’s not timely. Technicians get good background on equipment that’s covered by an extended warranty. They won’t touch that equipment for five years. Can Congress cut through this thick underbrush of problems with OEM-training? Once again, there could be a substantial role for a frontline workforce center to conduct more research like the example from the TCRP Rail Car study. On capital purchases, a number of agencies have established best practice procurement where representatives of the maintenance and operator workforce have a direct voice in design. Frontline workforce representatives could help develop guidelines in the original bid for what OEM training needs to include. The American Public Transportation Association has developed detailed industry-standard recommended practices for what constitutes good training in most technical areas. OEM’s might be required to identify how the training on the new equipment they are providing relates to the recommended practices for training in rail or bus maintenance.

So far have this note has addressed some core mandates and potential benefits of a resource center focused on the frontline workforce. Let me elaborate a bit more on some key functions for such a center:

- Promoting apprenticeship in public transportation. In recent years, apprenticeship has won bipartisan support in Congress and the strong backing of successive Administrations of different parties. Quite simply, apprenticeship combines technical learning in a classroom setting with a lot of structured on the job learning. Transit needs to adopt and adapt apprenticeship to meet its need to upgrade current workers and to recruit a new generation.
- Supporting agencies and local unions, particularly with “Train the Trainer” and “Train the Mentor” programs. Mentoring provides the basis for structured on

the job learning. Workers who have mastered the skills teach those willing to learn. A frontline workforce center can develop effective training to help those mentors communicate more effectively. Similarly, very experienced technical experts may be ready and willing to become technical trainers. An intensive train the trainer program can give those works the skills to come into the classroom ready to help working adults learn.

- Broadening the reach of transit recruitment. By maintaining strong ties to Career Technical Education programs, programs like Job Corps, Tradeswomen networks and community-based training providers, a national frontline workforce training center can help the transit industry reach well-qualified candidates for jobs who might not otherwise be considered.
- Creating and sustaining cross site interaction of frontline subject matter experts, especially for developing strong training materials. Working with multiple agencies and unions, a frontline workforce center can create and update excellent, classroom-ready training materials in a range of technical areas.
- Documenting the return on investment for good training. Like most employers, transit managers tend to see training as a cost. It's really an investment that can pay for itself many times over. A well-resourced frontline workforce center can do the needed legwork and analysis to make this case.
- Sharing current best practices in training. Surprisingly, there is too little of this in transit now. Part of the problem grows from the fact that most cross-site sharing in the industry occurs among senior managers and doesn't involve frontline workers. By creating and funding a center that functions like NTI but with a focus on frontline workers, that dynamic starts to change. TCRP in a two-volume study released in 2018 (Guide To Developing Best Practices and Sharing Resources for Transit Technical Training) documented the lack of sustainable work in developing and sharing best practices. On a level of small but crucial detail, this two-volume study noted the lack of an institution capable of maintaining and curating good training material on a shared internet platform. That finding alone provides an adequate case for the creation of a frontline workforce center.

In summary, I oppose the idea of a mandated training set-aside, and I favor increasing from 0.5 to 5 percent the funds that can be used flexibly from capital funds to support workforce development. I propose that Congress insist that FTA include both data collection and direct accountability from agencies on workforce needs as part of its ongoing oversight and monitoring of transit agencies. That oversight will ensure that needed training occurs regularly. Finally, I urge an authorization and appropriation for a resource center for the frontline workforce funded at a level equal to the National Transit Institute.

In my original testimony and in response to these questions, I have made specific reference to studies published by the Transit Cooperative Research Program (TCRP) and to one specific study the Transportation Learning Center did on behalf of the Leadership Conference on Human and Civil Rights Education Fund. I am including here the Transportation Learning Center paper and a few TCRP studies relevant to the topics covered with a brief explanation of the study.

National Academies of Sciences, Engineering, and Medicine 2005. A Guidebook for Developing and Sharing Transit Bus Maintenance Practices. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13562>.

Transportation Learning Center 2013. Pathways to Equity: Effective Transportation Career Partnerships. http://www.transportcenter.org/images/uploads/publications/LCCHR_FINAL112013.pdf

This report focuses on two local case profiles for transit Career Pathways: a Project Labor Agreement in Los Angeles providing expanded access to jobs and training for public transportation capital construction, and a youth Career Pathways partnership in Philadelphia linking career and technical education with future transit careers. Both of these models, if taken to scale in the transit industry, can have positive impacts, locally and nationally, for improving access to family-sustaining careers and training and for improving educational outcomes for disadvantaged groups—urban low-income and minority groups as well as women—who have previously been under-represented in these occupations.

National Academies of Sciences, Engineering, and Medicine 2013. Building a Sustainable Workforce in the Public Transportation Industry—A Systems Approach. Washington, DC: The National Academies Press. <https://doi.org/10.17226/22489>.

National Academies of Sciences, Engineering, and Medicine 2014. Establishing a National Transit Industry Rail Vehicle Technician Qualification Program—Building

for Success. Washington, DC: The National Academies Press. <https://doi.org/10.17226/22346>.

National Academies of Sciences, Engineering, and Medicine. 2003. The Transportation Workforce Challenge: Recruiting, Training, and Retaining Qualified Workers for Transportation and Transit Agencies—Special Report 275. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10764>.

National Academies of Sciences, Engineering, and Medicine 2018. Transit Technical Training, Volume 1: Guide to Applying Best Practices and Sharing Resources. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25157>.

National Academies of Sciences, Engineering, and Medicine. 2018. Transit Technical Training, Volume 2: Guide to Overcoming Barriers to Implementing Best and Innovative Training. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25158>.

National Academies of Sciences, Engineering, and Medicine 2002. Training for On-Board Bus Electronics, A Synthesis of Transit Practice. TCRP Synthesis 44. Washington, D.C.: National Academy Press. http://onlinepubs.trb.org/onlinepubs/tcrp_syn_44.pdf

QUESTIONS FROM HON. PETER A. DEFazio FOR THERESE W. McMILLAN

Federal-State-Local Partnership

Question 1: Ms. McMillan, as Executive Director of a transportation commission overseeing seven million residents in nine counties, you have a unique perspective on the need for Federal investment in transportation and the Federal-State-local partnership.

Can you describe for this Committee briefly how MTC accesses Federal dollars? What portions of the Federal-aid highway and transit program, do you have access to, and do you get the funds directly or does it flow through the State?

ANSWER. The Metropolitan Transportation Commission (MTC), the San Francisco Bay Area's federally designated metropolitan planning organization (MPO), invests around \$180 million in surface transportation block grant program (or STP, as we continue to call it in our region) and congestion mitigation and air quality improvement program (CMAQ) funding each year. In California, direct suballocation to MPOs of the population-based STP funds (23 USC 133 (d)) and CMAQ funds are provided for in state law. While these funds technically remain with the state department of transportation, rather than being formally transferred to the MPOs, the MPOs have full control over the expenditure of the funds, including establishing the criteria for how we distribute the funding. Because the funds are distributed at the metro area level, we are able to invest these funds to provide innovative regional solutions that span jurisdictional boundaries. Projects such as the Clipper card (our multioperator transit-fare payment card) or our Bay Bridge Forward initiative (an effort to relieve congestion and transit crowding in the San Francisco-Oakland Bay Bridge corridor) are harder to pay for with funds that are awarded to specific transit operators or to local jurisdictions for specific projects (if voter approved) or for mode-siloed investments. This regional perspective also helps us prioritize funding for local projects that are consistent with regionwide goals, including our federal performance goals.

MTC also works with the Bay Area's 23 transit operators to identify our region's federal transit program spending priorities.¹ MTC is the designated recipient of the Federal Transit Administration (FTA) Section 5307 Urbanized Area, Section 3357 State of Good Repair and Section 5339 Bus and Bus Facilities formula funds for our region's large urbanized areas. The California Department of Transportation (Caltrans) has further authorized MTC to select projects and recommend funding allocations for our region's small urbanized areas' Section 5307 and 5339 funds and for the Section 5311 Rural Area Formula programs. MTC works cooperatively with our region's transit operators, cities, counties and Caltrans to establish transit capital project priorities and to fund those priority projects. As an example, the region is currently experiencing a time of major reinvestment with the replacement of the BART car fleet. MTC, working with our regional and federal partners, developed a funding plan using our federal transit dollars to deliver this \$2.6 billion project.

Additionally, federal metropolitan transportation planning funds are allocated by the state to MTC to fund our federally mandated metropolitan transportation planning activities.

¹There are 25 transit operators in the Bay Area, 23 of which are FTA grantees. MTC works with those 23 FTA grantees to identify our region's federal transit program spending priorities.

Resiliency

Question 2: Ms. McMillan, your testimony encourages us to prioritize resiliency of our infrastructure as we begin consideration of a new surface transportation bill.

Do you feel that the current Federal approach under the FAST Act allows for prioritization of resiliency? What has the Federal government done well in encouraging resiliency, and what can we improve upon?

ANSWER. No, the FAST Act does not provide states and regions with sufficient resources to both invest in the longstanding federal priorities of state of good repair and improved mobility while also adapting our transportation assets and services to be more resilient to extreme weather and a changing climate. The core FAST Act highway and transit programs are structured to support important national performance goals such as improved safety and infrastructure condition, congestion reduction, and economic vitality. While many resiliency improvements are eligible under the core programs, the current performance-based approach—which MTC has long-supported—encourages states, locals and transit agencies to prioritize investments in order to make progress toward those national goals.² Even with a strong local partnership—in the Bay Area we match our FAST Act funds 9-to-1 with state and local dollars—adapting our infrastructure to a changing climate in addition to investing in the above-mentioned priorities will require significant resources that simply are not available at the scale of the investment authorized in the FAST Act. For example, MTC estimates that at the current scale of investment, the Bay Area would receive nearly \$30 billion in federal transportation funds between 2016 and 2040. Preliminary cost estimates for one regional adaptation priority—the 20-mile State Route 37 corridor that, as I referenced in my testimony, is highly vulnerable to complete inundation due to sea level rise—are upwards of \$5 billion.

We encourage the committee to create a new flexible program that will make our transportation networks resilient in the face of a changing climate. Fifty percent of the funding should flow via formula to metropolitan areas—our nation’s population and job centers—which house much of the nation’s critical at-risk infrastructure. Discretionary grant funding (the remaining 50 percent of the funds) should additionally support states, local governments, transit agencies and ports in efforts to upgrade freight corridors and other critical infrastructure. The discretionary component should have a 25 percent rural set-aside to ensure such communities have access to program funds. To be most effective, the program should be mode-neutral and have broad project eligibility so that states and regions can prioritize the road, bridge, bus, rail or other resiliency upgrades that are most critical to keep their economies moving.

In lieu of a new program, the committee could also prioritize resiliency through substantially growing the existing FAST Act programs—including the Surface Transportation Block Grant program; the Capital Investment Grant (CIG) program, the federal transit urban, rural and state of good repair formula programs; and the freight formula and discretionary programs—and revising programs like CIG so that transit capital investments intended primary to improve resiliency are eligible for grant funding.

From a planning perspective, the FAST Act took a step in the right direction by expanding the scope of state and metropolitan long range plans to include resiliency. We would also like to see an increase in planning funds to help regions and states better address complexities around climate change. Increased planning funding also will support states and MPOs in fulfilling current performance-based planning mandates, which were added in the 2012 transportation authorization without a commensurate increase in planning resources. Importantly, we do not recommend new mandates with respect to resiliency planning. The current federal planning framework enables planners to innovate and determine precisely how to incorporate resiliency considerations and other uncertainties, such as those posed by transformative transportation technologies, into transportation planning and near-term investment decisions.

²We consider the following to be the core highway and transit programs: the Surface Transportation Block Grant Program, the Congestion Mitigation and Air Quality Improvement Program, the Highway Safety Improvement Program, the National Highway Performance Program, the National Highway Freight formula and discretionary programs, the Capital Investment Grant Program, the 5307 and 5311 Urban and Rural transit formula programs, the 5337 State of Good Repair Program, the 5339 Bus and Bus Facilities Program and the 5310 Enhanced Mobility for Seniors and Individuals with Disabilities Program. While not part of the core program, the FAST Act structure specifically supports disaster recovery through the highway and transit emergency relief programs. We are encouraged that these programs may be used, to a limited extent, to harden infrastructure. However, resiliency improvements are only eligible post-disaster—dedicated resources are not broadly available to proactively adapt our nation’s infrastructure to a changing climate.

QUESTIONS FROM HON. PETER A. DEFazio FOR AL STANLEY

Workforce Pilot Program

Question 1: Mr. Stanley, you mention in your testimony that AGC has partnered with the Federal Highway Administration and AASHTO on a highway construction worker pilot program.

Can you provide additional details about the program and elaborate on what you hope will come from the pilot program?

ANSWER. For the past two years, AGC has worked with the Federal Highway Administration (FHWA), AASHTO, state DOTs and the Department of Labor's Education and Training Administration on a highway construction worker pilot program to identify ways to interest workers in careers in highway construction. The idea grew out of discussions in the AASHTO-AGC-ARTBA Joint Committee on construction industry work force needs. AGC members routinely identify worker recruitment, training and placement as a significant challenge. The Joint Committee noted that the cost and inefficiencies of these continuing workforce challenges compromise highway project delivery and efforts to provide for a safe and effective highway system. The pilot was established to address this serious and on-going workforce development issue in the highway construction industry.

Six cities and six states were selected to examine these issues from urban—rural, union-non-union perspectives. In these locations the different stakeholders looked at available resources including training, outreach and placement programs to determine where there were gaps and how industry and the public sector could work together to fill these gaps. The coordination proved very successful. What was key was the realization that there was not one solution but many different approaches. The two-year pilot program effort ended on December 31, 2018. A "Playbook" was developed to identify best practices and successful strategies that AGC chapters and other industry groups can take to implement a program. Follow-on webinars are also being planned to continue the progress and highlight accomplishments. In some most cases coordination was the key to success. A well-attended educational session was held during AGC's 2019 convention to present the results and lessons learned.

FHWA was able to make some grant funds available to support these pilots. This financial support was used to take good ideas and make them more widely available. For example, through this initiative AGC's Pittsburgh area chapter (Contractors Association of Western Pennsylvania) received grant funding to make its Future Road Builders app more generally available to others in the industry with modifications to make it applicable to other areas.

The pilot is now transitioning to a Highway Construction Workforce Partnership (HCWP) that will encourage other city and state highway industry and workforce system partners to work together to identify, train and place individuals into highway construction jobs. The "Playbook" will be used as the centerpiece for further outreach. FHWA has also developed a "Roads to Your Future" website to house all of the resources.

QUESTIONS FROM HON. MARK MEADOWS FOR AL STANLEY

Question 2: The Federal Highway Administration (FHWA) is currently considering reforms which would provide greater flexibility to States to use propriety or patented materials in Federal-aid highway projects.

What is your experience with FHWA's patented and proprietary products rule and what, if any, reforms would you recommend?

ANSWER. In comments to the Federal Highway Administration (attached), AGC expressed contractors' strong opposition to its proposal to eliminate or significantly modify the long-standing restriction prohibiting states from specifying the use of proprietary or patented products in federal-aid highway contracts. AGC believes that the existing policy has worked well over time by providing a balanced approach ensuring competition while creating a process for patented and proprietary products to be used. AGC maintains that the arguments put forth to make this drastic change are insufficient to justify this action.

To date, there has been no lack of new materials, products or processes used in highway and transportation construction. The history of the highway program is replete with examples of new and innovative products being adopted. For example, significant advancements have been made in pavement technology—both in the materials and placement processes that have made pavements smoother, longer lasting and more skid resistant. Bridge construction techniques and the technology incorporated into these structures has made significant paradigm shifts over the years in how bridges are built. Many of these changes started out as proprietary products or processes. Materials such as composites, disc bearings for bridges, movable traffic barriers, high visibility signage and breakaway sign posts are all examples of good

ideas that have been adopted and brought into the mainstream. All this occurred with the current rule in place.

AGC is very concerned that altering the rule will have a detrimental impact on competition by allowing suppliers of patented products to determine the costs that State DOTs pay for products rather than through the open competitive bid system. AGC is also concerned that altering the rule could allow suppliers of proprietary products to determine which company is ultimately the low bidder by deciding which contractors to provide quotes and at what price. AGC also believes the proposed rule change gives an advantage to product suppliers with the most aggressive sales force or political influence without necessarily having the best product.

Numerous state departments of transportation weighed in on the rule both for and against it. AGC notes that state Departments of transportation are mixed in their response to this proposed change. Because of the disparity in their members opinions on the change, AASHTO responded to the proposed rule change by pointing out some of the problems with the rule change without taking a position.

AGC's full set of comments are attached for your information and review.

ATTACHMENT—COMMENTS TO THE FEDERAL HIGHWAY ADMINISTRATION

JANUARY 14, 2019.

Mr. JOHN HUYER

Federal Highway Administration, U.S. Department of Transportation, 1200 New Jersey Ave., SE, Washington, DC 20590

RE: FHWA Docket No. FHWA-2018-0036 "Construction and Maintenance—Promoting Innovation in Use of Patented and Proprietary Products"

DEAR MR. HUYER:

The Associated General Contractors of America (AGC) is a national organization representing more than 27,000 businesses involved in every aspect of construction activity in all 50 states, Puerto Rico and Washington, D.C. AGC members perform contracts for the Federal Highway Administration (FHWA), state departments of transportation (DOTs), local agencies and other entities that receive funding through the Federal-aid highway program and are therefore directly impacted by FHWA's policy on the Use of Patented and Proprietary Products.

EXECUTIVE SUMMARY

Thank you for the opportunity to provide the contractor's point of view on the Notice of Proposed Rulemaking (NPRM) "Construction and Maintenance—Promoting Innovation in Use of Patented and Proprietary Products." AGC strongly opposes FHWA's proposal to rescind or significantly modify its long standing and effective policy on the use of patented and proprietary products on Federal-aid highway projects as detailed in 23 CFR 635.41. AGC recommends that the current regulation not be changed and that it be retained "as is."

The arguments put forth in this NPRM to make this drastic change are insufficient to justify this action. The petitioners assert, without providing any data, that the rule has somehow stifled the introduction of new and innovative products. AGC believes that the existing policy is a balanced approach to ensuring competition while creating a process for patented and proprietary products to be used.

AGC is very concerned that altering the rule will have a detrimental impact on competition by allowing suppliers of patented products to determine the costs that State DOTs pay for products rather than through the open competitive bid system. AGC is also concerned that altering the rule could allow suppliers of proprietary products to determine which company is ultimately the low bidder by deciding which contractors to provide quotes and at what price. AGC also believes the proposed rule change gives an advantage to product suppliers with the most aggressive sales force or political influence without necessarily having the best product.

RULE HAS BEEN EFFECTIVE

For almost 70 years, the Federal-aid highway program has successfully delivered transportation improvement projects that are of the highest quality and at the best cost primarily through the competitive bidding/competitive proposal process. The Federal-aid Highway Act directs that the Transportation Secretary shall require such plans and specifications and such methods of bidding as shall be effective in securing competition. This system has served the nation and taxpayers well.

The current proprietary product rule is part of the competitive bidding requirements. It is based on the concept that allowing bidders the maximum flexibility to select materials and/or products to meet the contract specifications will result in the lowest bid prices for the project. Limiting the range of possible materials/products

will result in higher bid prices. Through the competitive bid process contractors are incentivized to look for improvements in means, methods, equipment, materials and other factors that make their business operations more cost effective than their competitors. Limiting competition for products and processes in the bidding process will undermine the competitive bid system and limit the use of alternative and equally effective products from being used on specific projects.

To date, there has not been a lack of new materials, products or processes used in highway and transportation construction. The history of the highway program is replete with examples of new and innovative products being adopted. For example, significant advancements have been made in pavement technology—both in the materials and placement processes that have made pavements smoother, longer lasting and more skid resistant. Bridge construction techniques and the technology incorporated into these structures has made significant paradigm shifts over the years in how bridges are built. Many of these changes started out as proprietary products or processes. Materials such as composites, disc bearings for bridges, movable traffic barriers, high visibility signage and breakaway sign posts are all examples of good ideas that have been adopted and brought into the mainstream. All this occurred with the current rule in place.

While the current rule prohibits the use of proprietary products it does permit an exception which allows for the use of such products. In fact, proprietary products are used widely on Federal-aid Highway projects using exceptions permitted by the rule. States can use proprietary products: (1) if they are purchased through competitive bidding with equally suitable unpatented items; (2) if a State certifies either that such proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate exists; or (3) if a proprietary item is used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes.

In addition, States may specify a proprietary product by demonstrating that there is a public interest served by using that product. Many States have been delegated the authority to approve public interest findings without the direct involvement of FHWA. States have a common understanding of the certification required for a public interest finding and have developed streamlined implementation processes to allow the determinations to move forward expeditiously.

States may also choose to use a proprietary product and not be reimbursed by FHWA for the cost of that product, instead paying with state dollars.

This exception process that FHWA has adopted over the years has worked well and not limited the development of new materials, equipment or methods, or discouraged innovative utilization of them. New materials, equipment or methods that show sufficient promise may be (and have been) approved for inclusion and evaluated as appropriate pursuant to 23 CFR 635.411. Also, in accordance with 23 CFR 635.411, State DOTs may specify a higher standard of performance (i.e., above what would normally be set) on certain construction projects even though it would result in a single product being available. The established Approved Product Lists and Qualified Products Lists allows DOTs to use products that are demonstrated to be better or have specific properties that DOTs desire.

CASE FOR CHANGE HAS NOT BEEN MADE:

Petitioners make the argument that the rule is a relic of the past that was adopted in 1916 and needs to be modernized. However, the longevity of the rule's life does not necessarily undermine its reasonableness and effectiveness. As FHWA points out in the NPRM, "Over the years, the regulation was clarified through various policy and guidance memoranda, and subsequent Federal Register Notices, including 25 FR 4162 published on May 11, 1960." Most recently, FHWA looked at its rule and issued new guidance for the use of patented and proprietary products in 2006 and again in 2011 to further clarify the steps that DOTs can take to use these products.

AGC maintains that these requirements have not stifled innovation in products, equipment, processes or methods. The rule provides a good balance that allows new products and processes to be adopted while at the same time protecting the competitive bidding process, eliminating undue influence over state specification writers and providing the most cost-effective delivery of the final transportation construction project.

Petitioners also argue that the existing rule prevents safer and innovative products from being used. It then goes on to cite a list of products that are currently being widely used in highway construction applications. As their own list shows, safer and innovative products have been approved and are being used under the current rule. While the time line for adoption may not provide manufacturers with

the return on investment as quickly as desired it nevertheless ensures that new products and processes receive the scrutiny and testing necessary to determine how effective they will be long term. AGC recognizes that there needs to be an opportunity for new products/processes to come into the marketplace. While petitioners claim that the current rule stifles this from happening, AGC maintains that the existing process for adopting new materials and processes has been effective.

PROBLEMS WITH SUCH A RADICAL CHANGE:

AGC believes the negatives far outweigh the positives associated with eliminating the current rule, which has proven efficient, effective and flexible over the years. We outline below a host of problems that can come from such a radical change.

PROBLEM: Suppliers of patented products will determine the costs that State DOTs will pay for products rather than through the open competitive bid system

Requiring use of proprietary and/or patented products will increase costs to State DOTs. Just as prescription drug producers have exponentially increased the costs of name-brand medicines over generics, so too would suppliers of their name-brand products specified in Federal-aid highway contracts. While generic drugs have the same chemical makeups, side-effects, and results as the namebrand drugs, they do not have the advertising and sales force budgets the name-brands may have. As a result, patients bear the cost for the marketing of the name-brand when prescribed but would otherwise receive the same medical benefit from generic drugs at a fraction of the cost. The Federal-aid highway program would very likely experience a similar to the name-brand drug impact if this radical change is adopted.

In addition, once a proprietary product is included in state construction specifications they often remain there for years. Since contractors are not able to use an alternative product that has similar characteristics there is no competition for those products or processes and they stifle efforts by other manufacturers to develop a similar and potentially improved product. In this way there is no competition on price and manufacturers can charge what they please. When comparable products can be used, prices remain competitive and innovation is increased due to competition with the proprietary product.

Suppliers are naturally advocates for their products. Suppliers believe them to be the best available and have a strong monetary incentive to get their product specified. The sales force for product suppliers can be very persuasive in convincing state officials responsible for project design to include their product in the specifications. This can create the circumstances for undue pressure on state officials to adopt the proprietary product.

PROBLEM: Eliminating the general prohibition on the use of proprietary products can lead to manipulation in the bidding process.

As noted above, if this radical change is adopted, a significant shift in the marketplace could occur where suppliers would be able to dictate not only price, but competition within the bidding process. How this would occur is explained below:

PROBLEM: Federal-aid highway contractors may not have equal access to specified proprietary products

Suppliers can require that contractors sign exclusivity contracts, be licensed by the supplier or pay royalty fees to the supplier to be able to purchase or use their proprietary products. Such arrangements would enable one or a limited pool of contractors access to the supplier's proprietary product. As a result, a small and limited number of contractors—where such a product is specified in a Federal-aid highway contract—would be able to bid on the contract. This would restrict competition and increase costs to State DOTs.

PROBLEM: Supplier quotes on proprietary products may not be competitive for all bidders

Suppliers do not necessarily provide the same price quote for their products equally to all potential purchasers. For a variety of reasons suppliers may choose to favor one contractor over another by providing better pricing. In doing so, some contractors may be priced out of the market, particularly if the proprietary product is a significant part of the overall contract value and the price quoted is significantly higher than the price quoted to another contractor. When the product is proprietary the contractor has no other source to get a more competitive quote. In this way the product supplier can become the determining factor in which contractor is the low bidder rather than the competitive bid system.

PROBLEM: The proprietary product may not be available in the quantities needed

When new products come to the marketplace the necessary manufacturing infrastructure is not always in place to provide the product in the quantities needed to meet market demand. This can be a significant problem when demand for the product increases substantially because a product manufacturer convinces a major client, like a state DOT, to use their product exclusively. This can have a negative impact on completion time for transportation projects and increase the cost.

PROBLEM: The proprietary product may not stand up to the test of time

There needs to be some assurance for states and contractors that new and proprietary products have been field tested and are judged to be of an acceptable quality and longevity and that they have some value added to the transportation system. This happens best through the existing process rather than subjecting public officials to the influence of product sales people behind closed doors.

The state certification process should be open and transparent and based on the documented analysis and professional judgment of qualified state transportation officials that the patented or proprietary item will contribute to the accomplishment of one or more of the goals set forth in the state's strategic highway improvement plan.

PROBLEM: Liability for the use of proprietary products in specifications is uncertain

If or when a specified proprietary product fails, what entity is liable for that failure may be unclear. Assuming the contractor incorporates the proprietary product into the project properly, subject to industry standards and the manufacturer's specifications, it is unlikely that the contractor would be liable. The issue would be if the State DOT fails to properly test and examine the product—as is done under the current process and rule. The State DOT could be subject to gross negligence if it does not undertake the same rigorous process for vetting such products use as a matter of public safety. In addition, determining who is at fault can lead to disputes and possibly litigation.

OPTION ONE NOT ACCEPTABLE

FHWA also proposes an alternative option in the NPRM that would be short of total repeal. Option one suggests allowing states to specify proprietary products but require each state DOT to: (1) Implement procedures and specifications that provide for fair, open, and transparent competition awarded only by contract to the lowest responsive bid. It is unclear how this option would improve the existing process for allowing states to specify proprietary products. AGC believes this option muddles the existing successful process. Under this option, instead of having one well tested and proven process used by all states to justify the use of a proprietary product, each state would instead set up its own process and FHWA would have to make a state-by-state determination as to whether these new, undefined standards are being met. This creates confusion and uncertainty nationwide for manufacturers and contractors. AGC believes that this option should also be rejected.

CONCLUSION:

Competition requirements in the Federal-aid highway program have served states, material suppliers, product manufacturers, contractors and, most importantly, taxpayers well over the years and should remain an important factor in the program moving forward. AGC believes that the current regulation on patented and proprietary products as implemented provides a good balance allowing new products to be utilized while maintaining strong support for competition in the delivery of construction projects.

AGC strongly encourages FHWA to leave the current rule in place.

Sincerely,

BRIAN DEERY

Senior Director, Highway and Transportation Division, The Associated General Contractors of America

QUESTIONS FROM HON. PETER A. DEFazio FOR MIKE TERRY

Account Based Fare System

Question 1: Mr. Terry, your testimony talks about IndyGo's efforts to build an account based fare system allowing for seamless connections to other modes.

How much is that costing IndyGo to set up an account based fare system?

ANSWER. Flowbird's contract to modernize our fare system is \$4.3 million. The new system will allow our users to utilize mobile devices and allows IndyGo to implement daily and weekly fare capping, which will improve our customer experience.

This amount includes capital investments that are necessary to modernize our system, such as ticket vending machines. Based on the improved customer experience, including fare capping, IndyGo considers the modernized fare system a wise investment.

Question 2: Can you elaborate on the impact this will have on riders, congestion, and reduced emissions?

ANSWER. Ease of ticketing, purchase, transfers, and cost of frequent riding are all variables that impact ridership. Introducing fare capping allows current and future riders to pay the best value for their trip-nature, and IndyGo anticipates this will increase ridership (both new riders and more frequent). Additionally, the account-based system allows more seamless partnerships with other agencies, organizations, universities, social services, large employers, and schools: All improving rider experience, building a generation of future riders, reducing single occupancy vehicle (SOV) miles driven, and allowing an integration with other mobility means.

Broadly incorporating enhancements to the fare collection system throughout the IndyGo service area will allow IndyGo to reduce cash collection on-board, offering air quality benefits that are twofold: direct and indirect. Direct air quality benefits are achieved through shorter dwell times which reduces fuel consumption on diesel buses, and thus reduced emissions from IndyGo vehicles. Indirect air quality benefits will be achieved through attracting new ridership to IndyGo's local routes, thus reducing (SOV) trips and associated emissions.

Electric Buses

Question 3: Mr. Terry, your testimony mentions IndyGo's goal of replacing all your diesel buses with electric buses in the next 14 years.

What are the obstacles to accomplishing that goal?

ANSWER. New technology comes with stops and start. Electric vehicles provide an overall reduction in operating costs over the lifetime of the vehicle, but the upfront costs can be an obstacle. When we began planning to replace our diesel vehicles with electric vehicles, the two initial concerns were the upfront capital costs of the vehicles and the cost of the charging infrastructure. The commitment of Indianapolis residents to the Marion County Transit Plan allows us to implement the vision for an all-electric fleet. However, reductions in funding commitments from our local, state, or federal sources would be a potential obstacle.

Beyond capital needs, the other obstacles we face include training our fleet maintenance staff to work on all-electric vehicles, including special training to be safe around high-voltage equipment. Additionally, we are working closely with vendors to address concerns or issues that may arise (range, heating/cooling). Balancing and transitioning vehicle maintenance personnel with diesel training and experience to a workforce of trained and experienced high voltage technicians to maintain vehicles in a state of good repair and performance will be challenging. In the full employment market that we are currently experiencing in our region, recruiting, training and retaining experienced and qualified employees will continue to be a barrier to our operation.

A final challenge is the length of time between ordering a vehicle and placing that vehicle in revenue service—an 18-month delay. While IndyGo and other transit agencies plan for this reality, an increase in orders for electric vehicle manufacturers may create backlogs, further delaying the vehicles.

IndyGo is committed to reducing the negative impact on the environment from diesel engines and the use of fossil fuels by transitioning to a fully electric fleet.

Question 4: How much capital will these bus purchases require and do you anticipate the current Federal No/Low bus program will be able to fund your request and every other agency trying to achieve a similar goal?

ANSWER. Each 40-foot electric vehicle costs approximately \$850,000. IndyGo's fleet replacement schedule is one-twelfth of the fleet per year. With 160 vehicles, IndyGo anticipates purchasing approximately 12 vehicles a year, at a total expense of \$10.2 million. IndyGo funds vehicle purchases from a combination of sources: FTA Section 5307 formula grants; FTA Section 5339 competitive grant funding, Surface Transportation Block Grant funding through the Indianapolis Metropolitan Planning Organization (MPO), and local sources, including bonds.

Low/No funding is a vital program for transit agencies to shift their fleets to hybrid or electric vehicles. However, even fully funded, the program is not adequate to meet the needs of the nation's transit providers. As evidence, the FY2018 Low/No program received 149 proposals from 42 states requesting \$557 million in Federal funds; but only \$85 million was available to award. As additional manufacturers recognize the ethical and business sense of electric vehicles and transit agencies be-

come more comfortable with electric vehicles in their fleet, we can only assume that this demand will increase.

Question 5: As your electric vehicle fleet increases, will your charging needs require higher capacity electrical infrastructure and who pays for that infrastructure?

ANSWER. With the purchase of battery electric buses for the rapid transit line, we increased our electrical infrastructure on site. This was partially funded through a competitive FTA State of Good Repair grant award. Moving forward, we will continue to seek federal assistance to support necessary infrastructure additions to meet our goal of electrification. We will also engage local public, private, and philanthropic partners in meeting electric needs.

Question 6: As your electric vehicle fleet increases, could IndyGo benefit from technical assistance to help determine how to restructure routes to optimize them for electric buses and their charging needs?

ANSWER. As electric vehicle technology for transit buses accelerates, we believe that the range and reliability will improve, limiting the need to assign or design around electric vehicles. Having resources available to support transit system planning would be helpful and especially beneficial learning from subject matter experts in electric vehicle technology and network design. With the variety of range capabilities for electric vehicles, battery and charging options, and transit network topography, climate and operational plans, utilizing technical expertise and experience would be very helpful.

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